Bayside Council

Transport Strategy

80019069

Prepared for
Bayside Council

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Cardno®

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Glossary

Some terms used in this report may not be familiar to some people. These are listed as follows:

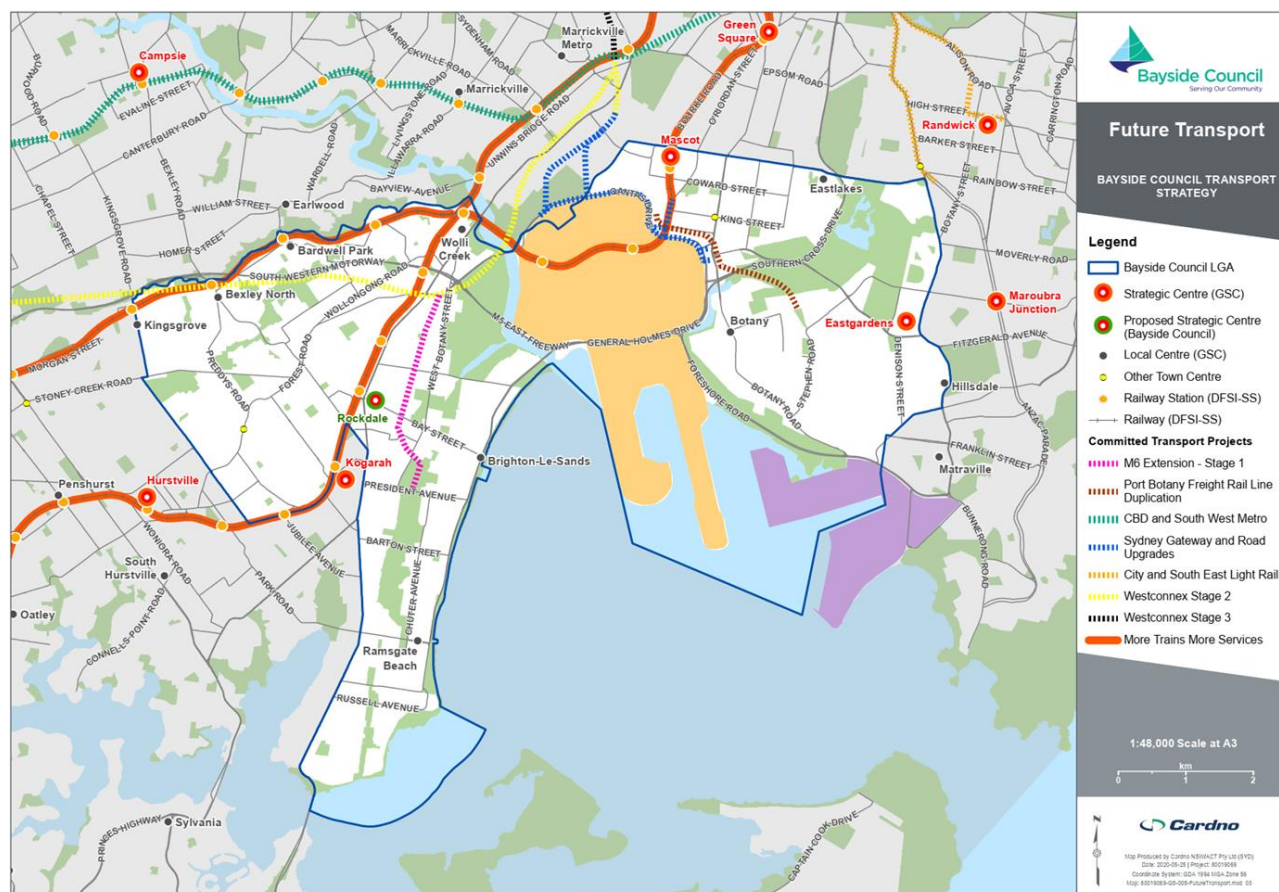| Term/ acronym	Description
ABS	Australian Bureau of Statistics. https://www.abs.gov.au
Active transport	Transport modes powered by human movement, generally walking and cycling.
FT56	Future Transport Strategy 2056, Transport for NSW statewide strategy. View at https://future.transport.nsw.gov.au/plans/future-transport-strategy
GIS	Geographic Information System. These generally refer to mapping of data to communicate geographical information.
HTS	Household Travel Survey. View at: https://www.transport.nsw.gov.au/data-and-research/passenger-travel/surveys/household-travel-survey-hts
LGA	Local Government Area, the administrative geographical area.
LSPS	Local Strategic Planning Statement. Bayside's LSPS is available online. https://www.bayside.nsw.gov.au/services/development-construction/planning-our-city/plans-and-strategies/bayside-local-strategic
MaaS	Mobility as a Service (Mode agnostic) Users trip plan by destination and options are outlined for selection. Refer to FT56 for more information.
Micro-mobility	Small generally one-person devices for personal transport, generally refers to electric powered skateboards, scooters, bicycles, hoverboards. Refer to the following link: https://www2.deloitte.com/us/en/insights/focus/future-of-mobility/micro-mobility-is-the-future-of-urban-transportation.html
PAMP	Pedestrian Access and Mobility Plan.
SA#	Statistical Area as defined by the ABS. https://www.abs.gov.au/websitedbs/D3310114.nsf/home/Australian+Statistical+Geography+Standard+(ASGS)
TDM	Travel Demand Management - transfer peak trips to lower demand times to smooth out demand on the transport network.
TZ	Travel Zone, geographic areas defined by Transport for NSW for transport modelling and analysis. https://opendata.transport.nsw.gov.au/dataset/travel-zones-2016

Executive Summary

Purpose

The Transport Strategy provides policy and directives for Bayside Council to enhance the existing transport network and plan for increased demand.

The strategy outlines the existing demographics, forecast growth, travel demand, existing and planned land uses and relates this to the existing transport network, planned interventions and recommendations formed in this study.

The recommendations are developed through consultation with the community and stakeholders. Where conflicts in community desires exist, these are explained and solutions that provide equitable, sustainable, and affordable access for people and goods are recommended.

Study area

The strategy includes the entire Bayside LGA, shown below, while considering land uses and integrating with the broader region, both existing and planned initiatives.

Transport vision

The transport vision for Bayside Council is:

A just, reliable, and resilient transport system which supports active, healthy lifestyles and provides 30-minute access to economic, social, recreational and cultural opportunities for everyone.

The following expands on key words in the vision:

> **Just** refers to equality of access for people of all abilities, locations and demographics.

> **Reliable** means that infrastructure and services will provide a consistent experience.

> **Resilient** means that the transport network remains operational in a range of weather conditions, will operate through the effects of climate change and can overcome potential issues.

> Supporting **active, healthy lifestyles** means that the transport network offers quality options for walking and cycling.

> **30-minute** (by active or public transport) concept is the benchmark indicator for successfully integrated land use and transport planning, where strategic and local centres are accessible for all residents.

The transport vision guides the recommendations of the Transport Strategy.

Directions

The directions outline key ways to improve the transport network. These include

> Connected and Integrated;

> Efficient;

> Active and Vibrant;

> Inclusive and Safe; and

> Sustainable and Innovative.

Principles

Based on the transport vision and directions, a set of guiding principles have been developed that provide focal matters to address. These are:

> Improved road safety;

> Resilient infrastructure;

> Vibrant, activity-filled centres;

> Equitable access to jobs, services, social, recreational and cultural opportunities, and support for social inclusion and community participation;

> Mode shift to sustainable travel;

> Encourage active transport for short trips;

> Less need to own or use privately owned vehicles;

> Collaboration for regional connectivity;

> Frequent, direct, and prioritised public transport;

> Efficient freight movements, separated where possible;

> Connected industrial and urban services lands, with good links to trade gateways and freight routes;

> Capitalise on green space and access to the foreshore;

> Preparedness for emerging transport technologies;

> Parking serves its intended purpose; and

> Land use development is integrated with transport improvements.

Key transport strategies

Bayside's Transport Strategy includes:

> Future transport network;

> Integration with land use and growth:

> Accessibility and safety:

> Emerging technologies; and

> Transport mode strategies

Strategic alignment

The strategy considers and aligns with key state and local strategies and plans. Key strategies include:

> A Metropolis of Three Cities (Greater Sydney Commission, 2018);

> Eastern City District Plan (Greater Sydney Commission, 2018);

> Bayside 2032 – Community Strategic Plan (Bayside Council, 2022);

> Bayside Local Strategic Planning Statement (2020) :

> Future Transport 2056 (Transport for NSW, 2018):

> Greater Sydney Services and Infrastructure Plan (Transport for NSW, 2018);

Consultation

Consultation occurred through community workshops as part of the Local Strategic Planning Statement, key stakeholder workshops, Bayside Council internal review and workshops and public exhibition and comment of the draft report.

Actions

Through consultation, land use and transport analytics are range of transport actions has been developed to improve the network for Bayside's current and future residents, workers and visitors. These are summarised as follows.

Land use integration and funding	
LU1	Plans for redeveloped large sites should have through links, publicly accessible at all times provided for more direct walking and cycling travel.
LU2	Review transport infrastructure funding opportunities for non-residential development.
LU3	Develop an industrial Section 7.11 plan to acknowledge that while industrial employment is low-density, traffic generation is generally high and heavy vehicle transport infrastructure is required.
LU4	Engage with NSW Government in a working group to plan for revitalisation of Princes Highway and The Grand Parade and reduction of speed limits after the M6 Stage 1 Extension opens, in particular in centres planned for residential and employment growth (Arncliffe and Banksia).
LU5	Prioritise new residential and commercial development away from existing and any proposed freight corridors and industrial land uses, protecting existing freight corridors.
LU6	Develop an internal map based portal for all Council staff to provide oversight of integrate planning and capital works, infrastructure and asset management systems so that all staff can identify all existing, imminent and strategically planned works.

Travel demand management	
TDM1	Develop a Travel Plan for all Council employment sites, to identify and communicate sustainable travel choices for staff.
TDM2	Encourage development of Travel Plans for major employers in the LGA such as Sydney Airport, hospitals, education campuses etc., to identify and communicate sustainable travel choices for staff.
TDM3	Develop a Car Share Policy.

Active transport		Public transport		Roads	
AT1	Plan for the active transport bridge linking Wolli Creek train station more directly to the Inner West Council LGA.	PT1	Consider alignment of future mass transit services across the LGA and start discussions with NSW Government on potential station locations, planning for high density and diverse land uses in these areas.	Rd1	Apply new Movement and Place Framework for planning road corridor use in Bayside.
AT2	Review street trees and canopy prioritising the strategic pedestrian and cycling networks to reduce urban heat island effect.	PT2	Advocate for better public transport coverage and frequencies in areas that don't have 30 minute access to a strategic centre across the week.	Rd2	Leverage opportunities identified in the NSW Government's Road Network Plans to achieve the future movement and place categories.
AT3	Endorse the strategic pedestrian and cycling network to connect centres, schools, open space and to integrate with the Green Grid Corridors and neighbouring LGAs .	PT3	Advocate for first and last mile on-demand transport services to connect to key transport interchanges.	Rd3	Work with TFNSW to develop a plan to manage local traffic and limiting unnecessary through traffic arising from major road projects.
AT4	Develop masterplans for the Millstream and Botany Wetlands Corridor, Rockdale Wetlands Corridor and Wolli Creek Regional Park and Bardwell Valley Open Space Corridors to support walking and cycling and to connect communities to green infrastructure.	PT4	Review community transport needs and advocate for on-demand service opportunities for lower demand areas away from high frequency public transport.	Rd4	Investigate the feasibility and funding opportunities for an LGA-wide traffic model to cumulatively assess the impacts of developments and population growth.
AT5	Collaborate with NSW Government on developing a green active transport link along the M6 corridor, reflecting the Green Grid aims, and providing connections to centres and other destinations surrounding the route.	PT5	Investigate new connections from Randwick health precinct to Bayside, reducing the need to route via Sydney CBD.	Rd5	Support opportunities to trial technology that meets transport objectives in the LGA i.e. autonomous vehicles.
		PT6	Advocate for improved mass transit links to Eastgardens..		

Pedestrian		Bicycle and micro mobility.		Bus stops		Bus		Train		Safety		Freight, servicing and deliveries		Car parking	
Ped1	Identify consistent footpath standards for the LGA, specifically adopting wider footpaths along higher demand areas/ routes (i.e. strategic footpath network) to support DDA accessibility and cycling for more user groups, i.e. children.	Bk1	Prepare a Bike Plan to identify a safe, connected network throughout the LGA integrating with neighbouring LGA's and regional links.	BuSt1	Undertake a DDA compliance audit of all bus stops, and prioritise upgrades based on patronage, community consultation and access to nearby destinations.	Bus1	Advocate and provide input for the NSW Governments proposed strategic bus network including dedicated bus lanes for improved reliability.	Train1	Advocate for accessibility upgrades at Banksia, Bardwell Park, Bexley North, and Turrella train stations.	Safe1	Undertake road safety audits in crash cluster locations .	Fr1	Lobby TfNSW to monitor and enforce heavy vehicle ban on Botany Road. I.e. vehicle recognition technology.	CP1	Revise DCP car parking rates to be reflective of sustainability targets and demand based on overall transport connectivity. This should be supported by detailed analytics.
Ped2	Investigate the feasibility and implement the strategic pedestrian network, a larger block/ mesh network that covers the entire LGA.	Bk2	Identify cycling links in the 5 to 10 kilometre catchment of Eastgardens, Kogarah and Mascot strategic centres, aligning with the state government proposed regional bike network.	BuSt2	Investigate funding opportunities for new DDA compliant bus shelters, including tendering to outdoor advertising companies, while retaining functionality for buses, safety, and customer experience.	Bus2	Maintain engagement with TfNSW on their planned changes to bus routes and services.	Train2	Support TfNSW's efforts to implement More Trains, More Services.	Safe2	Review and align speed limits to the movement and place function of a road and the surrounding land uses, including lowering speed limits in areas of high pedestrian demand. Consideration be given to piloting 30km/h roads where appropriate.	Fr2	Advocate for dedicated road freight access from Cooks River Intermodal Terminal as part of WestConnex.	CP2	Review taxi ranks near bus stops and identify which should be removed to improve safety and avoid conflict.
Ped3	Prioritise footpath/ shared path upgrades in the 800 metre catchment of schools.	Bk3	Identify and promote cycling access routes to green space, including Botany Bay foreshore and waterways.	BuSt3	Advocate for real time information displays at key bus stops.	Bus3	Advocate for bus performance studies on key routes to identify priority measures in areas of congestion.	Train3	Advocate for reduction/ removal of Sydney Airport station access fees.	Safe3	Identify High Pedestrian Activity Areas with consideration given to introducing 30km/h zones.	SD1	Identify locations for short-term parking / loading zones in areas of high residential density, to cater for increase in deliveries and ride sharing vehicles.	CP3	Existing car parking in centres is managed to accommodate future increased demands through prioritisation of space through the parking hierarchy.
Ped4	Investigate footpath upgrades connecting to bus stops and program priority works.	Bk4	Host an bi-annual meeting to plan and review regional bicycle network development with Inner West Council, Georges River Council, City of Sydney, Randwick and Sutherland Shire Council (e.g. Southwest Greenway and the Doncaster Avenue cycleway).	BuSt4	Occupation certificates should require relocation/reinstatement of bus stops and other infrastructure that is relocated during construction activities.	Bus4	Advocate for high frequency and direct bus service connecting centres in the eastern and western sides of the LGA e.g. Rockdale to Mascot / Botany.			Safe4	Ensure provisions for pedestrians and bicycles are provided as part of construction activities impacting the transport network in addition to the requirements of TfNSW Traffic control at work sites Technical Manual .	SD2	Review servicing requirements for proposed small developments, to minimise their impact on roads and footpaths.	CP4	Council to gradually implement and maintain a GIS based parking inventory for all on-street and Council owned/ managed off-street car parking areas.
Ped5	Identify locations and investigate for potential pedestrian priority treatments (High Pedestrian Activity Areas, Shared Zones, 40 kilometre or lower speed limit zones). Investigate the feasibility of trials with temporary changes if funding opportunities arise. Consult with community stakeholders on locations and benefits.	Bk5	Work with Transport for NSW to develop the Principle Bicycle Network around Sydney Airport safe links into Sydney Airport from surrounding suburbs into the domestic terminal.	BuSt5	Advocate for bus stop capacity upgrade at Eastgardens interchange.	Bus5	Advocate for a business case to be developed and trials for direct and frequent bus connections between from train stations to centres away from the railway network. I.e. Rockdale to Brighton-le-Sand, San Souci to Kogarah and Ramsgate Beach to Allawah/ Hurstville.			Safe5	Review Taxi ranks near bus stops and identify which should be relocated/removed to improve safety and avoid conflict.	SD3	Support initiatives and technology advances that achieve objectives for first and last mile deliveries in strategic and local centres.	CP5	Introduce an integrated residential permit scheme and price permits at a rate consistent with the opportunity cost of parking infrastructure, with a transition period to support behaviour change by residents.
Ped6	Consider 10 minute walkable retail catchments in land use planning.	Bk6	Advocate/ identify opportunities for a train station cycling interchange facilities, to integrate routes, and interchange with the rail network. The facility should include a range of bicycle parking options. i.e. Bike Sheds.			Bus6	Advocate for greater span of bus services on Sundays and late at night.								
Ped7	Identify opportunities for redevelopment sites to provide through site links and adequate pedestrian space on footpaths and for waiting at intersections. These benefits should be available at all times and part of occupation certification.	Bk7	Continue development of the dedicated bicycle route along the rail corridor between Wolli Creek and Rockdale, and between Wolli Creek and Tempe			Bus7	Advocate for increased public transport capacity on routes and in periods of high demand, e.g. Bunnerong Road and Botany Road.								
Ped8	Provide separation/ space between footpaths and vehicle travel lanes along freight routes using on-street parking or landscaping and/ or investigate opportunities for speed limit reductions.	Bk8	Advocate for the provision of a cycleway adjacent to Botany freight rail line..			Bus8	Advocate for trials of electric buses/ trackless tram in the LGA.								
Ped9	Identify intersections where additional pedestrian crossing legs could be provided subject to the location having a pedestrian desireline. Advocate TfNSW for upgrades.	Bk9	Develop an off-road bicycle link between Eastgardens and Port Botany with appropriate separation from dangerous vehicles and land uses.			Bus9	Advocate for trials of on-demand buses in low demand areas to improve public transport accessibility.								
Ped10	Investigate the feasibility of pedestrian crossings at a minimum of 200 metres in residential / industrial areas, and every 100 metres in centres (off state roads) where desireline exist.	MM1	Advocate for the state government to support the safe use of micro-mobility technology on bicycle infrastructure to reduce transport energy consumption and space.												
Ped11	Advocate for longer crossing times at signalised intersections used by vulnerable community members (young, older, parents and disabled people).														
Ped12	Advocate for pedestrian priority at intersections where demand exists. This may involve removal of double green at signalised intersections to allow pedestrians to cross before cars turn.														
Ped13	Implement a program in line with the strategic pedestrian network and any intersection changes/ LATM works to prioritise pedestrian movement across minor roads through pedestrian priority treatments that are built for smooth pedestrian passage .														

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1 Introduction

1.1 Transport Strategy purpose

The Transport Strategy provides policy and directives for Bayside Council to enhance the existing transport network and plan for increased demand.

The strategy outlines the existing demographics, forecast growth, travel demand, existing and planned land uses and relates this to the existing transport network, planned interventions and recommendations formed in this study.

The recommendations are developed through consultation with the community and stakeholders. Where conflicts in community desires exist, these are explained and solutions that provide equitable, sustainable and affordable access for people and goods are recommended.

1.2 Bayside Local Government Area

Bayside Council is made up of the former Botany Bay Council and Rockdale Council. The Bayside LGA sits entirely within Sydney's Eastern Harbour City and directly south of the Harbour City CBD. It surrounds Botany Bay from the north, east and west.

The strategy considers the entire Bayside LGA and immediate surrounds, as shown on **Figure 1-1**. Major land uses, including strategic and local centres are shown, along with committed transport projects. Bayside is neighboured by Randwick City Council to the east, City of Sydney and Inner West Councils to the north, and Canterbury Bankstown Council, Georges River Council to the south west and Sutherland Shire Council to the south.

Details on land uses can be found in **Section 4** of this report, and the transport networks that support the LGA are discussed in **Section 4**.

Figure 1-1   Bayside LGA
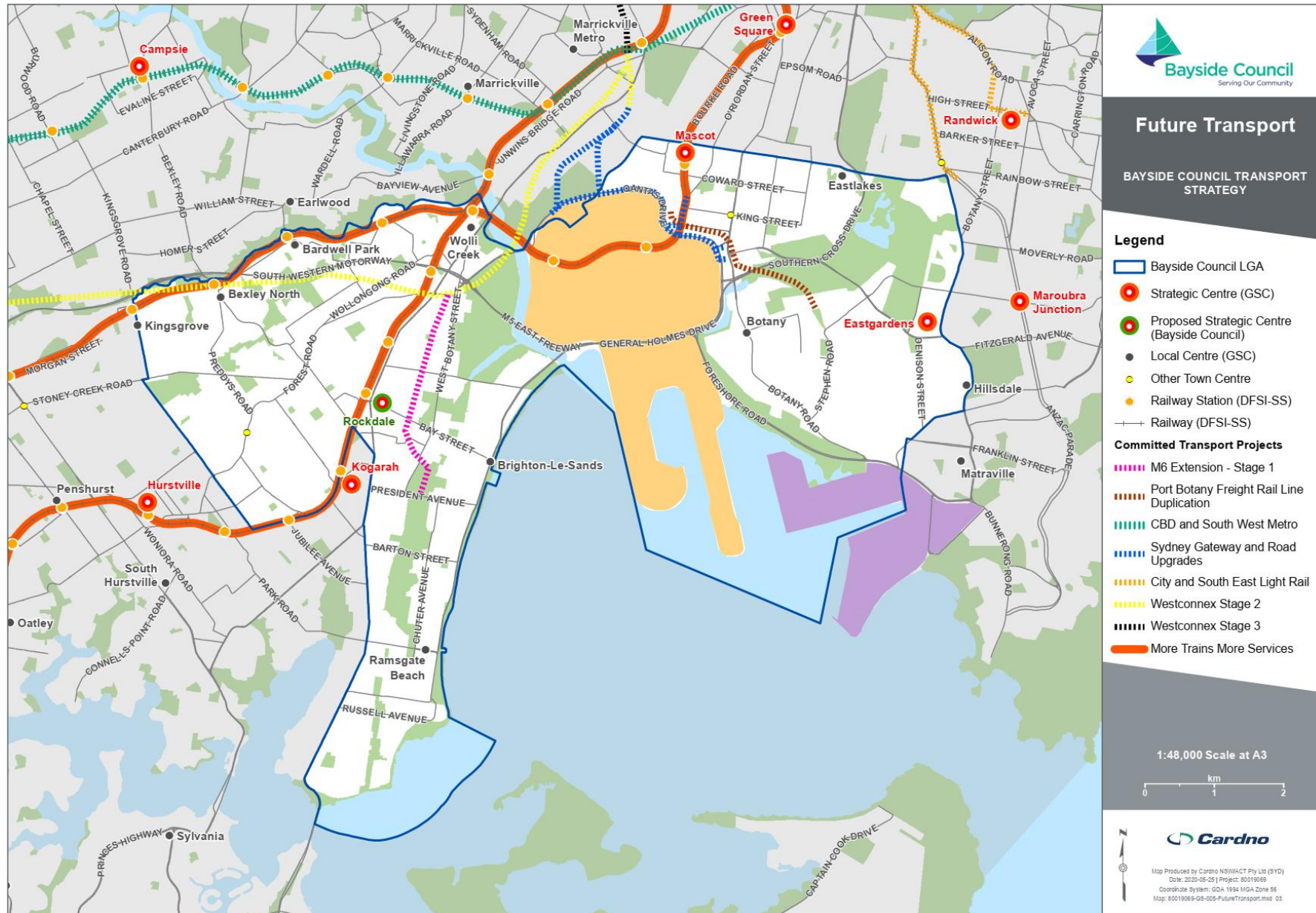
2 Vision, directions and supporting strategies

The transport vision, directions, guiding principles and strategies were developed through a process of reviewing existing policies, community values and aspirations. This was exhibited during the draft Local Strategic Planning Statement exhibition as well as discussing with stakeholders.

2.1 The transport vision

The transport vision for Bayside Council is:

A just, reliable, and resilient transport system which supports active, healthy lifestyles and provides 30-minute access to economic, social, recreational and cultural opportunities for everyone.

The following expands on key words in the vision:

> **Just** refers to equality of access for people of all abilities, locations and demographics.

> **Reliable** means that infrastructure and services will provide a consistent experience.

> **Resilient** means that the transport network remains operational in a range of weather conditions, will operate through the effects

> of climate change and can overcome potential issues.

> Supporting **active, healthy lifestyles** means that the transport network offers quality options for walking and cycling.

> **30-minute** (by active or public transport) concept is the benchmark indicator for successfully integrated land use and transport planning, where strategic and local centres are accessible for all residents.

The transport vision guides the recommendations of the Transport Strategy.

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2.2   Transport directions

The directions outline key ways to improve the transport network. These include

Connected & Integrated

- East to west
- Within centres
- To regional destinations
- Interchange between modes
- Cycleways and walkways
- Between trade gateways, the CBD and industrial and urban services lands
- Integrated land use and transport planning

Efficient

- Access to Sydney Airport and Port Botany
- Priority for freight on key routes
- First and last mile transport options
- Encourage the sharing economy
- Flexible parking options
- Smart deliveries

Active & Vibrant

- Walkable centres, schools and stations
- Cycling is safe and supported
- Revitalised centres with high pedestrian activity and priority
- Walking and cycling encouraged for short trips

Inclusive & Safe

- Supports community participation
- Accessibility for all
- Lower vehicle speeds around people and in centres
- Design transport networks and interchanges to enhance safety and personal security
- Technology that improves safety

Sustainable & Innovative

- Leaders in emerging transport technology
- Green Grid and waterways connections
- Clean transport solutions
- Alternatives to car ownership
- Support electric vehicles
- Parking prioritises people in need and shared vehicles
- Better travel information and payment choices

2.3   Guiding principles

Based on the transport vision and directions, a set of guiding principles have been developed that provide focal matters to address. The principles have been adopted to determine the Strategy's approach to strategic long-term planning, and integrate transport planning with land use, allow flexibility as new technologies emerge, plan for change, demand integrated solutions, and address customer needs. They also encapsulate Council's broader principles and commitments to social justice, resilience, economic development, sustainability, and good governance. The guiding principles are outlined in **Table 2-1**.

Table 2-1   Transport network principals

#	Principle
P1	Improved road safety.
P2	Resilient infrastructure.
P3	Vibrant, activity-filled centres.
P4	Equitable access to jobs, services, education, social, recreational, rest/ open space and cultural opportunities, and support for social inclusion and community participation.
P5	Mode shift to sustainable travel
P6	Encourage active transport for short trips.
P7	Less need to own or use privately owned vehicles.
P8	Collaboration for regional connectivity.
P9	Frequent, direct, and prioritised public transport.
P10	Efficient freight movements, separated where possible.
P11	Connected industrial and urban services lands, with good links to trade gateways and freight routes.
P12	Capitalise on green space and access to the foreshore.
P13	Preparedness for emerging transport technologies.
P14	Parking supports social equity and supports the economy.
P15	Land use development is integrated with transport improvements.

2.4   Key transport strategies

Bayside's Transport Strategy includes several categories as follows:

> Future transport network:

  – This will outline key service and infrastructure changes. This will address how the Strategy gives effect to 30-minute city targets, achieve a better level of regional connectivity, and support the desired modal hierarchy.

> Integration with land use and growth:

  – This will respond to the desired Movement and Place priorities for the future of the LGA's development that enhances and supports economic activity and residential growth.

> Accessibility and safety:

  – This will outline key initiatives to improve access and safety, addressing existing issues.

> Emerging technologies:

  – This plan ensures flexibility for the Transport Strategy's approach to the future allowing new technologies to be adopted when they offer potential for stronger efficiencies, previously not considered.

> Transport mode strategies

  – The modal strategies will determine the needs of each mode/ key infrastructure type and address them with a series of initiatives and actions for the following:

    • Road network;

    • Walking;

    • Cycling;

    • Public transport;

    • Freight;

    • Private vehicles; and

    • Parking.

3 Strategic context

The Bayside Transport Strategy will align with the Bayside Community Strategic Plan, and the NSW Government's land use plans and transport strategies, addressing their outcomes and directions for the Bayside LGA and context. It will also draw on the former Councils' land use and transport plans and studies, to identify the community needs, and transport issues and opportunities.

Relevant State and Local Government land use plans and transport strategies and initial community consultation helped to guide the Bayside Transport Strategy's vision, directions, principles, and actions. These are summarised in **Section 3.1** and **Section 3.2**. **Section 3.3** introduces the transport project planning and delivery already underway for the Bayside LGA by State and Local Government.

3.1 Land use and community plans

3.1.1 State land use plans

A Metropolis of Three Cities (Greater Sydney Commission, 2018)

The current Greater Sydney region plan, *A Metropolis of Three Cities* (M3C) is the Greater Sydney Commission's (GSC) metropolitan blueprint for the Sydney basin as the population grows to eight million over the next 40 years. M3C is built on the vision of realigning Sydney into three distinct cities; an Eastern Harbour City, a Central River City (centred on Parramatta) and a Western Parklands City (focused on the future Western Sydney Airport).

M3C emphasises collaboration to coordinate population growth with new or improved infrastructure. It aims to provide communities, councils, state agencies, and industry with direction and certainty to guide investment in the physical and social infrastructure, services and affordable housing required to support the growth.

The plan encourages city planners to ensure that each new 'city' can support a large majority of its residents with employment opportunities, education, health facilities, services, and great places to be, within 30 minutes travel of their homes. The performance indicators focus on a metric of 30 minutes travel by public transport between dwellings and the nearest metropolitan city or strategic centre. The economic efficiency of major trade gateways is also a key focus of M3C.

The Bayside LGA is located in south western corner of the Eastern Harbour City. M3C identifies the Harbour CBD as the metropolitan centre within the Eastern Harbour City, and Green Square-Mascot (Green Square in City of Sydney), Eastgardens-Maroubra Junction (Eastgardens in Randwick City Council) and Kogarah (in Georges River Council) as the strategic centres within or adjacent to the Bayside LGA. Kogarah is also a nominated Collaboration Area based on its health and education precinct, Green Square-Mascot as a commercial office precinct, and Sydney Airport and Port Botany are identified as trade gateways. The Bayside LGA forms the bottom section of the Eastern Economic Corridor, which extends from Sydney Airport through the Harbour CBD to Macquarie Park.

Key initiatives outlined in M3C with relevance for the Bayside LGA include expanding the Greater Sydney Green Grid, urban renewal areas to the west of Sydney Airport, investigations for a long-term mass transit links between Parramatta and Kogarah (via Bankstown), and between the Harbour CBD and Maroubra Junction, and visionary road and rail links between Randwick and Kogarah (mass transit) and Port Botany and the M5 (road).

M3C focuses on 10 key directions that address Sydney's liveability, connectivity, productivity and sustainability. This 20 year plan, with a 40 year vision, sits on top of five district plans which provide greater planning details and link to local Council plans.

Eastern City District Plan (Greater Sydney Commission, 2018)

GSC is implementing M3C through five district plans, which detail district-specific directions, place-based outcomes, and the actions to achieve these. The Eastern City District Plan (ECDP) covers the Bayside LGA**.** It references the strategic centres noted in M3C, and nominates local centres in the Bayside LGA as Bardwell Park, Bexley North, Botany, Brighton-Le-Sands, Eastlakes, Hillsdale, Kingsgrove, Ramsgate, Rockdale, and Wolli Creek.

The ECDP describes how integrated land use and transport planning can help achieve the 30-minute city through increasing development density near public transit corridors. It sets a housing supply increase for the Bayside LGA of 10,150 new dwellings between 2016 and 2021, around 26,900 more people and the

second largest housing target for the ECDP, after City of Sydney. The ECDP identifies specific locations for additional growth including the Bayside West Precincts (further detailed in **Section 4**) and the area to the east of Eastlakes as an urban renewal area. It also notes a number of former Local Government strategies identify capacity for more housing in the former Rockdale LGA's urban centres and in the former Botany Bay LGA.

The ECDP doesn't specify total jobs growth for the Bayside LGA but notes that:

> Jobs in Green Square – Mascot will increase by up to 20,000 by 2036 from the 2016 baseline of 59,500 jobs.

> Jobs in Eastgardens – Maroubra Junction will increase by up to 2,000 by 2036 from the 2016 baseline of 6,900 jobs.

> Around 18 per cent of jobs across Greater Sydney are currently located in local centres with supermarkets.

The ECDP includes 10 strategic directions underpinned by 21 planning priorities. Of the 10 Strategic Directions, 'A city supported by infrastructure', 'A city for people', 'Housing the city', 'A city of great places', 'Jobs and skills for the city', 'A well connected city', 'A city in its landscape' and 'An efficient city' are directly relevant to the Bayside Transport Strategy. Each of these strategic directions and their relevant planning priorities are listed in **Table 3-1**.

Table 3-1   Relevant ECDP strategic directions and planning priorities

Relevant strategic directions	Relevant planning priorities
A city supported by infrastructure: Infrastructure supporting new developments	E1 – Planning for a city supported by infrastructure
Housing the city: Giving people housing choices	E5 – Providing housing supply, choice and affordability with access to jobs, services, and public transport
A city of great places: Designing places for people	E6 - Creating and renewing great places and local centres, and respecting the District's heritage
Jobs and skills for the city: Creating the conditions for a stronger economy	E9 – Growing international trade gateways
A well connected city: Developing a more accessible and walkable city	E10 – Delivering integrated land use and transport planning, and a 30 minute city
A city in its landscape: Valuing green spaces and landscape	E17 - Increasing urban tree canopy cover and delivering Green Grid connections
An efficient city: Using resources wisely	E19 - Reducing carbon emissions and managing energy, water and waste efficiently

The ECDP includes a Planning Priority to grow international trade gateways, with specific actions to address the forecast growth for Sydney Airport and Port Botany including retaining strategically important land uses adjacent to the gateways, protecting their functions as international gateways for freight and passengers (Sydney Airport), and enhancing road connections to WestConnex and growing the volume of freight moved by rail.

3.1.2   Local Government community and land use plans

Bayside 2032 – Community Strategic Plan (Bayside Council, 2022)

Bayside 2032 sets the vision, themes and goals to guide the Bayside LGA over the next 10 years. Drawing on community and stakeholder engagement, demographic analysis, former Council strategic planning, and alignment with State Government planning, Bayside 2032 will inform delivery plans, operational plans and development of new planning controls for the recently formed Council.

Based on social justice, resilient city, and good governance principles, Bayside 2032 sets four themes for the LGA, each with several relevant strategic directions for the Bayside Transport Strategy:

Theme 1 – In 2032 Bayside will be a vibrant place. Relevant strategic directions:

> Our places are accessible to all (create places that are accessible, safe, engaging and welcoming to visitors and tourists).

> Our places are dynamic and connected people (walking and cycling is easy and attractive).

> Bayside's transport system works (promotion of equitable and accessible infrastructure, advocate for a 30 minute city, sustain traffic and parking issues, gateway sites and spaces are welcoming).

Theme 2 – In 2032 our people will be connected in a creative city. Relevant strategic directions:

> We benefit from technology (access information online, technological change is harnessed for benefits).

> The community is valued and supported (access to active recreation,support arrangements for seniors, and people with disabilities, access to public buildings).

> The community is united and proud to live in Bayside (Advocate for improved community transport and open space links between the east and west of Bayside).

Theme 3 – In 2032 Bayside will be green, leafy and sustainable. Relevant strategic directions:

> Bayside is resilient to economic, social and environmental impacts (streetscapes are green and attractive for active transport, promote sustainable transport concepts so the community understands cumulative impacts of transport and emissions).

> Bayside'suse of renewal energy is increasing (promote and facilitate emerging transport technologies for greener transportation and to meet the community's changing needs).

> Waterways and green corridors are regenerated and preserved (enhance and extend green grid).

Theme 4 – In 2032 we will be a prosperous community. Relevant strategic directions:

> Bayside generates divers local employment and business opportunities (international hub for transport and logistics related businesses).

> Bayside recognises and leverages opportunities for economic development (30 minute city, able to work locally or work off site).

>).

Bayside 2032 emphasises the international importance of the Sydney Airport and Port Botany logistics hub for people and goods entering and leaving Australia. It also recognises the emergence of off-site employment trends, and that many who work in Bayside, do so from home.

Local Strategic Planning Statement

Recent changes to the NSW Environmental Planning and Assessment Act of 1979 (the EP&A Act) have led to the re-structuring of planning governance across NSW and metropolitan Sydney. As part of this, each council must now prepare a Local Strategic Planning Statement (or LSPS). These statements define a clear 20-year vision for local land use planning, highlight what is important about the local identity and shared values of each LGA, and incorporate these into future local planning directives which must also align with the long-term strategic goals of the Greater Sydney Commission.

In Sydney, a LSPS should be informed by each LGA's own Community Strategic Plan – and the overarching strategy documents released by the Greater Sydney Commission, which include the metropolitan District Plans. Once an LSPS has been endorsed by the Department of Planning, Industry and Environment (DPIE), State agencies are and Council's will work to give effect to them when deciding on future infrastructure, service delivery. The LSPS will form part of strategic merit tests for Planning Proposals and Local Environment Plan (LEP) amendments.

Bayside's LSPS 2020 has been written to align with the Eastern City District Plan, and shaped by the previously developed Community Strategic Plan, *Bayside 2032,* see **Figure 3-1**. Bayside's LSPS has also been written to encompass the goals of well as the goals of the *Resilient Sydney* project.

The four key themes driving the development of the Bayside LSPS 2020 are:

> Infrastructure and Collaboration;

> Liveability;

> Productivity; and,

> Sustainability.

Supporting these themes, Bayside's LSPS identifies 24 clear planning priorities, which are supported by 148 actions. The most relevant planning priorities for the Bayside Transport Strategy are:

> Planning Priority B1: Align land use planning and transport infrastructure planning to support the growth of Bayside.

> Planning Priority B12: Deliver an integrated land use and a 30-minute city.

The Bayside LSPS 2020 will inform the Bayside LEP and Development Control Plan (DCP). The relationship of planning strategic is shown in **Figure 3-1**.

Figure 3-1   Development of Bayside's LSPS.
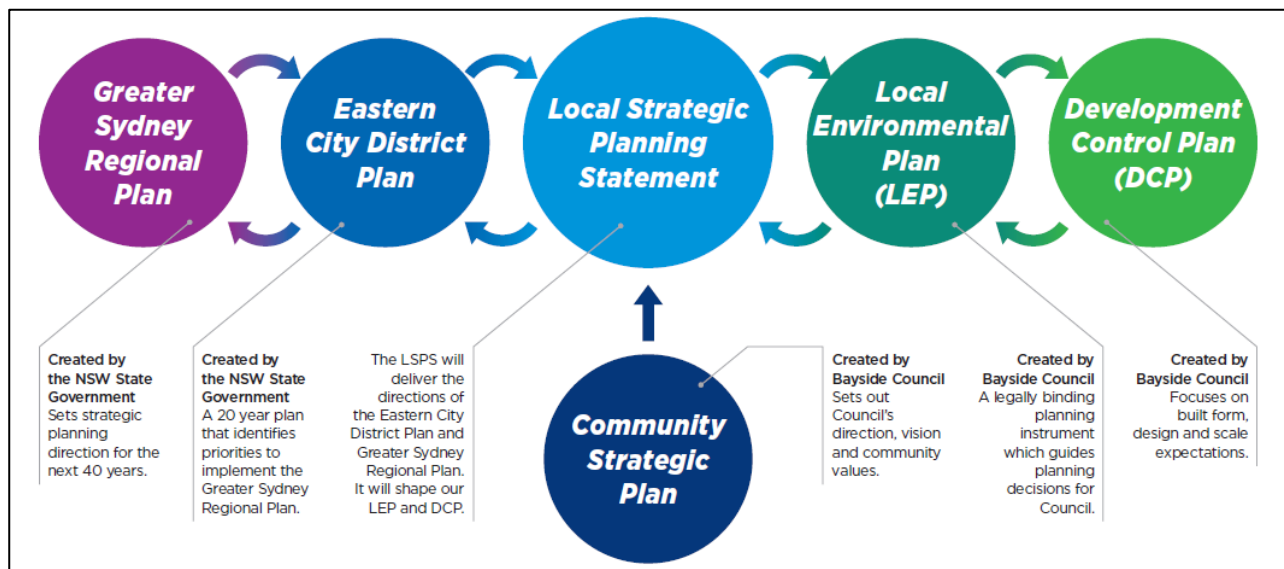
Source: Local Strategic Planning Statement 2020, Bayside Council

Local Environmental Plans

Local Environmental Plans (LEPs) are detailed written documents and maps setting out the permitted land use zoning to guide future development. LEPs are adaptable over time and undergo a full revision every decade or so. The amalgamation of the former Botany Bay and Rockdale Councils has preceded the new Bayside LEP prepared in 2021.

The key relevant aims from the Bayside LEP 2021 for the Bayside Transport Strategy are listed in Error! Reference source not found.**.** These have informed the transport vision, directions and guiding principles.

Table 3-2

	Bayside Suburbs	Relevant aims of its LEP for the Bayside Transport Strategy
Bayside Local Environmental Plan, 2021	(East) Banksmeadow, Botany, Botany Bay, Daceyville, Eastgardens, Eastlakes, Hillsdale, Mascot, Pagewood (part), Rosebery (part) (West) Arncliffe, Banksia, Bardwell Park, Bardwell Valley, Bexley, Bexley North, Brighton-Le-Sands, Carlton (part), Dolls Point, Kingsgrove (part), Kogarah (part), Kyeemagh, Monterey, Ramsgate, Ramsgate Beach, Rockdale, Sandringham, Sans Souci (part), Sydney Airport, Turrella, Wolli Creek	▪ (a) to recognise the importance of Botany Bay as a gateway to Sydney, given its proximity to Sydney (Kingsford Smith) Airport and Port Botany ▪ (f) to create a highly liveable urban place through the promotion of design excellence in all elements of the built environment and public domain ▪ (g) to protect residential amenity ▪ (a) to provide a vibrant area in which have residents have ready, safe access to live, work and play ▪ (c) to maintain and improve residential amenity and encourage a diversity of housing to meet the needs of Bayside residents ▪ (g) to encourage residential and employment densities around transport nodes in order to provide sustainable transport options

Development Control Plans

LEPs are used in conjunction with Development Control Plans (DCPs) which guide all built form design elements for LGAs, in accordance with zoning and local attributes. DCPs can apply across the LGA or address location specific needs.

A Bayside DCP is currently being prepared. Until that is completed the DCPs applying to the two former Councils apply.

A summary of relevant elements from each of the former councils' DCPs is listed below (applying to the same suburbs as the LEPs). They have informed the transport principles and actions.

Botany Bay:

> Dignified, equitable and safe access is provided to new buildings and facilities for people with a disability.

> Adequate, safe, functional and accessible car and bicycle parking, compatible with proposed development, and with reduced car parking in areas with good access to public transport – minimising traffic congestion.

> Adequate areas within sites for service and delivery functions with safe and efficient access.

> Safer environment for the community, with better integration and connection of streets and the public domain.

> Promote sustainable development that improves transport, parking, access and pedestrian outcomes.

> Freight transport facilities that are compatible with surrounding land uses; with minimal disruption to local traffic; identify freight road routes and promote the use of rail.

Rockdale:

> Concentrate future development around the City's existing villages and local centres, improving their vibrancy and character through an increase in the local residential population, and reducing the need to travel.

> Foster the growth of the emerging town centre at Wolli Creek which will accommodate much of the City's future population growth, and form a northern gateway to the City.

> Encourage revitalisation of the Princes Highway Corridor to improve employment opportunities and present a more attractive image along this prominent vehicle route through the City.

> Improve the City's sustainable transport network to encourage alternative transport modes and provide better access to the City's attractions.

> Ensure services and facilities are readily accessible to a broad range of people.

> Ensure the implementation of best practice sustainability principles.

> Encourage mixed use development within existing commercial centres to provide housing density close to services and providing greater activity within the centres.

> To provide sufficient, convenient and safe on-site car parking while encouraging alternative modes of transport, such as walking and cycling and discourage excessive parking in development close to public transport.

> To ensure a safe environment by promoting crime prevention through environmental design and encourage the integration of transport services into the streetscape and public domain.

3.1.3 Trade Gateway Master Plans

Sydney Airport Master Plan 2039 (Sydney Airport Corporation Limited, 2018)

The Sydney Airport Master Plan 2039 sets the strategic direction for Sydney Airport over the next 20 years. Relevant objectives from the Master Plan address community impacts, innovative improvements to ground access to from and past the airport, enhancing the experience of arriving and departing passengers and airport users, increasing public transport and active transport use, maximising airport capacity, and supporting the local economy in which the airport operates.

The Airport Development Plan includes plans for development across four sectors (North West, North East, South West and South East). Relevant development plans include:

> Air freight facilities consolidation;

> Additional commercial floor space (240,000 square metres); and

> Ground transport improvements (North East and South Each Sectors).

The Master Plan forecasts 65.6 million passenger movements a year will use Sydney Airport by 2039, an increase of 22.3 million passengers from 2017 when 43.3 million passenger movements. It will also handle 1.0 million tonnes of freight in 2039, up from 643,000 tonnes in 2017, an annual growth of 2.1 per cent per year. The Master Plan notes the increasing pressure on ground transport (road and rail) from this development and also the increasing urbanisation around the airport. The 5 Year Ground Transport Plan (2019-2024) included in the Master Plan proposes a number of improvements including:

T1 – International Terminal:

> Ramp access to P6 Level 2, to provide access to additional drop-off capacity;

> Upgrade to Centre Road for additional capacity;

> Improved pedestrian connections;

> New P8 pick-up, drop-off facility with entry via ramp to Level 2, and exit via ramp to Arrivals Court;

> New ramps and connections to P6, P7 and P8;

> Improved exit onto Cooks River Avenue from new P8 facility;

> Improvements to exits at Marsh Street and Airport Drive; and

> Widening of Airport Drive up to four lanes in each direction.

T2/ T3 – Domestic Terminals:

> Widening of Qantas Drive up to four lanes in each direction;

> Improvements to the left turn from Qantas Drive to Robey Street;

> Optimisation of traffic signals to minimise delays for all traffic;

> Redevelopment of P1 to facilitate improved access to rail, taxis, ride share, rental cars and a range of parking services;

> Construction of the approved Ground Transport Interchange (GTI);

> New road access to arrivals, departures and GTI;

> A partial grade-separated road at entry to the T2/ T3 precinct; and

> Improvements to the left turn out of Seventh Street to Qantas Drive for traffic exiting the precinct.

Navigating the Future – NSW Ports 30 Year Master Plan (NSW Ports, 2015)

The NSW Ports 30 Year Master Plan aims to efficiently and sustainably accommodate the forecast growth in container freight, bulk liquid and gas, and dry bulk. The Master Plan estimated that container volumes through Port Botany will increase from 2.3 million twenty-foot equivalent units (TEU) to 8.4 million TEU by 2045.

The Master Plan sets five objectives to address the forecast growth at both Port Botany and Port Kembla, each with direct relevance for the Bayside Transport Strategy:

> Efficient road connections to the ports and intermodal terminals – because road will continue to move the most freight.

> Grow rail transport of containers – because it will maximise throughput of containers and reduce some of the road freight. The target is three million TEU or around 40 per cent of Port Botany containers.

> Use land and infrastructure efficiently – because existing land use and infrastructure are limited and in demand.

> Grow port capacity – to cater for forecast growth.

> Protect the ports and intermodal terminals from urban encroachment – to reduce impacts on less compatible land uses like residential, and retain land for port functions.

The Master Plan emphasises the importance of improving landside connectivity between Port Botany and Sydney and regional NSW, if the freight task is to be handled efficiently. Sydney's traffic congestion affects freight movements and the Master Plan advocates for road upgrades to address efficiency on freight routes.

The Enfield and Cooks River intermodal terminals, also operated by NSW Ports, will extend Port Botany's operations, with Cooks River to be considered an extended port gate, with containers moved rapidly by rail to both. The majority of Port Botany's inbound freight is destined for locations across Sydney, and the west and south-west of Sydney is anticipated to growth its proportion of container freight over the next 30 years. The Master Plan states that this container growth will be driven by domestic demand for good, population growth, the strength of the NSW economy, the purchasing power of the Australian dollar, levels of domestic manufacturing, government trade policies and the location of key distribution centres.

The Master Plan notes the importance of industrial lands adjacent to the port, over the next 30 years the number of containers with a destination within 10 kilometre of the port is set to triple. It aims to retain land not just as industrial zoned land, but specifically dedicated for port-related activities. This requires larger lot sizes, exceeding two hectares, which can be affected by subdivision. A buffer zone, separating sensitive land uses like residential is also recommended.

3.2 Transport plans and policies

3.2.1 Federal and State transport plans

Priority Infrastructure List (Infrastructure Australia, 2021)

The 2021 update to Infrastructure Australia's Priority Infrastructure List includes a number of infrastructure projects which will impact the Bayside LGA, through upgrades to the transport networks.

High priority initiatives which still require a business case include:

> Southern Sydney to CBD public transport enhancement – direct impact.

> National electric vehicle fast-charging network – general impact.

> Network optimisation program for rail – general impact until further details known.

> Network optimisation program for roads – general impact until further details known.

> National freight and supply chain strategy – general impact.

> Sydney network rail capacity – general impact.

> Sydney cruise ship terminal capacity – general impact until further details known

Priority initiatives which still require a business case include:

> M6 Extension (Connection between the M1 at Waterfall and the Sydney motorway network) – direct impact.

State Infrastructure Strategies, (Infrastructure NSW; 2012, 2014, 2018 & 2022)

Infrastructure NSW's (INSW) inaugural State Infrastructure Strategy (SIS) was released in mid-2012, with updates in 2014, 2018 and 2022. The 2022 update contains 9 long termin objectives and 57recommendations across a number of areas of infrastructure.

Relevant strategic directions detailed in the SIS include:

> To continuously improve the integration of land and infrastructure planning.

> To plan, prioritise and deliver an infrastructure program that represents the best possible investment and use of public funds.

Of particular note for the Bayside LGA is the following statement by the advisory group, indicating a growing awareness of surface congestion as a constraint to growth:

"High quality on-road public transport will not be feasible if the Government continues to insist on preserving existing levels of road space for general car traffic. With record investment in projects like WestConnex putting large volumes of traffic into tunnels, higher priority should be given to public transport by converting existing traffic lanes to full-time public transport lanes, without the need for significant land acquisition."

Of the 57 recommendations made in 2022, several are relevant for the Bayside LGA, including those that propose reallocating road space for on-road rapid transport links for buses and high-efficiency vehicles, and business cases for investment in a network of protected cycle ways linking major strategic centres. INSW recommendations are listed from page 15.

Future Transport 2056 (Transport for NSW, 2018)

Future Transport 2056 (FT56) finalised in early 2018, aims to ensure that the Greater Sydney area will develop and maintain a world class, safe, efficient and reliable transport system over the next 40 years, while anticipating rapid changes in technology and innovation. FT56 outlines a comprehensive strategy detailing how people and goods will be transported around the state, including high-level strategic details for proposed future infrastructure and initiatives.

The vision is built on six outcomes:

> Customer Focused.

> A Strong Economy.

> Accessible Services.

> Successful Places.

> Safety and Performance.

> Sustainability.

With respect to integrating land use and transport planning, FT56 notes the following:

'The best places take time and strong partnerships to develop and flourish. Integrated land use and transport planning can activate public spaces, corridors and networks, and positively impact the delivery of health, education and local government services. Transport can improve the liveability and character of places across the state, achieve wider benefits from investment and encourage more desirable patterns of development.'

FT56 identifies a number of transport initiatives, either already committed or for investigation, summarised in **Table 3-6**.

Greater Sydney Services and Infrastructure Plan (Transport for NSW, 2018)

This Plan, which sits under Future Transport 2056, sets out the transport services and infrastructure to deliver Future Transport 2056 in Sydney over the next 40 years.

The Plan discusses city shaping and city serving corridors, with city-shaping providing the connections between cities and centres; people should be able to access the nearest metropolitan city within 30 minutes, and city serving corridors aiming to provide high frequency services within a 10 kilometre radius of each metropolitan city. East Gardens-Maroubra and Green-Square-Mascot connect to city shaping and city serving corridors, while Kogarah connects to a city serving corridor.

The Plan lists committed initiatives (0-10 years), initiatives for investigation (0-20 years) and visionary initiatives (20+ years). The major initiatives relevant for the Bayside LGA include the M6 Extension Stage 1, Parramatta to Kogarah mass transit link, Mass transit link to the South East and a light rail extension to Maroubra Junction. The full list of initiatives and their status is listed in **Table 3-6**.

2026 Road Safety Action Plan

Transport for NSW' Centre for Road Safety released its *Road Safety Plan 2021*, fand features new targets to half deaths and reduce serious injuries on NSW Roads by 2030. It is proposed this can be achieved by building on the success of the Road Safety plan 2021 and focus on stronger local government action, engagement and education programs, and using technology in the fight to end road trauma The 2021 plan defines five priority areas designed to help the NSW Government reach its target Of the five priority areas defined, the following are applicable to the Bayside LGA:

> Enhancing road safety in local communities.

> Increasing the safety of light vehicles, heavy vehicles and protective equipment.

> Making safer choices on our roads.

> Ensuring the safety of vulnerable and other at-risk road users.

Over the next five years, the plan will see the NSW Government:

> Develop a new heavy vehicle safety strategy in partnership with heavy vehicle industries, including champions of change, to improve safety of the freight task across NSW.

> Work with fleet owners to increase proactive use of alcohol interlocks in fleet vehicles, and other safety features such as automated emergency braking and lane assist.

> Develop a Towards Zero community partnership with local governments, institutions and businesses to improve local road safety across NSW.

> Develop integrated communications about licensing, safer transport and health factors and driving for older road users, their family carers and the medical network.

> Develop new platforms and enhanced road safety content in driver testing, including safe interaction with heavy vehicles, motorcyclists, bicycle riders and pedestrians, and support with new digital education for young drivers and their parents/carers.

NSW Freight and Ports Plan (Transport for NSW, 2018)

The Plan sets five objectives and 70 initiatives for delivery by 2023, to guide growth and investment in the freight and delivery industry. The five objectives address a number of directions relevant for the Bayside LGA with its internationally significant trade gateways:

> Economic growth (productivity, sharing data, making NSW a better place to do business).

> Efficiency connectivity and access (travel times and reliability, trade gateway efficiency, increasing rail's share of freight from Port Botany, safe and more productive vehicles, managing the growth and efficiency of urban areas).

> Capacity (expand rail capacity, improve road network, protect land for freight, and travel time reductions).

> Safety (reduce fatalities and serious injuries).

> Sustainability (manage noise impacts, reduce emissions and health impacts).

Port Botany is the primary container port for Sydney, with 90 per cent of imports destined within 60 kilometres of the port, and NSW's primary bulk liquid and gas port. The Plan notes significant increases in total inbound and outbound freight across Sydney. The Plan projects that Port Botany will increase container cargo by 77 per cent to 25.5 million tonnes between 2016 and 2036. A target of increasing rail's share of Port Botany freight to 28 per cent by 2021, up from 17.5 per cent is tracked on Freight Hub, hosted by Transport for NSW. Progress against the target has not yet commenced; in 2018 rail's share of freight remained under 18 per cent.

Sydney Airport handles half of Australia's international air freight, and a third of the domestic air freight task. The volume of exports and imports is expected to increase by 65 per cent to 613,000 tonnes by 2036, up from 369,000 tonnes. By comparison, the new Western Sydney Airport will account for 90,000 tonnes of exports and imports by 2036. Freight arriving into Sydney Airport is affected by congestion on the surrounding road network and curfew restrictions on plane noise.

Key initiatives with direct relevance for the Bayside LGA include duplication of the Port Botany freight line and upgrades to the roads around Sydney Airport and Port Botany, as described in **Table 3-6**.

Green Grid (NSW Government Architect, 2017)

Opportunities for developing a Sydney Green Grid were first published by Barbara Schaffer, Principal Landscape Architect of the Office of the Government Architect NSW in 2013[1] Her plan has since won awards and been applauded by the Australian Institute of Landscape Architects. The concept has since been officially adopted and extended by the Greater Sydney Commission.[2]

According to the Greater Sydney Commission in its ECDP, the Greater Sydney Green Grid (as it has become known) is a long-term vision to create a network of high quality green spaces that connects communities to the natural landscape. It links tree-lined streets, waterways, bushland corridors, parks and open spaces with centres, public transport and public places.

The Green Grid's development is being guided by Planning Priority E17 in the ECDP, which looks to increase the amount of urban tree canopy coverage and complete the missing Green Grid connections.

Further links will be made through enhancements to creek corridors, transport routes, footpaths and cycle ways to encourage walking, help promote healthy living patterns and reduce extremes of urban heat that can be expected to increase with climate change. Enhancing the amenity and activity within, and accessibility to, the Greater Sydney Green Grid will promote a healthier urban environment, improve community access to recreation and exercise, encourage social interaction, support walking and cycling connections and improve resilience.

In relation to the Bayside LGA, the priority corridors identified for the future Green Grid are:

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[1] http://202020vision.com.au/media/7200/barbara-schaffer-gao-sydneys-green-grid.pdf
[2] https://www.greater.sydney/content/green-grid-wins-national-award

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> The Cooks River Open Space Corridor (Corridor 2).

> Wolli Creek Regional Park and Bardwell Valley Parklands (Corridor 3).

> Mill Stream and Botany Wetlands Open Space Corridor (Corridor 4).

> Rockdale Wetlands Open Space Corridor (Corridor 5), which generally aligns with the M6 corridor.

Princes Highway Corridor Strategy (Transport for NSW, former Roads and Maritime Services, 2016)

The Princes Highway is the main road corridor for the NSW south coast between the Victorian border and the Illawarra. The Strategy is primarily focussed on tourist and freight movements up and down this coastal freeway, but certain parts of the Strategy are likely to affect Bayside LGA given the northern sections of the Princes Highway also pass through the LGA, delivering people and freight to roads that connect with Sydney Airport, the Harbour CBD and Port Botany.

The vision for the Strategy seeks (among other things) to:

> Recognise the corridor to have national importance linking Port Kembla to Sydney and south to Jervis Bay Road.

The Princes Highway becomes the Princes Motorway (M1) at Yallah which continues north connecting the South Coast to the northern parts of the Illawarra and then onto Sydney.

Customer consultations with Illawarra users indicated that improved intercity connections between Wollongong and Sydney would prove of benefit for the region. This section of the Princes Highway is expected to be the most heavily trafficked and fastest growing section of the highway, with an average annual growth of 2.1% in truck movements over the forecast period. It will be important for the Princes Highway to continue operating as an efficient movement corridor until the future M6 is built or substantial north-south freight movements can be shifted to rail.

Road Network Plans (Transport for NSW, 2016 – ongoing)

Road Network Plans provide a strategic framework for planning for state roads considering the movement needs and place function and importance along each road. Transport for NSW has undertaken a program of assessing current and desired movement and place functions of state roads throughout metropolitan Sydney. The assessments include identifying strategic objectives and involves extensive data analytics and stakeholder consultation. The most common theme is that safety is prioritised.

Road Network Plans have already been prepared for a number of roads across the Bayside LGA, including the Princes Highway, Botany, and Mascot. Road Network Plan summaries available during the preparation of this strategy are summarised in **Table 3-3.**

Based on a significant amount of data collection and assessment, the Road Network Plans apply the Draft NSW Road Planning Framework, identifying the current and future movement and place categories for each road section. The future movement and place categories across the Bayside LGA are mapped on **Figure 3-4**.

Overall, the state-owned roads generally represent key movement corridors, as vehicles travel through the Bayside LGA to internal and external destinations. The key exception is Botany Road, which is designated as a local street in the future. These categories should be reinforced through infrastructure and operations initiatives.

Each category supports movement and place functions to different degrees. The categories are reinforced by travel behaviour, road user priorities, street design and characteristics, and land use access. Future Transport Strategy 2056 outlines the Movement and Place Framework of road network planning, shown in **Figure 3-2**.

Figure 3-2   The Movement and Place continuum

Source: Future Transport Strategy 2056, Transport for NSW, 2021

The Draft NSW Road Planning Framework categorisation was used as the basis for current and future classification, shown in **Figure 3-3**.

Figure 3-3   Draft Movement and Place categorisation
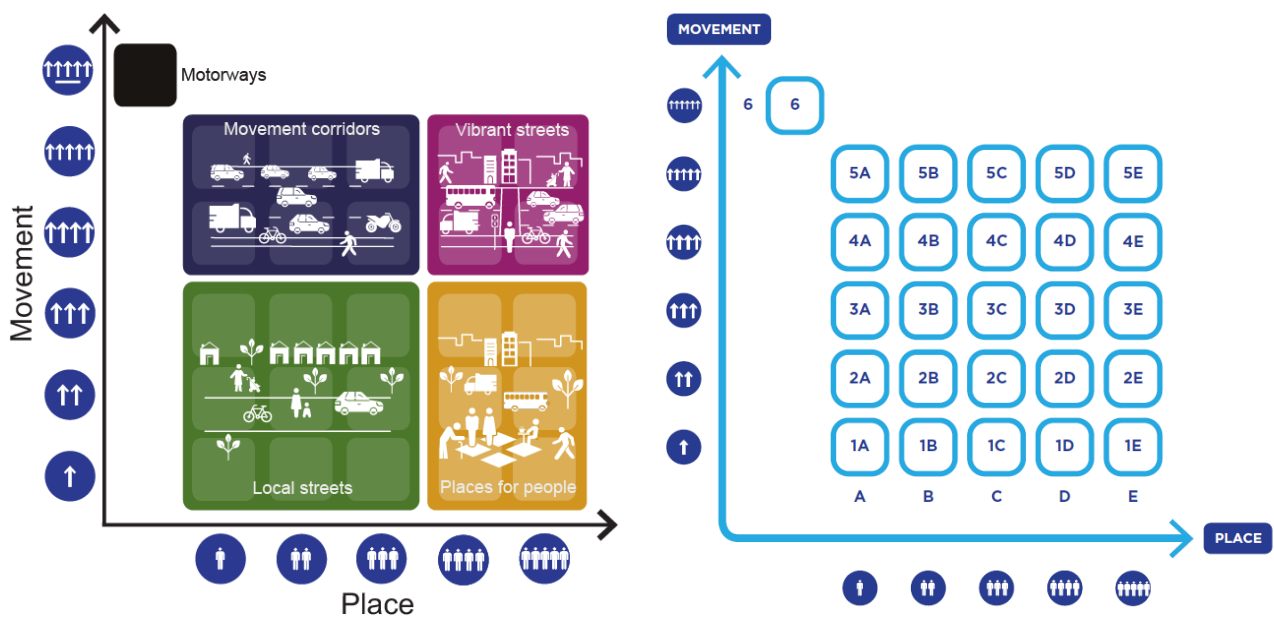
Source: DRAFT NSW Road Planning Framework, Transport for NSW, 2017

Table 3-3   Road network categorisation and targets

Segment	Roads	Current	Future	Change
Mascot to Eveleigh (RNP 11)				
1	Regent Street (from Cleveland Street to Botany Road) Botany Road (from Regent Street to Bourke Street) Henderson Road (from Botany Road to Wyndham Street) Wyndham Street (from Henderson Street to Gibbons Street) Gibbons Street (from Wyndham Street to Regent Street)	4C Movement corridor	4D Vibrant Street	Current movement corridor, shift to vibrant street
2	Botany Road (central) (from Bourke Street to Mill Pond Drive)	4C Movement corridor	4C Movement corridor	No change
3	Joyce Drive (from O'Riordan Street to General Holmes Drive) General Holmes Drive (from Joyce Drive to Foreshore Road) Mill Pond Drive (from General Holmes Drive to Botany Road)	5A Movement corridor	5A Movement corridor	No change
4	Canal Road/ Ricketty Street (from Princess Highway to Kent Road) Kent Road (from Gardeners Road to Coward Street) Coward Street (from Kent Road to Bourke Street) Bourke Road (from Coward Street to O'Riordan Street) O'Riordan Street (from Bourke Road to Joyce Drive)	4B Movement corridor	4C Movement corridor	Increase place value
5	O'Riordan Street (from Botany Road to Bourke Street)	4B Movement corridor	4B Movement Corridor	No change
6	Gardeners Road (from Kent Road to Bunnerong Road)	4B Movement corridor	4C Movement corridor	Increase place function
Port Botany (RNP 15)				
1	Foreshore Road and Botany Road (between General Holmes Drive and Bunnerong Road)	5A Movement Corridor	5A Movement Corridor	No change
2	Botany Road (between Stephen Road and Foreshore Road)	3A Local Street	3B Local Street	Increase place function
3	Botany Road (between Stephen Road and General Holmes Drive)	3C Local Street	3CLocal Street	No change
4	Denison Street – Beauchamp Road (between Wentworth Avenue and Botany Road)	4A Movement Corridor	4A Movement Corridor	No change
5	Wentworth Avenue (between Bunnerong Road and Botany Road)	4A Movement Corridor	4A Movement Corridor	No change
6	Bumborah Point Road (between Botany Road and Military Road)	5A Movement Corridor	5A Movement Corridor	No change
Forest Road and Stoney Creek Road (RNP 53)				
1	Marsh Street	5A Movement Corridor	5A Movement Corridor	No change
2	Wickham Street; Forest Road	4A Movement Corridor	4A Movement Corridor	No change

Segment	Roads	Current	Future	Change
3	Forest Road	4C Movement Corridor	4C Movement Corridor	No change
4	Forest Road; Croydon Road; Queens Road	4B Movement Corridor	4B Movement Corridor	No change
5	Queens Road; Forest Road	4C Movement Corridor	4C Movement Corridor	No change
6	Forest Road	4B Movement Corridor	4B Movement Corridor	No change
7	Preddys Road	3A Local Street	3A Local Street	No change
8	Stoney Creek Road	4B Movement Corridor	4B Movement Corridor	No change
9	Stoney Creek Road	4B Movement Corridor	4B Movement Corridor	No change
10	Stoney Creek Road	4A Movement Corridor	4A Movement Corridor	No change
Brighton-Le-Sands to Miranda (RNP 56)				
1	General Holmes Drive	5A Movement Corridor	4A Movement Corridor	Reduce movement function
2	General Holmes Drive, The Grand Parade	5C Movement Corridor	4C Movement Corridor	Reduce movement function
3	The Grand Parade, Sandringham Street	4B Movement Corridor	4B Movement Corridor	No change
4	President Avenue	4B Movement Corridor	4B Movement Corridor	No change
5	Rocky Point Road	4B Movement Corridor	4B Movement Corridor	No change
6	Rocky Point Road, Taren Point Road	4A Movement Corridor	4A Movement Corridor	No change
7	Taren Point Road	4B Movement Corridor	4B Movement Corridor	No change
8	Captain Cook Drive	4B Movement Corridor	4B Movement Corridor	No change

Figure 3-4   Future movement and place assessments
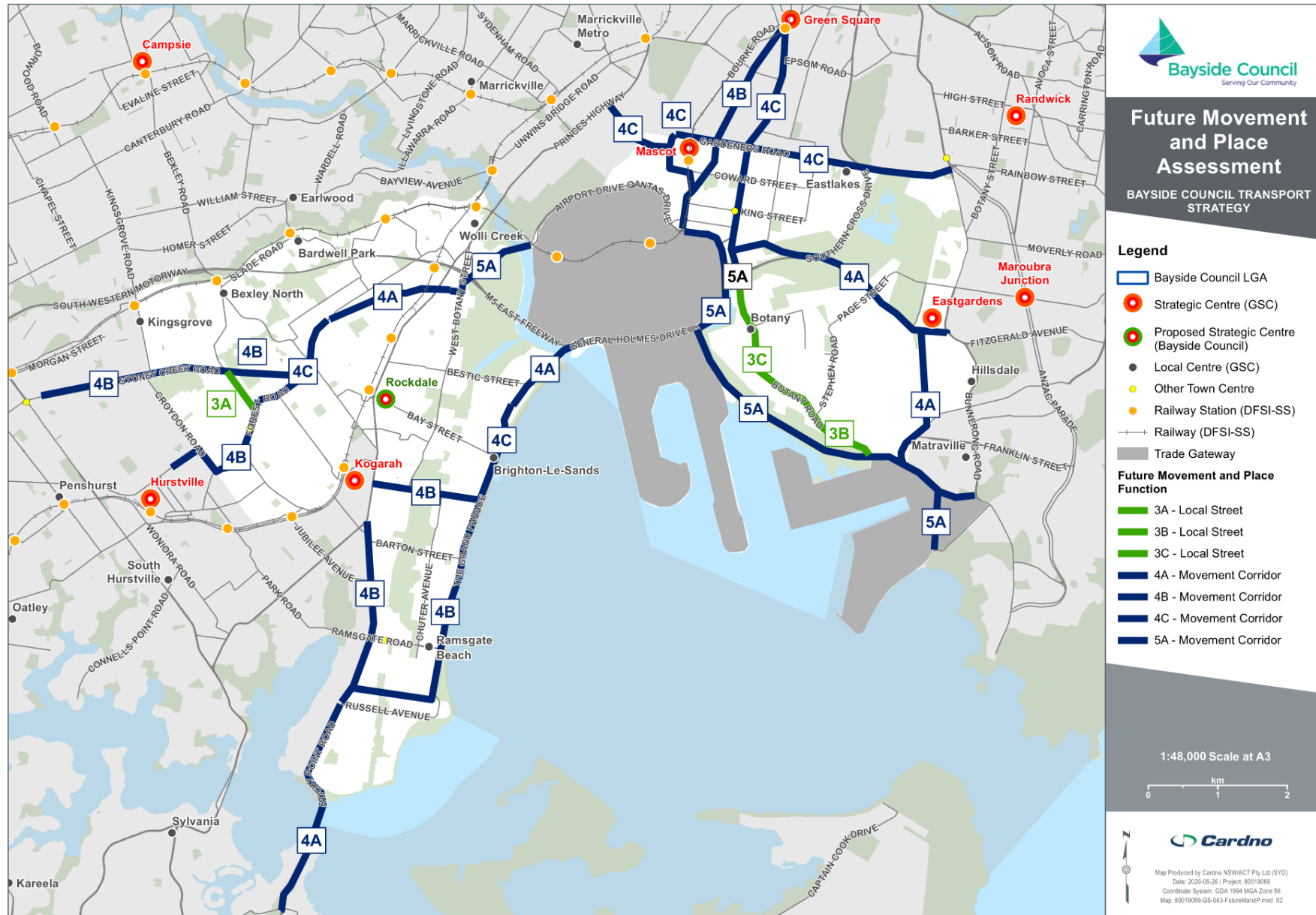
All Road Network Plans have similar objectives for the road network which are synthesised in **Table 3-4**.

Table 3-4   Road network synthesised objectives

Theme	Synthesised objective
Safety	Improve safety for all road users.
General/ all modes	Provide a resilient efficient quality service in moving people along the corridor that caters for a growing population.
Active and public transport	Maintain and provide quality walking, cycling networks and connectivity to public transport stops.
Bicycle	Provide safe and efficient connections along the network.
Bus	Provide a consistent, reliable and comfortable journey for public transport customers with efficient interchange and capacity that responds to growing demands.
Freight	Protect, manage and support the increasing requirement for freight movement, including use of emerging technology. Protect, manage and support the increasing requirement for freight movement, including use of emerging technology.

The Road Network Plans recognise safety and the benefits the road network provides to all existing and potential users and recognises that roads pass through a variety of places that must be considered when planning future initiatives.

Port Botany Road Traffic Study (NSW Ports, 2017)

This 2017 study, based on tube and video counts, showed that while the road network surrounding the port experiences high traffic volumes, the majority of vehicles are private light vehicles, not originating in, or destined for the port. Only 14 per cent of vehicles recorded entering the port precinct road network were heavy vehicles related to port activity, eight per cent were light vehicles related to port activity, and 78 per cent of vehicles were unrelated to port activity. These vehicles are using Foreshore Road to connect between General Holmes Drive and Sydney's motorway network, and locations in the south-eastern suburbs.

The study also found a strong peak in the AM peak period for car and light commercial vehicle (LCV) traffic entering the port precinct via Foreshore Road, but both small and large heavy commercial vehicle (HCV) volumes were more evenly spread through the day.

NSW Ports also advises of a key traffic congestion issue for port HCVs in the PM peak period when Foreshore Road experiences delays because vehicles cannot effectively merge into the congested southbound peak hour traffic on General Holmes Drive. The queue on Foreshore Road is exacerbated by non-port related traffic.

South East Sydney Transport Strategy (SESTS) (Transport for NSW 2020)

Transport for NSW has prepared a transport strategy for South-East Sydney, to set the vision, objectives and initiatives to improve equitable community access to social, economic and cultural opportunities. The transport strategy acknowledges the economic importance of Sydney Airport and Port Botany, addresses opportunities for housing growth, supports active transport access to local services, and how best to harness technology to improve transport options.

****(RA TO SUMMARISE OBJECTIVES FROM THIS NOW COMPLETED AND SIGNIFICANT STRATEGY AND WITHIN THE FOLLOWING TABLE OF INFRASTRUCTURE PROPOSALS)

Eastern Harbour City Strategic Cycling Corridors (Transport for NSW 2022)

Transport for NSW has partnered with local Councils including Bayside to investigate and identify a future network of regional cycleway corridors across the Eastern Harbour City. This network, of connected cycleways represented by **Figure 3-5** will make up approximately 250 km of separated cycleways that will provide direct active transport corridors that connects key centres and major points of interest. Exact routes will be subject to detailed design and collaboration with councils and the community. Extensions to corridors will also be considered to connect riders to recreational activity hubs including major parklands and beaches.

****Figure 3-5? – Eastern Harbour City Strategic Cycleway Corridor Network Map (will need to insert into index table)
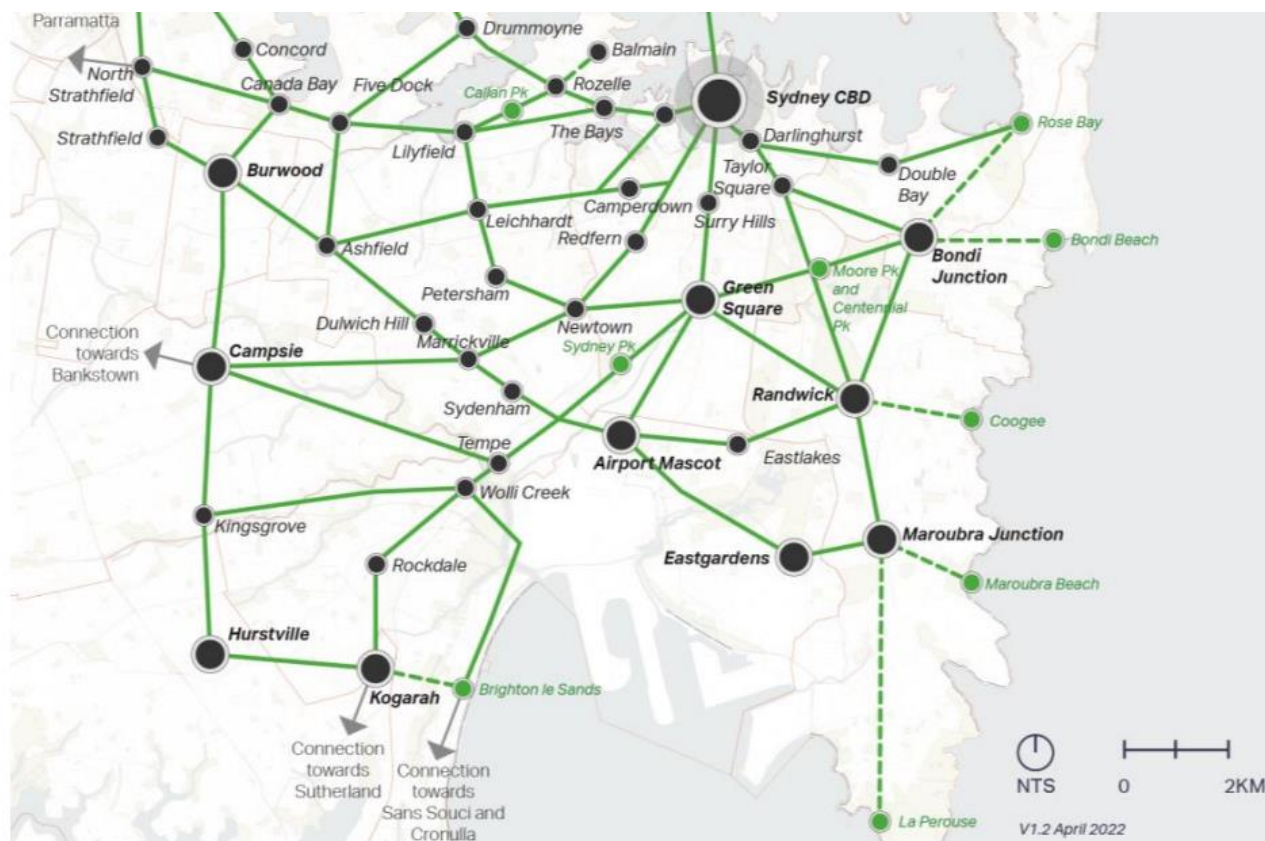
Table 3-5   Table 3-5 Bayside Strategic Regional Cycleways

Bayside Strategic Cycleway Corridor	Detail
Bexley to Wolli Creek	Route subject to further investigation
Kogarah to Green Square	Alexandra Canal and Sydney Gateway provides immediate opportunity – southern connection to Kogarah subject to further investigation
Sydney Airport / Mascot to Eastgardens	Sydney Gateway ATL to existing Wentworth Avenue shared path – Route subject to further investigation
Alexandra Canal to Randwick / UNSW	Coward Street and Gardeners Road cycleway upgrade – Design subject to community consultation
Sydney Airport to Green Square	Domestic Terminal to O'Riordan Street connection subject to further investigation
Wolli Creek to Brighton-Le-Sands	Cooks River extension to Muddy Creek and Kyeemagh subject to further investigation
Hurstville to Kogarah	Route subject to further investigation
Kogarah to Brighton-Le-Sands (extension)	Route subject to further investigation

Transport for New South Wales will continue to work with councils and stakeholder partners to progress these immediate opportunities as well as expanding the program to include other corridors within the strategic network.

3.3   Future transport projects and initiatives

Major investment in improvements to the transport system is underway across Sydney, with new city-shaping rail projects, motorway links and on-road public transport priority projects all planned to move Sydney's people and goods more efficiently. Several city or district-level proposals, planning initiatives and projects, directly affect the Bayside LGA, summarised in **Table 3-6**. Not all of these projects are approved to proceed, some are in planning or currently at proposal or business case stage.

The major committed transport projects are mapped on **Figure 1-1**.

Future Transport 2056, SESTS and items for investigation are mapped on **Figure 3-5**.

Table 3-6   Future transport projects and initiatives

Transport project	Source / status & timing	Timing	Key details	Impact
Public transport projects				
Transport Access Program	Future Transport 2056 SESTS	Committed (0-10 years)	Accessibility upgrades at train stations to meet DDA standards, new accessible pathways throughout station precincts, upgraded commuter car parks andaccessible parking spaces and improved amenities.	High Improves equitable access to transport for a range of transport customers.
Eastern Suburbs to Inner West Rapid Bus Links	Future Transport 2056 Greater Sydney Services and Infrastructure Plan SESTS	For investigation (0-10 years)	Rapid bus routes to provide direct connections, which could include links from Randwick to Sydney University to the Bays Precinct, and from Maroubra Junction to Sydney Airport to Marrickville.	Medium Cross LGA connectivity of the transport network is limited, and new route development may reshape how and where people can get to.
Green Square to La Perouse rapid bus link	Greater Sydney Services and Infrastructure Plan	For investigation (0-10 years)	An investigation of a rapid bus link between Green Square and La Perouse via Eastgardens.	Medium Given the significant amount of development at La Perouse (and surrounding areas), a rapid bus link would likely improve travel times and service comfort.
Parramatta to Bankstown to Hurstville / Kogarah rapid bus link	Greater Sydney Services and Infrastructure Plan SESTS	For investigation (10-20 years)	New rapid bus link from Parramatta to Bankstown to Hurstville / Kogarah.	Medium Cross city network would provide better regional connectivity.
Parramatta to Kogarah mass transit link	Greater Sydney Services and Infrastructure Plan SESTS	For investigation (10-20 years)	A mass transit / train link from Greater Parramatta to Kogarah via Bankstown.	High A new cross city network would have city shaping changes to the way people move throughout Sydney.
Extension of South East mass transit/ train link to Miranda	Greater Sydney Services and Infrastructure Plan SESTS	20+ visionary	Bifurcation of the potential mass transit/ train link to South East at Randwick. The mass transit/ train link would then extend to Sydney Airport, Kogarah and (via the Sandringham Peninsula) to Miranda.	High A new cross city network would have city shaping changes to the way people move throughout Sydney.
New and expanded bus services to the airport	Future Transport 2056 Sydney Airport Master Plan 2039 SESTS	For investigation (0-10 years)	Subject to completion of the Ground Transport Interchange in the T2/T3 precinct. Higher frequency services through Sydney Airport.	High Historically, bus connectivity to the airport has been poor, and new bus routes have the potential to alleviate traffic on key roads in the airport precinct.

Transport project	Source / status & timing	Timing	Key details	Impact
Reallocate and prioritise road space for on-road rapid transport links for buses and high-efficiency vehicles	INSW SIS 2022 recommendation for business cases SESTS	Alongside delivery of projects	On major routes into the Sydney CBD as major projects like WestConnex, Sydney Metro and More Trains, More Services are completed progressively over the next five to 10 years.	Medium The reallocation of road space alongside the delivery of major infrastructure projects has the potential to increase capacity and improve reliability of public transport services.
On-road rapid transit links for buses and high efficiency vehicles between Greater Parramatta and surrounding strategic centres such as Kogarah	INSW SIS 2018 SESTS	End of 2022	Develop business cases for investment in on-road rapid transit links for buses and high efficiency vehicles between Greater Parramatta and surrounding strategic centres such as Kogarah.	Medium The reallocation of road space alongside the delivery of major infrastructure projects has the potential to increase capacity and improve reliability of public transport services.
Light rail extension to Maroubra Junction	Greater Sydney Services and Infrastructure Plan	For investigation (10-20 years)	Extension of the current CBD and South East Light Rail project to Maroubra Junction.	Low Light rail extension to Maroubra Junction is out of the LGA, particularly when an ANZAC Parade alignment would likely be preferred. The extension would have more impact to Bayside LGA if it extended to Eastgardens.
Major road projects				
WestConnex	Sydney Motorway Corporation (SMC) / NSW Government Under construction	Staged opening to 2025	An approved 33-kilometre motorway being produced in stages ▪ Stage 1 – Widening the M4. ▪ Stage 2 – M5 tunnel Duplication + St Peters Interchange and M4 East tunnel. ▪ Stage 3A – M4-M5 Link; via a tunnel that runs beneath the IWC. ▪ Stage 3B - The Rozelle Interchange; linking M4-M5 Link with Drummoyne, the Anzac Bridge, Balmain and the City West Link. Three interchanges associated with 3A and 3B.	High WestConnex is the Federal and State Government's signature road project. It is forecast to significantly redistribute traffic from surface roads.
M6 Extension	Greater Sydney Services and Infrastructure Plan SESTS	Stage 1 under construction - expected completion 2025	Motorway link (under construction) : M6 Extension – WestConnex / M5 Motorway, Arncliffe to Loftus. Stage 1 is under construction and will provide a motorway link from the WestConnex / M5	High The M6 Extension will support traffic flow between the key land uses such as the Sydney CBD, Sydney Airport as well as Port Botany and Sydney's southern region.

Transport project	Source / status & timing	Timing	Key details	Impact
			Motorway at Arncliffe to Presidents Avenue inKogarah. Stage 1 includes two four kilometre tunnels, with ramps to a new President Avenue intersection and tunnel stubs for a future southern connection.	It will divert some through traffic on Bayside LGA's road network, including on General Holmes Drive and the Princes Highway.
Sydney Gateway	Future Transport 2056 SESTS	Estimated completion 2025	Provide a motoway link between WestConnex at St Peters Interchange and the Sydney Airport and Port Botany precinct, improving freight connectivity between Port Botany and the strategic motorway network.	High The Sydney Gateway will support efficient traffic movement from WestConnex into key transport and trade land uses.
Integrated road and transport network pricing	INSW SIS 2022recommendation	No timing	Development of a road map for an integrated, system-wide user pricing regime across the Sydney metropolitan road and transport network.	High Road network pricing has long been discussed and has the potential to significantly change how and when people travel.
Freight projects				
Port Botany Rail Line Duplication (Sydney Gateway)	NSW Freight and Ports Plan, ECDP INSW SIS 2018 SESTS Greater Sydney Services and Infrastructure Plan	Under Construction (expected completion 2024)	Duplication of three kilometres of Port Botany Rail Line, which will allow freight to be more reliably transported by rail to metropolitan intermodal terminals and from regional intermodal terminals to port.	High The existing single track section constrains the capacity of Port Botany and the duplication will support a mode shift of freight from truck to train.
Port Botany road corridor optimisation	NSW Freight and Ports Plan (0-10 years). INSW SIS 2012 recommendation (complete business cases) SESTS Greater Sydney Services and Infrastructure Plan	For investigation (0-10 years)	Including investigation of truck-only lanes in the port precinct, and augment the missing link between the Sydney Gateway and Port Botany (includes opportunities for private sector co-funding)	High Foreshore Road is the primary road freight vehicles use to connect from the from Port Botany and the motorway network.
Investigate second truck marshalling area in Port Botany	NSW Freight and Ports Plan	No timing	Investigate a second truck marshalling area in the Port Botany area to cater for additional growth, serve all stevedores and possibly offer specialised transport services (e.g. for dangerous goods vehicles).	Medium An enhanced marshalling area will improve the efficiency and capacity of Port Botany.

Transport project	Source / status & timing	Timing	Key details	Impact
Supporting initiatives for the trialing of alternative delivery modes for freight delivery	NSW Freight and Ports Plan	No timing	To improve the efficiency of the urban freight network in busy urban environments.	Low First and last mile logistics has the potential to change how freight is delivered to customers.
Innovative approaches to using space for freight and servicing in the CBD and other key urban centres	NSW Freight and Ports Plan	No timing	Through concepts such as delivery service plans for individual buildings, precinct delivery models and shared loading docks.	Low Shared service areas have the potential to rationalise and improve the efficiency of the 'last mile' delivery of freight.
Working with industry to implement measures to facilitate deliveries outside peak periods	NSW Freight and Ports Plan SESTS	No timing	Retiming deliveries and collections, transport companies can take advantage of capacity in kerbside loading zone space, which exists before 7:00am, in the afternoon after 3:00pm, and overnight.	Medium A significant amount of traffic on the road is freight traffic. If an initiative was adopted to promote the delivery of freight in off-peak times, this could result in efficiencies for a range of stakeholders.
Support electric vehicles in high density areas	Future Transport Technology Roadmap 2021-2024 NSW Electric Vehicle Strategy	No timing	To reduce the noise and emissions impact of freight.	Medium Development around major road corridors needs to meet acoustic standards. Quieter vehicles may result in an improvement to living standards for the community.
Develop electric vehicle strategy	Future Transport Technology Roadmap 2021-2024 NSW Electric Vehicle Strategy	No timing	The NSW Government will develop a whole-of-government electric vehicles strategy to prepare for and support the transition to electric vehicles.	Medium Existing heavy vehicles typically are diesel fueled which is detrimental to air quality. Electric vehicles are 'locally; cleaner and quieter than current vehicular fleets.
Advocate for stronger national vehicle emission standards	NSW Freight and Ports Plan	No timing	The NSW Government will support the strengthening of national vehicle emission standards for both heavy and light vehicles, and for a national approach to managing diesel emissions from non-road diesel equipment, under the National Clean Air Agreement.	Medium Existing heavy vehicles typically are diesel fueled which is detrimental to air quality.
Last mile deliveries by drone trials	Future Transport Technology Roadmap 2021-2024	No timing	Last-mile deliveries by aerial drones in suitable areas and last-mile deliveries by land-based drones in urban areas.	Low Last mile drone deliveries might be restricted in Bayside due to the proximity to controlled airspace.
Vehicle-to-infrastructure (V2I) systems trials	Future Transport 2056	No timing	Vehicle-to-infrastructure (V2I) systems to optimise traffic signal timing and reduce travel times for freight vehicles along key freight corridors.	Low Trials are underway on Parramatta Road to try and enhance road capacity using detection systems to delay signal phase

Transport project	Source / status & timing	Timing	Key details	Impact
				changes in the event a heavy vehicle is detected.
Further protect strategically important ports, airports, industrial lands, freight precincts and key corridors from incompatible uses	INSW SIS 2012 recommendation	No timing	Update the relevant State Environmental Planning Policies to further protect strategically important ports, airports, industrial lands, freight precincts and key corridors from incompatible uses to ensure the efficient movement of freight in Sydney and NSW, now and into the future.	High Changing land uses is an intensive exercise. The protection of industrial land is important to balance land use types in Sydney, particularly around the trade gateways.
Walking and cycling projects				
Inner Sydney Regional Bike Network / Greater Sydney Principal Bicycle Network	City of Sydney and Future Transport 2056 Greater Sydney Services and Infrastructure Plan	Initiatives for Investigation (0-10 years)	Inner Sydney Regional Bicycle Network: 284 kilometres of inner Sydney regional separated bike corridors and shared paths. Greater Sydney Principle Bicycle Network: FT56 focuses on a connected network supporting a 10km radius of the Harbour CBD and 5km catchments to strategic centres.	Medium An integrated network of cycling paths across Greater Sydney would alleviate some traffic congestion. The health benefits of an improved cycling network which encourages mode share shift are substantial.
Greenway South West	Sydenham to Bankstown Corridor Urban Renewal Strategy (Proposal)	Ongoing	Proposal for an extension of the Greenway to run along the Sydney Metro rail corridor parallel to the tracks. While located in the Inner West Council LGA, it could connect to the Alexandra Canal / Qantas Driver shared path via the Tempe Recreation Reserve, providing a regional cycling between Bayside and the Inner West and Bankstown.	Low The Greenway is a regional link in the cycling network, but its impact would be expected to be comparatively small.
Providing safe cycling and walking connections to Sydney Airport and Port Botany	ECDP SESTS	No timing	The ECDP and the SESTS both note that this would address connections to/from Mascot Station (located to the north of Sydney Airport). Better connections are needed from the east, south and north, and cycleways to the T2/T3 Domestic Terminals and one connecting from the west to T1.	Medium Sydney Airport supports a significant employment base, and if employees were able to safely cycle to work, this may alleviate some local road congestion.
M6 Extension Stage 1 shared cycle and pedestrian paths	M6 Extension Stage 1	Stage 1 under construction - expected completion 2024	The M6 Extension Stage 1 includes plans for an active transport corridor, it will start from the existing cycleway at Muddy Creek next to Bestic Street, Brighton-Le-Sands, connecting south to Kogarah through Rockdale Bicentennial Park. The plans include a shared cycle and pedestrian bridge over President Avenue.	Medium The M6 active transport link would provide local connectivity through the M6 corridor. The route would become regionally significant upon the completion of Stage 2.

Transport project	Source / status & timing	Timing	Key details	Impact
Network of protected cycle ways linking major strategic centres	INSW SIS 2022 recommendation Future Transport 2056	For investigation (0-10 years)	To be delivered in partnership with local government and be integrated with the Greater Sydney Commission Green Grid. Investment in cycling connections within 5 kilometre radials of strategic centres.	Medium An integrated network of cycling paths between strategic centres would alleviate some traffic congestion. The health benefits of an improved cycling network are substantial.
Other emerging technologies				
Electric vehicles	Future Transport 2056 NSW Government Electric Vehicle Strategy	Initiatives for Investigation (0-10 years)	Roll-out of electric vehicles charge points as necessary infrastructure for the future of electric vehicle use.	Medium Electric vehicles are locally quieter and cleaner than traditional combustion engine vehicles.
Mobility as a Service (MaaS)	Future Transport 2056	No timing	Application based services integrating all motorised transport needs, ride share, car share, and public transport.	Medium Shared transport assets will support efficient transport infrastructure and services.

Figure 3-5   Bayside LGA Transport Structure Plan
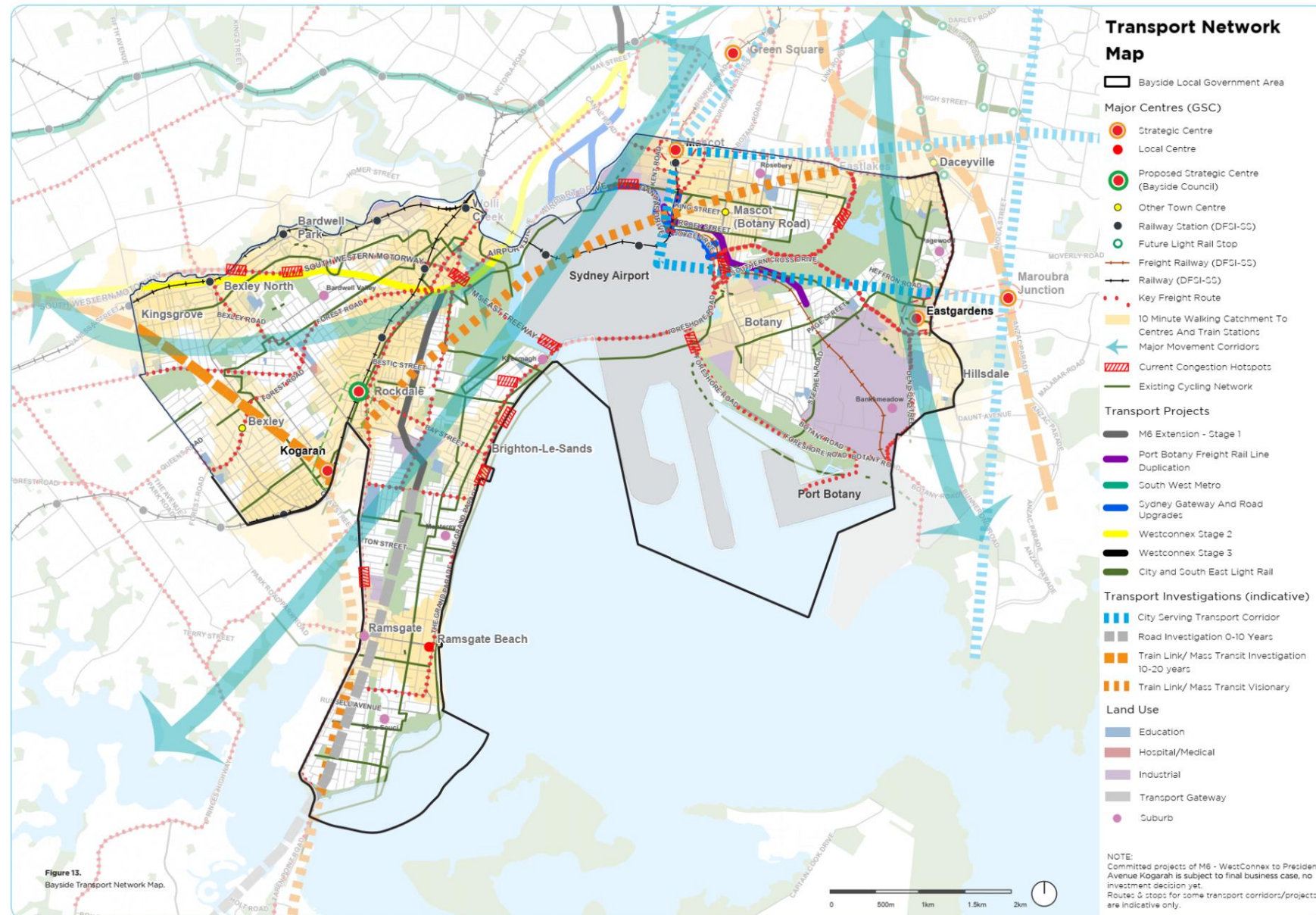
Source: Future Bayside Local Strategic Planning Statement, A land-use vision to 2036, Bayside Council, March 2020

4 Current and future land use

The Bayside LGA is a large and complex area, supporting significant economic drivers for the NSW economy, a growing population, and diverse centres and neighbourhoods. It is a desirable location to live and attractive to many businesses. Residents enjoy close proximity to the Harbour CBD, accessible foreshores and green public spaces, established neighbourhoods with unique characters, and generally vibrant and growing local centres. Businesses located in the Bayside LGA have access to the Eastern Economic Corridor, and the trade gateways of Port Botany and Sydney Airport. They should also benefit from improving access to Sydney's motorway network.

4.1 Strategic centres

Three of Sydney's 34 strategic centres identified in Metropolis of Three Cities (M3C), Eastgardens-Maroubra Junction (Randwick City Council and Bayside Council), Green Square-Mascot (City of Sydney and Bayside Council), and Kogarah (Georges River Council), are either fully or partly located in the Bayside LGA. Kogarah is also a nominated Collaboration Area based on its health and education precinct, and Green Square-Mascot as a commercial office precinct.

4.1.1 Eastgardens-Maroubra Junction

Eastgardens is a major shopping centre located in the east of the Bayside LGA, on the corner of Bunnerong Road and Wentworth Avenue. Eastgardens forms a strategic centre with the Maroubra Junction town centre, around a kilometre to the east. The two commercial centres are separated by detached housing, South Sydney High School, Champagnat College, and Nagle Park. Eastgardens sits north of the Banksmeadow industrial area, and to the east of the Bonnie Doon and The Lakes golf clubs.

The shopping centre has over 300 stores including a cinema, three supermarkets and departments stores, over 3,200 (first 3 hours free) parking spaces. Directly north of the shopping centre, between Bunnerong Road and Banks Avenue, is Pagewood Green, a 3,000 unit residential development which will include open space parklands and restaurants when complete.

The centre is connected to the regional road network by Wentworth Avenue, which links to Southern Cross Drive (M1), and via Bunnerong Road to Anzac Parade. Public transport is provided by the bus network, with bus stops located on Bunnerong Road providing connection to regional destinations including Redfern Station, Railway Square, Circular Quay, Bondi Junction, Burwood, and also Mascot Station and Port Botany Depot. The car park and servicing entrances to the shopping centres, combined with the busy road network, limit pedestrian amenity around Eastgardens. Long distances between pedestrian crossing locations, missing crossing legs of signalised intersections, and a lack of street front activation also contribute to a low amenity pedestrian experience.
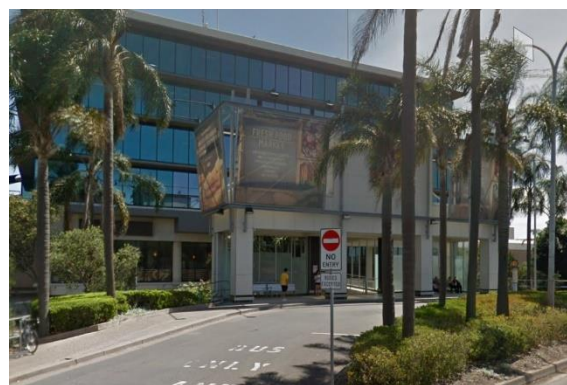
Bunnerong Road bus entry (source Nearmap)

Banks Avenue entry and new residential development – Pagewood Green

4.1.2   Green Square-Mascot

Mascot Station Town Centre, located in the north of the Bayside LGA, forms a strategic centre with Green Square, approximately 2.4 kilometres north in the City of Sydney LGA. Both Mascot Station Town Centre and Green Square have train stations on the T8 Airport and South Line, and are connected via Bourke Street and O'Riordan Road running north-south through the strategic centre. Both Mascot Station Town Centre and Green Square are undergoing significant urban renewal, with high density residential, commercial office, and ground floor retail and dining clustered around the train stations. Mascot Station Town Centre's redevelopment is generally complete, while Green Square's is still underway. Nominated as one of nine key commercial office precincts across Sydney, Green Square – Mascot hosted a combined 59,500 jobs in 2016, set to increase up to 80,000 by 2036.

Mascot Station Town Centre is connected to the regional road network by O'Riordan Street, which connects to Qantas Drive in the south, and via Gardeners Road / Canal Road to the Princes Highway. State roads through the town centre include the link between Ricketty Street and O'Riordan Street via Ken Road, Coward Street and Bourke Road. This route operates as an alternative east-west link between the Cooks River Intermodal Port and Port Botany.

The T8 Airport and South Line connects Mascot to Sydney Airport, the Harbour CBD, and Southern Sydney via Revesby. Buses that service the centre and interchange with the T8 line, connect to Bondi Junction, Burwood, Eastgardens, Sydney Airport, Port Botany and Kingsford. The recent development around Mascot Station has resulted in wide footpaths and zebra crossings directly adjacent to the station entrances, and around the new development, but the centre has some blank facades or private entrances to apartment buildings set back from the street, which limits passive surveillance and engaging street fronts. Less than a block from the train station entrance in either direction, pedestrian amenity is affected by a lack of crossing facilities at intersections, including a missing crossing leg at the signalised intersection of Bourke Street / Coward Street intersection which is busy with pedestrian and vehicle activity during weekday lunchtimes, and no crossing facilities are provided at the intersection of Bourke Street and

Bourke Street near the train station entrance

New residential development at the intersection of Bourke Street and Church Avenue

Pedestrians at the intersection of Bourke Street and Coward Street

Church Avenue. Footpath widening is also required in several areas that have not been redeveloped.

Pedestrian amenity is also affected by freight movements, with trucks carrying empty containers through Mascot Station Town Centre to Port Botany (via intersection of Bourke Street and Coward Avenue) conflicting with the high pedestrian activity. The pedestrian crossing on Bourke Street at Mascot Station has had 900 pedestrian crossings recorded in a peak hour.

The centre is connected with a separated cycleway along Bourke Street providing a direct route to the Harbour CBD, and shared paths are provided on Gardeners Road and Coward Street. The Coward Street shared path connects the centre to Airport Drive and the Alexandra Canal shared path and suburbs to the west. The Coward Street shared path is in poor condition, incomplete in areas, and lacking signage to indicate the most direct route to and through the Mascot Station Town Centre. Bicycles on the shared path will increasingly conflict with the growing amount of pedestrian activity that shares the same path space.

Mascot also has an established main street along Botany Road, Mascot Town Centre (Botany Road), located over one kilometre south-east of the train station. It serves the local neighbourhood, and features small scale retail, dining and local services.

Some heavy vehicles access Port Botany via the Mascot Station Town Centre

4.1.3   Kogarah

The Kogarah strategic centre, encompassing a health and education precinct sits mostly within the Georges River LGA, within a narrow (administrative) wedge in the south-west part of the Bayside LGA. Although the centre itself is within the Georges River LGA, it is an important destination for the Bayside community; and strengthening the community and collaborative links with the centre will be important. The suburb of Kogarah sits mostly within Bayside LGA and surrounds the strategic centre, while straddling the T4 Illawarra and Cronulla Line that runs regular services to and from the Harbour CBD and Eastern Suburbs. This refers to 'Kogarah' (the suburb and strategic centre) as one singular location, as the Georges River-held section still remains significant for Bayside

Railway Parade near Kogarah Station (Georges River Council LGA)

residents who work and shop there, use its facilities or pass through it.

In 2018-2019, Kogarah was listed as a 'collaboration area' by the Greater Sydney Commission. This is intended to secure its presence as an identified Health and Education Precinct. Kogarah 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 centre also caters for some night life that could be expanded with better services. Ongoing investment in the centre will support the health and education precinct focused around St George Hospital, and encourage opportunities for local jobs and economic activities to achieve the jobs target.

Station Street, western side of Kogarah Station (Bayside Council LGA)

In 2022 the Kogarah Health and Education Precinct was host to 11,800 jobs and by 2036 it could host as many as 20,500 jobs. The Greater Sydney Commission's South District Plan sees Kogarah as regionally significant and suggests that while Georges River Council has jurisdiction over most of the precinct, other planning authorities and State agencies must work collaboratively to strengthen Kogarah by:

> Supporting growth of the health and education precinct.

> Encourage new lifestyle and entertainment uses to activate streets and grow the nighttime economy.

> Facilitate the attraction of office and commercial floor space and provide opportunities to allow commercial and retail activities to innovate.

> Retain and manage surrounding employment, industrial and urban services.

> Enhancing local (off-road) active transport and local movement corridors – with a focus on green grid identification and integration.

> Encourage activation of secondary streets.

4.2   Local centres

There are currently ten local centres across the Bayside LGA. These support their neighbourhoods with local shops, services, jobs and community facilities. The local centres are presented in **0**. Revitalisation will initially focus on Arncliffe and Banksia. Further investigation will be undertaken in the short term for Arncliffe West, Bardwell Park, Brighton-Le-Sands Stage 1, Kogarah West and Turrella Bayside local centres

Local centre	Description	Transport connections
Bardwell Park	Located near the T8 Airport and South Line between Turrella and Bexley North, Bardwell Park's local centre is small but high functioning, it occupies the southernmost 100 metres of Hartill-Law Avenue and approximately 200 metres of Slade Road adjacent. These form a T-junction, with local shops including a pharmacy, post office, medical practice, bakery, and hairdresser. There is a RSL next to Bardwell Park Station. Bardwell Park is close to the busier centre of Earlwood in the neighbouring LGA, connected by Hartill-Law Avenue, 450 metres from Bardwell Park Station.	Passenger rail services pass through Bardwell Park Station on the T8 Line between City Circle and Macarthur, via the Airport. Bardwell Park has two bus services which serve it: the 473 Rockdale to Campsie; and, the 491 Five Dock to Hurstville. Both bus services operate north-south on Hartill-Law Avenue, which provides regular public transport connections with Earlwood's shopping centre. The RSL's carpark just north of Bardwell Park Station currently doubles as a small park-and-ride for train commuters. Wolli Creek Regional Park and Bardwell Valley Parklands are not far from Bardwell Park centre. These provide recreational walking and cycling opportunities. These areas are now priority projects for Sydney's Green Grid, running along the border of both the South and Eastern City districts.
Botany	Botany is a traditional high-street with high traffic demand that includes heavy vehicles, between	Bus services include the 309 from Matraville to Central Station via Redfern, and 307 from Mascot

Local centre	Description	Transport connections
	Mascot and the Banksmeadow industrial lands. It is located within the suburb of Botany which is mostly low-rise residential, some urban intensification and some light industrial pockets. The high street for the centre is Botany Road between Hickson Street in the north and Edward Street in the south. Further south on Botany Road, between Pemberton Street and Wilson Street, the Banksmeadow Town Centre is a smaller shopping strip servicing local residential and employment areas.	to Matraville via Botany, Pagewood, Eastgardens (where there are interchange options to the Eastern Suburbs) and Hillsdale. Parking and pedestrian / cycle connections are affected by the presence of freight and delivery vehicles along Botany Road through the centre.
Bexley North	Bexley North is a local centre of shop frontages that line the streets just south of the Bexley North Station. Primarily these frontages occupy Shaw Street and Slade Road closest to Bexley Road, Bexley Road between the rail line and New Illawarra Road as far as Fortescue Street. At the corner of Slade and Bexley there is a large carpark with a supermarket, more shops and the Bexley Hotel.	The centre is serviced by the T8 Line between the City Circle and Macarthur via the Airport. This also services all stations between Wolli Creek and East Hills. Bus services include: ▪ The M41 Hurstville to Rhodes and Macquarie Park. ▪ The 420 & 420N Eastgardens to Burwood. ▪ The 491 Five Dock to Hurstville. ▪ The 493 Roselands to Rockdale. Bexley North Station has a commuter carpark and a kiss and ride stopping area. Access is not currently DDA compliant or step free, upgrades are planned as part of the Transport Access Program.
Eastlakes	Eastlakes Shopping Centre is set back from Gardeners Road, inside the suburb of Eastlakes. The centre features supermarkets and discount stores, as well as newly developed frontages. To its immediate west is Eastlakes Reserve and Bridget Tigh Reserve. To the east is the Eastlakes Sports Club and Bowling Green, as well as Eastlakes Public School. The north of the suburb surrounding the shopping centre is mostly medium density housing. A key renewal site sits between Gardeners Road and the Shopping Centre. Council is currently developing the Eastlakes Town Centre Master Plan to inform the future of the centre. The surrounding Eastlakes residential character and built form includes three storey walk-up flats which contribute to high on-street parking demands due to a limited off-street parking.	Bus services include: ▪ 301 between Redfern and Eastgardens via Mascot. ▪ 303 between Redfern and Sans Souci via Mascot. There are also regional bus services from Kingsford to Chatswood and Bondi Junction to Mascot via Kingsford from bus stops on Gardeners Road which is a short walk away.
Brighton-Le-Sands	Located on Botany Bay, Brighton-Le-Sands is a vibrant restaurant precinct which attracts regional visitors. Land use in the centre supports activity across the day and into the evening. Small retail frontages, restaurants and cafes, along with apartment buildings, line both sides of Bay Street between General Holmes Drive and Francis Avenue. The centre is adjacent to Brighton-Le-Sands beach, a popular destination with local and visitors in warmer periods. Council is currently developing the Brighton-Le-Sands Master Plan to inform the future of the centre.	The centre is adjacent to General Holmes Drive, a busy through route with six lanes. Parking occurs in side streets or isolated pockets on the bayside of General Holmes Drive, with demand for parking exceeding supply at times. Some traffic diversion from General Holmes Drive is expected when the M6 Extension Stage 1 opens. Bus services include the 478 / 479 from Bay Street provide connection to Rockdale and the train network, as well as Ramsgate and Miranda. The 303 bus connects the centre with Sydney Airport, Mascot, UNSW, and connects Redfern Station. Pedestrians have good footpath facilities and crossing opportunities within the centre at signalised pedestrian crossings and an overhead pedestrian bridge across General Holmes Drive to the beach. North of the centre, there is not another formal crossing opportunity to cross General Holmes Drive for a kilometre.

Local centre	Description	Transport connections
Hillsdale	The centre consists of the South Point Shopping centre located on Bunnerong Road, beneath an apartment building and co-located with the Hillsdale Community Hall and across from Heffron Park (sports fields, courts and recreation reserve). The centre is surrounded by three storey apartment buildings to the south and west, and detached dwellings to the north. The three storey apartment buildings don't generally provide off street parking. The centre closes by 5:30pm on weekdays and earlier on weekends, limiting activity in the centre to daytime only, although the supermarkets are open later.	The Southpoint Shopping Centre has over 400 off street parking spaces, accessed by an entrance on Flint Street near Tierney Avenue. The 391 and 392 bus services connect the centre to the Harbour CBD via Eastgardens and Kensington, and the 317 bus service connects to Bondi Junction via the south-eastern suburbs. A wide footpath is provided on both sides of Bunnerong Road but there are limited locations to cross the road. From the shopping centre entrance, pedestrians must travel 100 metres north, or 475 metres south along the Bunnerong Road to cross at signalised crossings.
Kingsgrove	The centre, located to the south of Kingsgrove Station, straddles the Bayside and Georges River LGAs across Kingsgrove Road. Small scale retail lines both sides of the centres, with a supermarket with underground parking set back to the west behind a block of shops, accessed via Mashman Avenue and beneath an apartment building. Within the Bayside LGA the centre is surrounded by detached dwellings, while larger format retail is present north of the M5 overpass in the Canterbury-Bankstown LGA.	Bypassed by the arterial road network, there is limited on street parking, which shares space with bus stops and loading zones. The centre is serviced by the T8 Airport and South Line connecting to the Harbour CBD, Sydney Airport and Southern Sydney. Bus services with stops located close to the station entrance connect the centre north-south between Drummoyne and Hurstville or Rockdale (490 or 492), and to Roselands, Kogarah and Rockdale (455 and 493). Signalised pedestrian crossings provide frequent, protected crossings of Kingsgrove Road through the centre and around the train station, with a couple of zebra crossings on side streets to give priority to pedestrians. The footpaths on each side of the road include seats, awnings and bins.
Ramsgate	The Ramsgate Beach Town Centre, located along Ramsgate Road between Chuter Avenue and The Grand Parade, provides off street parking and supermarkets with ancillary shops and services. Another local shopping village in Ramsgate is based around Rocky Point Road between Park Street and Clarkes Road. It serves the local neighbourhood with small scale retail, cafes and services. In Ramsgate, the eastern side of Rocky Point Road is located in Bayside Council, and the western side is located in Georges River Council.	Recently upgraded to improve amenity and circulation, the Ramsgate Beach Town Centre has wide footpaths, clear pedestrian crossing points and landscaping. It is serviced by bus routes 478 and 947 on Ramsgate Road that connect to Rockdale and Miranda (478) or Kogarah and Hurstville (947). Bus stops on Rocky Point Road connect the shopping village to Rockdale and Kogarah within the Bayside LGA (476 and 477), and to Miranda (477).
Rockdale	Rockdale is a large community hub that provides a mixture of low to medium density housing, commercial and light industrial land uses. Rockdale also has high density residential development close to the train station and Rockdale Plaza, and along the Princes Highway and eastern side of the railway line. The main shopping strip in Rockdale runs along the Princes Highway for 1.3km just east of Rockdale Station. Rockdale's commercial core also spreads into the surrounding streets east and west of the train station. The main high street itself heads further north along the Princes Highway. King Street presents a popular strip of cafes and grocery shops to the east of the train station and has been pedestrianised between the Princes Highway and Market Street. New commercial developments run along the length of Bay Street and West Botany Street. The light	The Princes Highway, a key north-south regional road, is also the high street for Rockdale's local centre. Rockdale Station is located on the T4 Illawarra line as part of the Sydney Trains network. Rockdale Station is also a major bus interchange for the Transit Systems-run Inner West bus network, providing services to Hurstville, Roselands, Campsie, Burwood, Camperdown, Drummoyne, Sydney CBD, Eastgardens via Sydney Airport, San Souci, Miranda, and Brighton-Le-Sands/Kyeemagh. Fencing along the centre median of the Princes Highway prevents midblock crossings by pedestrians, with regular crossing opportunities provided at signalised intersections. The 100 metre shared zone / pedestrian plaza on King Street connects the Princes Highway to Market Street and includes shade from trees and seating.

Local centre	Description	Transport connections
	industrial / commercial area is also located around West Botany Street. Rockdale Plaza is just off the Princes Highway, to the immediate south-east of Rockdale's high street and train station. The medium-sized shopping centre holds district significance.	
Wolli Creek	Wolli Creek is a high-density mixed-use precinct, following its industrial past and the addition of a train station in 2000 as part of the Airport Rail Link upgrade. Wolli Creek Station provides an interchange point between the T4 and T8 rail lines. Wolli Creek is one of the most densely populated centres in Bayside. Some parts are still being redeveloped but it is now mostly a high density residential and commercial suburb. Its close rail links to Sydney's CBD, the Wolli Creek Reserve and the jobs rich areas around Sydney Airport made it an attractive residential location. Wolli Creek has a supermarket and the main retail precinct is the Village Square which sits directly opposite Wolli Creek Station's entrance. Wolli Creek also has two hotels.	The Princes Highway links Wolli Creek north to Tempe and Sydney's CBD via frequent regional buses as well as south to Arncliffe and Rockdale. The M5 South Western Motorway, with entrances and exits in nearby Arncliffe, leads south-west towards Liverpool and north-east towards Botany and the city. Wolli Creek Station is a railway junction for the Illawarra Line and Airport & South Line on the Sydney Trains network. Wolli Creek is Bayside's only town centre with dedicated bicycle routes linking to surrounding centres. There are several bus routes in Wolli Creek. The 348 bus route stops outside Wolli Creek Station and continues to Bondi Junction via Tempe, St Peters, Kensington, UNSW and Randwick. The 422 bus route travels from Kogarah to Wolli Creek, then continues to the CBD.

Photos of the Wolli Creek local centre, Mascot Town Centre (Botany Road), Bardwell Park local centre and Rockdale local centre are presented below.

Wolli Creek local centre - residential development

Mascot Town Centre (Botany Road)

Bardwell Park local centre – shops and services

Rockdale local centre – shared zone

4.3 Trade Gateways

Sydney Airport

By international standards, Sydney Airport is very close to the CBD. The airport covers 907 hectares of land adjacent to Botany Bay and sits directly south of the City of Sydney.

Sydney Airport is Australia's main air travel gateway. It was declared an operational aerodrome in 1920. It has expanded to host international and domestic terminals and has three runways. Sydney Airport was mainly built over reclaimed parts of Botany Bay. Its central location to the city provides relatively short travel times to the rest of eastern Sydney. Its close proximity to suburbs and aircraft noise mean that it is subject to an 11:00pm to 6:00am curfew. Sydney Airport is a major employer and economically important to the region.

The main functions for Sydney Airport are freight and passenger travel, long-term car parking, catering, retail, accommodation, and transport.

The airport precinct generates 368,000 indirect jobs across Australia and more than 30,000 jobs on-site. It contributes $30 billion a year for both the NSW and Australian economies. The airport currently exports around $17.6 billion in freight each year.

Sydney Airport is centrally located in Bayside and Bayside Council does not have any land or local roads that connect through the Airport precinct.

Port Botany

Port Botany is Australia's premier port facility and plays a vital role maintaining the economic prosperity of both Sydney and NSW. It hosts the state's largest container facility and doubles as the primary bulk liquid and gas delivery facility for NSW. The port is also the largest dedicated common-use facility of its type in Australia.

On-site, Port Botany holds a bulk liquid and gas storage area, container parks, container packing and unpacking facilities, transport operations, warehousing, customs facilities and a truck marshalling area.

Transport infrastructure to and from the port includes road and rail access to all three container terminals across Sydney and pipeline links to the bulk liquid and gas berths. Port Botany operates 24 hours per day, seven days a week.

4.4 Other land uses

4.4.1 Residential

In 2021 the Bayside LGA was home to 175,184 residents and approximately 74,734 dwellings (ABS Census), detailed further in **Section 5**. Most of the housing across the Bayside LGA is made up of high density, separated or medium density stock. Between 2016 and 2021, 12,781 additional dwellings were built in the Bayside LGA – an increase of 20 per cent. The Bayside areas with the highest residential densities are the northern parts such as Wolli Creek, Arncliffe and Mascot. There are also many frontages of high density along portions of the Princes Highway between Rockdale and Wolli Creek.

4.4.2 Recreation and open space

There are over 350 parks, gardens, reserves, plazas and recreational facilities across the Bayside LGA. This includes 200 hectares of parkland, 150 hectares of sports grounds, 100 hectares of natural open space, 75 hectares of other open space, seven golf courses across 298 hectares (excluding private property), two aquatic centres, and four tidal swimming enclosures.

Major green spaces include the M6 road reservation between Ramsgate and Brighton-Le-Sands, Bardwell Creek, Barton and Riverine Parks, Sir Joseph Banks Park, The Lakes Golf Club and the Bonnie Doon Golf Club. The two aquatic centres service the communities on the east and west sides of the LGA and publicly accessible beaches and foreshores extend from the southern tip of the LGA up the western side of Botany Bay. The Cooks River and Georges River also provide access to waterways and Botany Bay. As part of the expansion of Port Botany, the community was given improved access to Mill Stream Lookout and Foreshore Beach as well as a new boat ramp which was built for recreation use off Foreshore Road just west of the Port.

4.4.3 Schools and hospitals

There are 60 child care centres, 14 preschools / kindergartens, 31 primary schools, nine high schools, and one TAFE located in the Bayside LGA. Higher education is represented by the UTS Tech Lab campus in Botany, a TAFE campus in Kogarah, and the University of NSW is located directly to the north-east. Smaller private educational institutions like business colleges also operate in larger centres.

4.4.4 Community places

There are five community or senior citizen centres, four halls, eight libraries, a local community museum, the George Hanna Memorial Museum, and several other meeting spaces for hire across the Bayside LGA, often located within or adjacent to local centres. Council-organised community groups, learning sessions, and networking events occur across the weekdays, weekends and into the evening in these locations, and an annual Arts festival is held across April in several locations.

4.4.5 Industrial and employment lands

Much of the Bayside LGA's significant industrial lands are governed by the Three Ports State Environmental Planning Policy 2013 (Three Ports), setting the land use planning and assessment framework for appropriate development around Port Botany (along with Port Kembla and the Port of Newcastle). The SEPP protects the ports and nearby lands from incompatible development, specifying the areas for port-related activities. The ECDP also emphasises the importance of safeguarding the land surrounding Port Botany for industrial uses that help the port function efficiently, as well as the essential transport connections and corridors needed to support the planned growth. The Bayside LGA has 475 hectares across the Banksmeadow, Botany, Mascot and Port Botany industrial precincts, together these account for the highest proportion of industrial land in the Eastern City District. Many of the intensive industries in the Port Botany area have strict security or governance measures in place due to potential hazards associated with some of the industrial activities within.

While the industrial and employment-focused lands across the LGA support freight logistics, traditional manufacturing and warehousing industries, they are also increasingly home to start-ups; creative and technology businesses.

4.5 Future land use

The Greater Sydney Commission forecasts the Eastern City District to grow by 325,000 people, up to 289,000 jobs (across the Harbour CBD and strategic centres) and 157,500 new dwellings by 2036.

Bayside LGA is set to carry a lot of that forecast growth with an amplified provision of housing, employment and freight activity. The local population is forecast to grow by approximately 70,000 additional residents between 2016 - 2041[3] with the majority of this forecast expected to occur by 2026.

The M6 extension from Kogarah to the WestConnex M5 should divert some traffic from the Princes Highway between Wolli Creek and Rockdale, by reducing the amount of through traffic using this road. Modelling undertaken for the Environmental Impact Statement indicates a modest reduction in traffic volumes.

There is an opportunity along the bypassed section the Princes Highway, the Grand Parade and the east-west to reallocate road space to active and public transport, and enhance the place value of land uses along these roads. Calming of traffic on these arterials could also support future urban densification in this area and may be used as a mechanism to gain further volume reductions and benefits from the M6 project. Committed future land use changes are presented in **Figure 4-2**.

4.5.1 Bayside West Precincts

With 22 per cent of Greater Sydney's total housing growth planned to take place within the Eastern City District by 2036, Bayside Council is also undertaking affordable housing investigations in the area, aligning with the priorities of the Eastern City District Plan.

The Bayside West Precincts 2036 Plan was released in September 2018, covering the three nominated precincts of Banksia, Arncliffe and Cooks Cove. Planning for Banksia and Arncliffe was completed in 2019 to take advantage of their proximity to train stations and the Harbour CBD, as well as the opportunity to enhance the place function along the Princes Highway from the planned M6 (Stage 1). With a traffic reduction of through traffic volumes, planning for the Princes Highway through these precincts can consider better amenity for pedestrians and more space for public transport. Cooks Cove remains subject to further investigation by Bayside Council.

The majority of development sites within Bayside West are a 10-minute (800 metre) walk to train stations on the T4 Illawarra railway line. The area is also well serviced by bus routes, including services east of the railway connecting to Central Sydney, Bondi Junction and Randwick (routes 442, 400 and 410) and a local bus route west of the railway line (route 473).

BATA? Should there be a small section on the precinct in this section. Certainly Bayside's largest development.

| Pagewood Green (Eastgardens) | Meriton; mixed use development; ongoing, staged development | Former British American Tobacco and Holden site, adjacent to Westfield Eastgardens | 3,000 units to be built in 16 hectare site adjacent to Westfield Eastgardens. This is a $3 billion master planned and mixed-use urban renewal site. |

4.5.2 Princes Highway redevelopments and beyond

In the west of the LGA, the planned M6 Stage 1 (from Kogarah to WestConnex' M5 duplication) is expected to divert some vehicle traffic on surface roads between Wolli Creek and Rockdale. This presents an opportunity to reallocate road space to support a wider range of road users along the Princes Highway, General Holmes Drive and the east-west connecting streets – all of which could help support future urban densification in these areas. The same urban revitalisation densification trends can be anticipated as the M6 progresses further south through the Sandringham Peninsula towards Sutherland Shire.

4.5.3 Sandringham Peninsula

The ECDP identifies a priority Green Grid corridor running north-south along the Sandringham Peninsula, developed within the surface reservation of the proposed M6 motorway. FT56 indicates a long term (2036-

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[3] *https://www.planning.nsw.gov.au/-/media/Files/DPE/Factsheets-and-faqs/Research-and-demography/Population-projections/2019-Bayside.pdf,* viewed 10/01/2020

2056) timeframe for investigations for a visionary transport initiative, extending the South East Mass Transit / Train Link to Miranda, which could use part of this alignment.

4.5.4   Botany

Planning has commenced for increased density in Botany along Botany Road. The land zoning of land adjacent to Botany Road in Botany has the potential to accommodate 14,000 more dwellings, with 7,000 expected to be a more realistic outcome.

4.5.5   Mascot

The Mascot Station Town Centre Precinct Master Plan was released by the former Botany Council in 2012 and its implementation is almost complete. It has transformed a once industrial precinct into a transit-oriented, mixed-use neighbourhood, centred around Mascot Station. The redevelopment had included commercial office space, residential towers, and ground floor retail and restaurants.

The Master Plan sought to establish a fine-grained network of shopping streets, lanes and arcades allowing a more permeable urban landscape with a walkable town centre. Internal public space adjoins the retail and residential areas.

Finer networks were created as part of developments, however, due to fencing and security gates, these are not publicly accessible.

4.5.6   Sydney Airport

The Sydney Airport Master Plan 2039 predicts a total increase in air passenger numbers of 51 per cent – growing from 43.3 million in 2017 to 65.6 million in 2039. The airport's freight task will increase by 58 per cent, reaching one million tonnes per year. This will result in more employment, more passenger movements to and from the airport, and more vehicle movements, including heavy freight movements.

The airport is not open to active transit commuters wishing to travel through it from one side of the Bayside LGA to the other – and most need to travel around it. The airport's 'northern lands' will in the next few years be transformed from a surface level carpark and freight marshalling area into a motorway extension (the Sydney Gateway) which will help connect freight from WestConnex to the airport precinct itself and support movements to Port Botany.

Part of the stated vision for Sydney Airport in its 2039 Master Plan document is to 'improve environmental outcomes, while being a good neighbour and making a positive contribution to our community'[4].

4.5.7   Port Botany

Port Botany will remain NSW's primary container, bulk liquid and gas port. In 2015, Port Botany handled 2.3 million TEU per annum and this is expected to grow to 7.5 – 8.4 million by 2045.

The Port will expand through a range of measures including:

> Provide efficient road connections;
> Grow rail transport of containers;
> Use land and infrastructure efficiently;
> Grow port capacity; and
> Protect the ports and intermodal terminals from urban encroachment.

This is expected to result in an increase from 3,900 to 6,300 – 6,900 truck per day over the same period.

Current rail movement is in the order of 300,000 TEU per annum. It is sought to increase this to around 3 million TEU per annum. This would represent 40 per cent of container traffic in 2045, otherwise truck

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[4]*https://assets.ctfassets.net/v228i5y5k0x4/Un69k3rQgUeek2wcoSMQS/fa152209177e8995392d0a39883440ec/Master_Plan_2039_-_Website_summary.pdf*

https://www.bayside.nsw.gov.au/sites/default/files/2018-11/Mascot%20Town%20Centre%20Masterplan%20sections%201%20-%204.pdf

movements would be expected to be in the order of 8,800 – 9,900 trucks per day. Increase of rail mode share is reliant on the Port Botany freight railway duplication.

NSW Ports proposed transport initiatives for Port Botany are shown in **Figure 4-1**.

Figure 4-1   NSW Ports – Port Botany key infrastructure actions

Key infrastructure actions: Port Botany

KEY   ● Port Botany   ━ Main port access roads   ━ Rail lines – Dedicated freight

Source: Navigating the Future, NSW Ports' 30 Year Master Plan, NSW Ports, October 2015

4.5.8   Significant develop sites

The major land use changes across the Bayside LGA, and their likely transport implications are described in **Table 4-1**.

Table 4-1   Future residential land use development

Land use / town centre projects	Org/source /doc/timing	Location	Key Detail
Bayside West Precincts 2036	Department of Planning and Environment	Arncliffe, Banksia and Cooks Cove	Introduces a strategy to deliver urban renewal to three nominated precincts close to open space and public transport. Land use planning for Arncliffe and Banksia was completed in 2018. Cooks Cove was identified as a precinct in Bayside West Precinct 2036 and will require further investigation.
Communities Plus Program (Social Housing)	Family & Community Services, Proposed Rezoning for Mixed social, affordable and private housing development, RFP	Arncliffe; between Eden Street and Princes Highway, (Bayside West)	There are currently 142 social housing units on the site which, through the proposed rezoning, could make way for a mix of approximately 600 social, affordable and private dwellings in the future. Uplift of 30 per cent more social housing along with affordable and private housing.
Pagewood Green (Eastgardens)	Meriton; mixed use development; ongoing, staged development	Former British American Tobacco and Holden site, adjacent to Westfield Eastgardens	3,000 units to be built in 16 hectare site adjacent to Westfield Eastgardens. This is a $3 billion master planned and mixed-use urban renewal site.
Tailors Walk, Botany.	Frasers Property Group, Residential Development, Under construction	Between Pemberton Street and Wilson Street in Botany (67 Wilson Street)	New development 300 metre walk from shops on Botany Road, comprises of 2, 3 and 4 bedroom terraced homes as well as 1-3 bedroom apartments.

The Bayside Structure Plan which shows current and future land use is in **Figure 4-2**.

Figure 4-2   Bayside Land Use 2036 Structure Plan
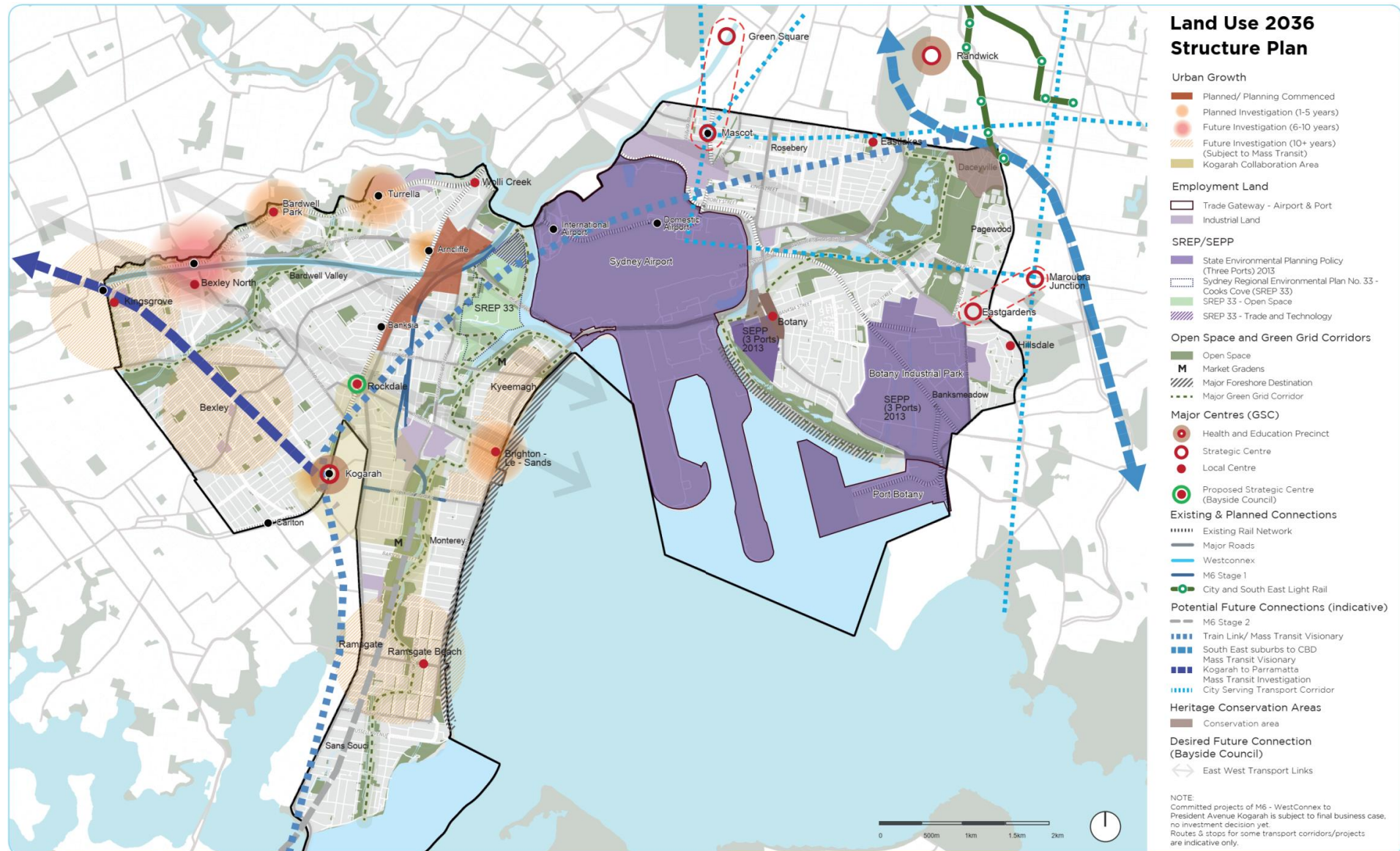
Source: Future Bayside Local Strategic Planning Statement, A land-sue vision to 2036, Bayside Council, March 2020

5   Bayside population

The Australian Bureau of Statistics (ABS) Census survey collects population data across Australia every five years. The most recent Census in 2021 is referenced as an indication of population numbers.

Common Planning Assumptions are a series of data sets produced by the NSW government and associated agencies. The data sets include population growth, economic growth and forecasts, housing supply, metropolitan transport demand, and freight demand. Data from the Common Planning Assumptions was used for forecast population numbers.

The analysis in this report general refers to demographic geographies defined by the LGA and Travel Zones.

Travel Zones (TZ) are defined by Transport for NSW for use in transport modelling and analysis. They are determined considering population, employment, housing and transport infrastructure. They are designed to have standardised trip generation levels across all zones. As such, high density land use TZs are smaller than low density land use TZs.

5.1   Residents

There were 175,184,058 residents of the Bayside LGA in 2021, according to the ABS Census 2021,. The area experienced population growth of 12 per cent in the five years since the previous Census survey was undertaken. The 2016 and 2021 resident populations are shown in **Table 5-1**.

Table 5-1   Bayside residential population 2016 and 2021

Sydney Metropolitan LGAs	2016	2021
Bayside LGA	156,058	175,184
Growth	-	**19,126**

Data source: Census, Australian Bureau of Statistics, 2021

5.1.2   Household size

There were 74, 734,953 dwellings in Bayside in 2021, according to the ABS Census 2016. Average household sizes were the with 2.5 people on average per household, down from 2.7 from the last census in 2016. This is slightly less than the average across the Greater Sydney Capital City Statistical Area of 2.7 in 2021.

5.1.3   Population density

The Bayside Council consists of a varying population density, with denser populations focused in and around the local centres such as Eastlakes, Hillsdale, Botany, Rockdale, Wolli Creek and Brighton-Le-Sands and the strategic centres of Kogarah and Mascot. These areas hold a population density that is above the Sydney average. The Sydney Airport at the centre of the Bayside Council LGA operates purely as a transport hub, consisting of a population density below the Sydney average. The T4 Eastern Suburbs and Illawarra line provides public transport options to high-density areas between Kogarah and Wolli Creek while the T8 Airport line connects the dense centre of Mascot to the Sydney CBD. Eastlakes, Botany, Hillsdale and Brighton-Le-Sands are four population dense areas that do not have access to the Sydney Trains network. Bus services are available as an alternative option to reach the Sydney CBD from these areas. Major destinations such as the Sydney Airport are difficult to access via bus transport due to extended travel times via bus service.

The population density for Bayside Council in 2021 is shown in **Figure 5-1**.

Figure 5-1   Population density by block area
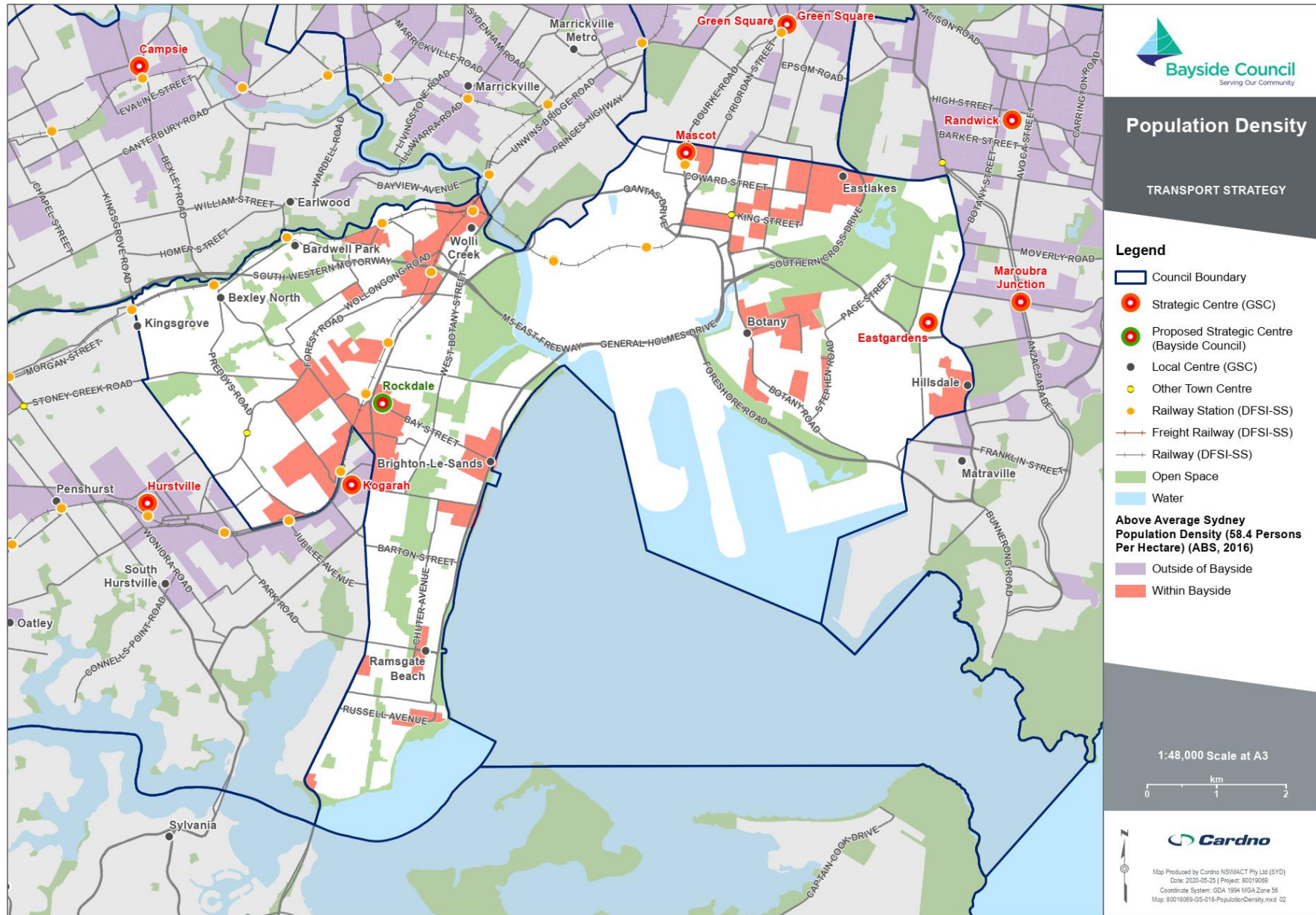
5.1.4   Resident workers

The 2021 ABS Census reports 75,714 resident workers (Bayside residents who work). Of these, 72.7 per cent travelled to jobs outside the Bayside LGA, 23.3 per cent worked within the Bayside LGA and 4 per cent did not have a fixed place of work. The highest proportion of Bayside resident workers travelling outside of the Bayside LGA for work, commuted to the City of Sydney LGA, accounting for 30 per cent resident workers, followed by Randwick City Council LGA, accounting for 7.2 per cent of resident workers. Other neighbouring Councils accounted for 13.4 per cent (Georges River Council 5.8 per cent, Inner West Council 4 per cent and Canterbury-Bankstown Council 3.6 per cent).

5.2   Employment

There were 94,625 jobs located in the Bayside LGA in 2021 (Transport for NSW Workforce Projections), with the former Botany Bay LGA accounting for 75 per cent of those jobs, and the former Rockdale LGA accounting for 25 per cent of them.

Bayside LGA jobs are focused in Mascot and at Sydney Airport, as shown on **Figure 5-2**, produced from ABS census data analysed by .id. Other key locations for jobs in the LGA are the Botany Industrial Park, Rockdale commercial area, Eastgardens and Botany. The Princes Highway corridor also employs many people given its length and variety of retail or commercial outlets and the ongoing revitalisation of neighbourhoods provides jobs to the construction industry.

Figure 5-2   Employment density by travel zone - 2016
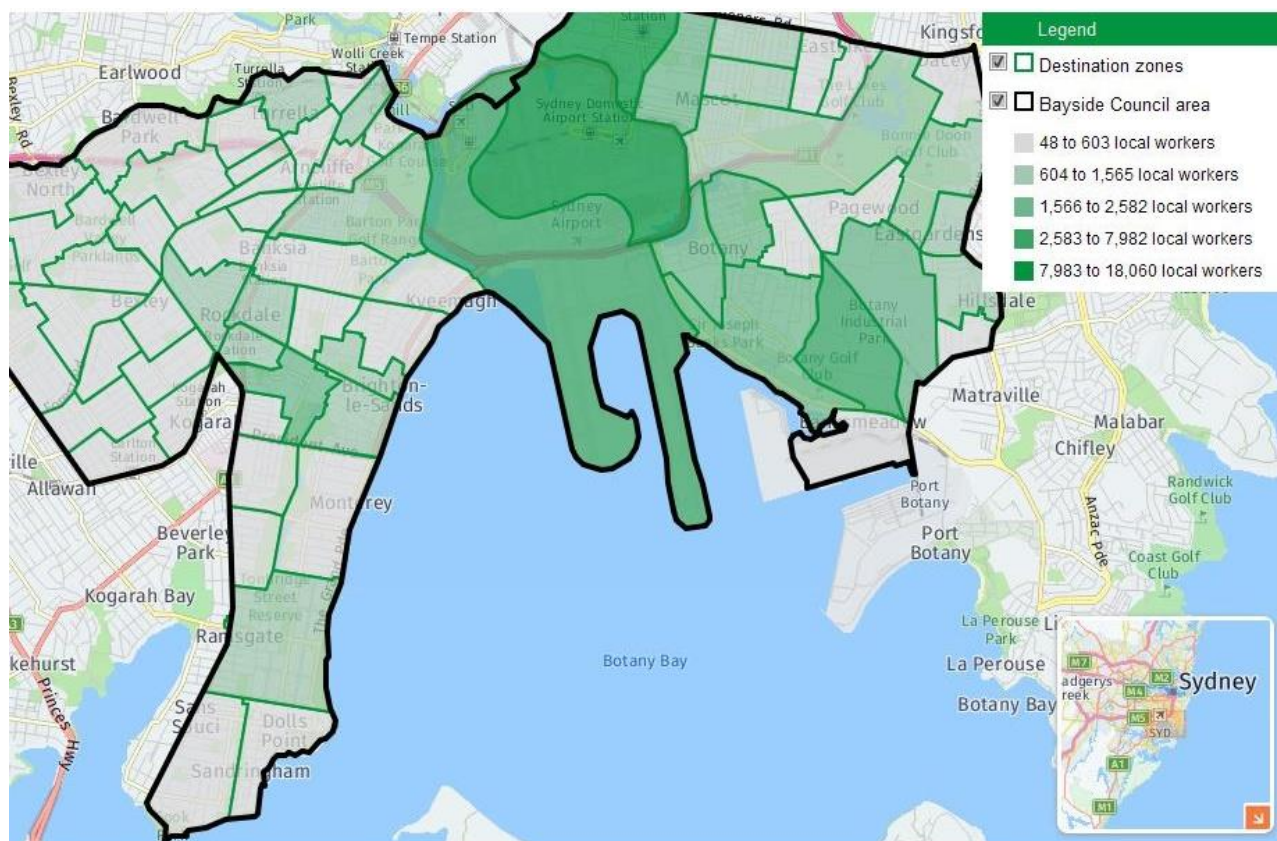
Source: id. Using ABS Census of Population and Housing 2016 data

The highest proportion of workers travel to jobs in the Bayside LGA from within the LGA, and from neighbouring and southern LGAs. After Bayside LGA, the Sutherland Shire supplies the greatest proportion of workers for jobs located in Bayside LGA.

5.3   Growth in people and jobs

5.3.1   Resident population forecasts

The Bayside LGA population forecast to increase by 175,184to 228,150 people between 2021 and 2036, an increase of 30 per cent. This growth will occur at an annual average change of 2.3 per cent, significantly

higher than the NSW average annual change of 1.3 per cent each year. The population growth in five year increments is shown in **Figure 5-3**.

Figure 5-3   Resident population forecast growth 2016 to 2036
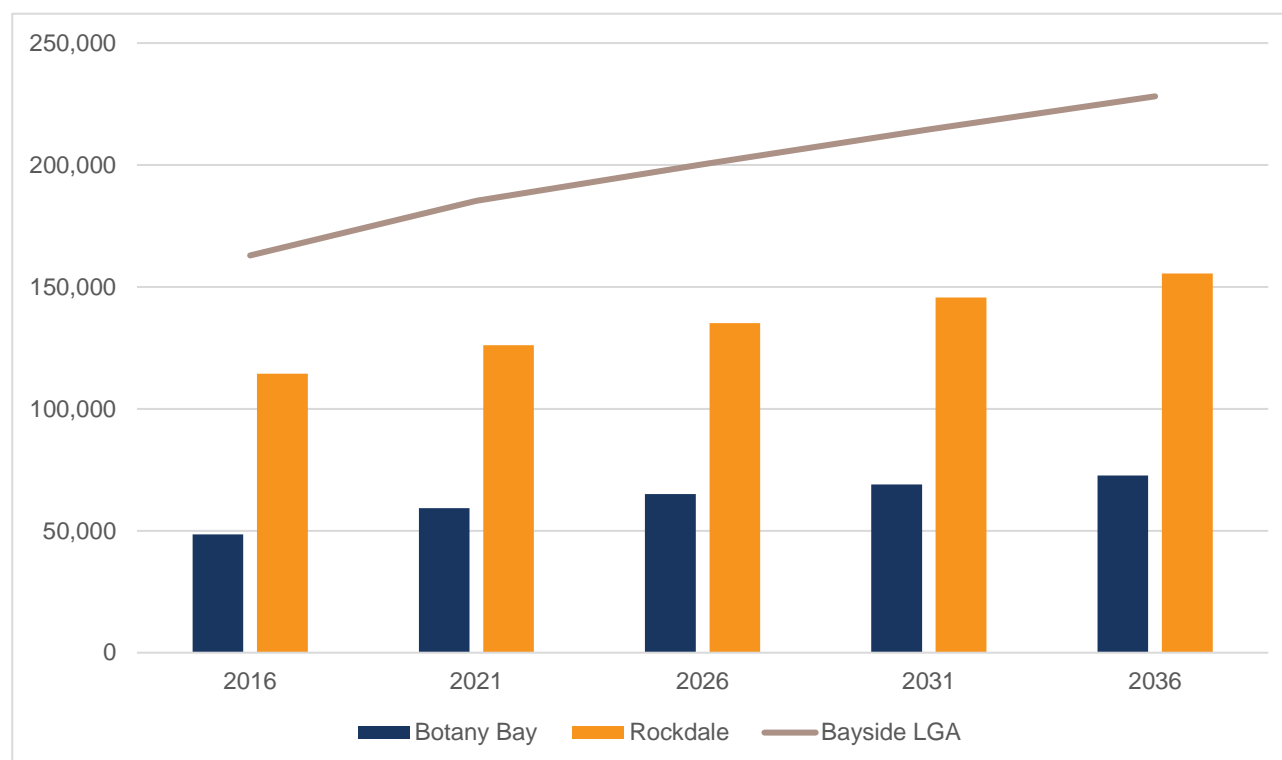
Data source: ABS Census 2016, and 2016 New South Wales State and Local Government Area Household Projections and Implied Dwelling Requirements

5.3.2   Household size forecasts

Over the next 20 years the average household size across the Bayside LGA is predicted to decrease slightly, from 2.7 people per household to 2.54. Bayside LGA will remain below the Greater Sydney Metropolitan average household size, which will sit at 2.56 in 2036.

5.3.3   Changes in age

While all age groups are forecast to grow in number of people over the next 20 years, older people represent a higher proportion of the population. People aged over 65 are forecast to represent 19 per cent of the population in 2036, up from 16 per cent in 2021, based on forecasts from the Common Planning Assumptions. The forecast age group changes for the Bayside LGA are summarised in **Table 5-2**.

Table 5-2   Forecast changes in age of resident population 2016 to 2036

Age group	2021		2036		Change in proportion of population
	Number	**%**	**Number**	**%**	
0-14	33,600	18.1%	39,800	17.4%	-0.7%
15-44	81,400	43.9%	90,400	39.6%	-4.3%
45-64	41,650	22.5%	55,450	24.3%	1.8%
65+	28,650	15.5%	42,550	18.6%	3.2%
Total	**185,300**	**100.0%**	**228,200**	**100.0%**	-

Data source: NSW Department of Planning, Industry and Environment

5.3.4   Areas of residential growth

The population of Bayside Council is projected to increase steadily from 2016 to 2036, in accordance with data provided by ABS 2011. Travel Zones in Mascot, Botany, Rockdale, Brighton-Le-Sands and Kogarah were the most densely populated regions of Bayside in 2016. These travel zones will also receive significant

growth to 2036. The growth will be the result of operations at the adjacent transport hubs such as the Sydney Airport and Port Botany. Travel zones surroundings surrounding Wolli Creek, Botany and Ramsgate include sizeable populations. These areas will receive the most growth, expected to more than double by 2036.

The projected population by travel zone for 2021-2031 is shown in **Figure 5-4**.

Figure 5-4   Population projection 2016 – 2036
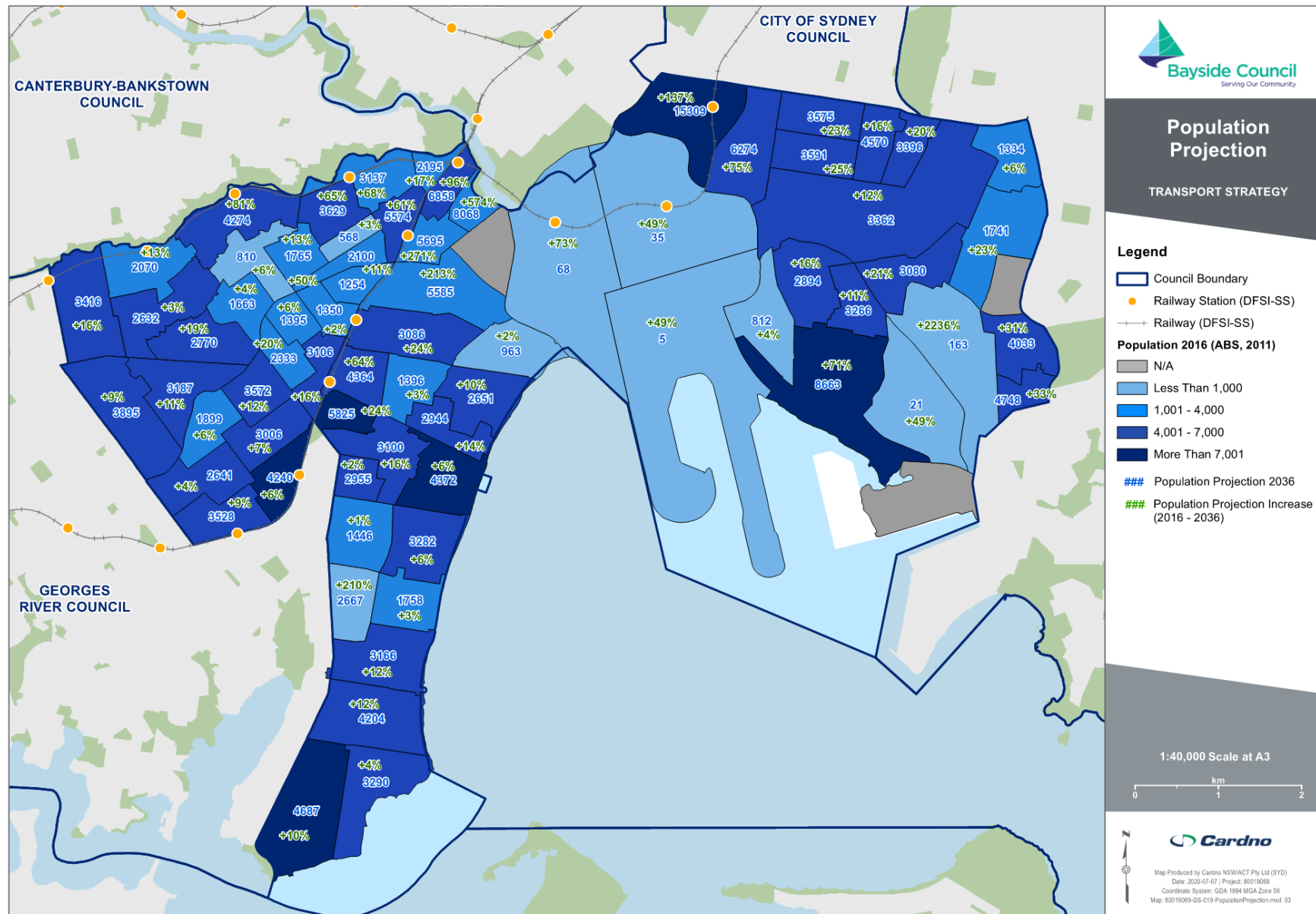
5.3.5 Employment forecasts

Employment forecasts show the total number of jobs in Bayside.

Employment growth forecasts for Bayside indicate a high proportional rate in the former Rockdale LGA, but the former Botany Bay is expected to accommodate the majority of the growth. An additional 18,000 jobs across the Bayside LGA in the next 20 years represents a growth of 19 per cent. The growth in Bayside LGA jobs is shown in **Figure 5-5**, broken down by former LGA.

Figure 5-5   Employment growth forecasts in Bayside LGA – to 2036
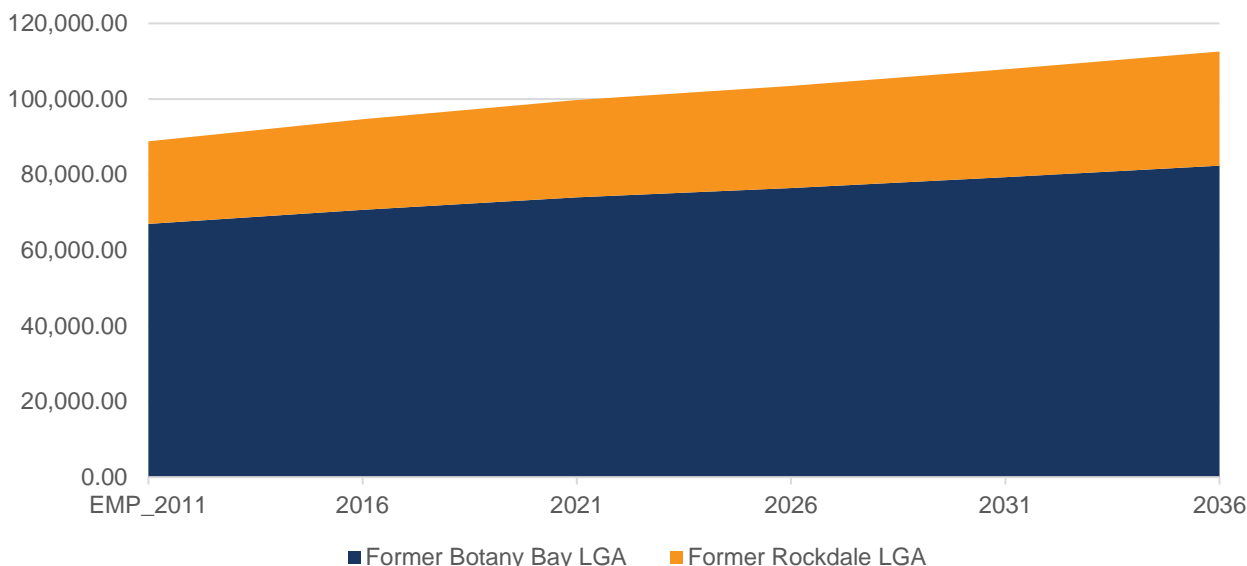
Data source: Travel Zone Projections (TZP2016 v1.51), Transport Performance and Analytics, 2019

5.3.6 Areas of employment growth

Bayside Council will experience steady employment growth throughout the LGA in accordance with Transport Performance and Analytics (Transport for NSW). The focal point for the largest employment is centred around the LGA's key land uses, the Sydney International Airport and Port Botany. As a result, the travel zone with the greatest projected employment in 2036 is the strategic centre of Mascot (and Green Square). The Kyeemagh travel zone is the only travel zone within the LGA that will experience a decline in employment between 2021 and 2036.

The employment projection is shown in **Figure 5-6**.

5.3.7 Growth in the workforce

The workforce is a subset of the residential population that are employed. It is used in the context of employed people that live in the Bayside LGA, but can work anywhere, including within Bayside LGA.

The Sydney Airport and the Port Botany Shipping Terminal are key locations for employment within the Bayside Council. The Airport and Shipping terminal do not consist of residential land uses. Instead, staff employed at these locations commute to their respective workplaces from surrounding travel zones. As a result, the Mascot travel zone, adjacent to the Sydney Airport, consists of the greatest workforce population. Similarly, the travel zone adjacent to Port Botany will have a substantial workforce population in 2036. Wolli Creek and its surrounding travel zones will also have considerable workforce population increases by 2036.

The workforce projection of residents of Bayside by travel zone is shown in **Figure 5-7**.

Figure 5-6   Employment projection (2016 – 2036)
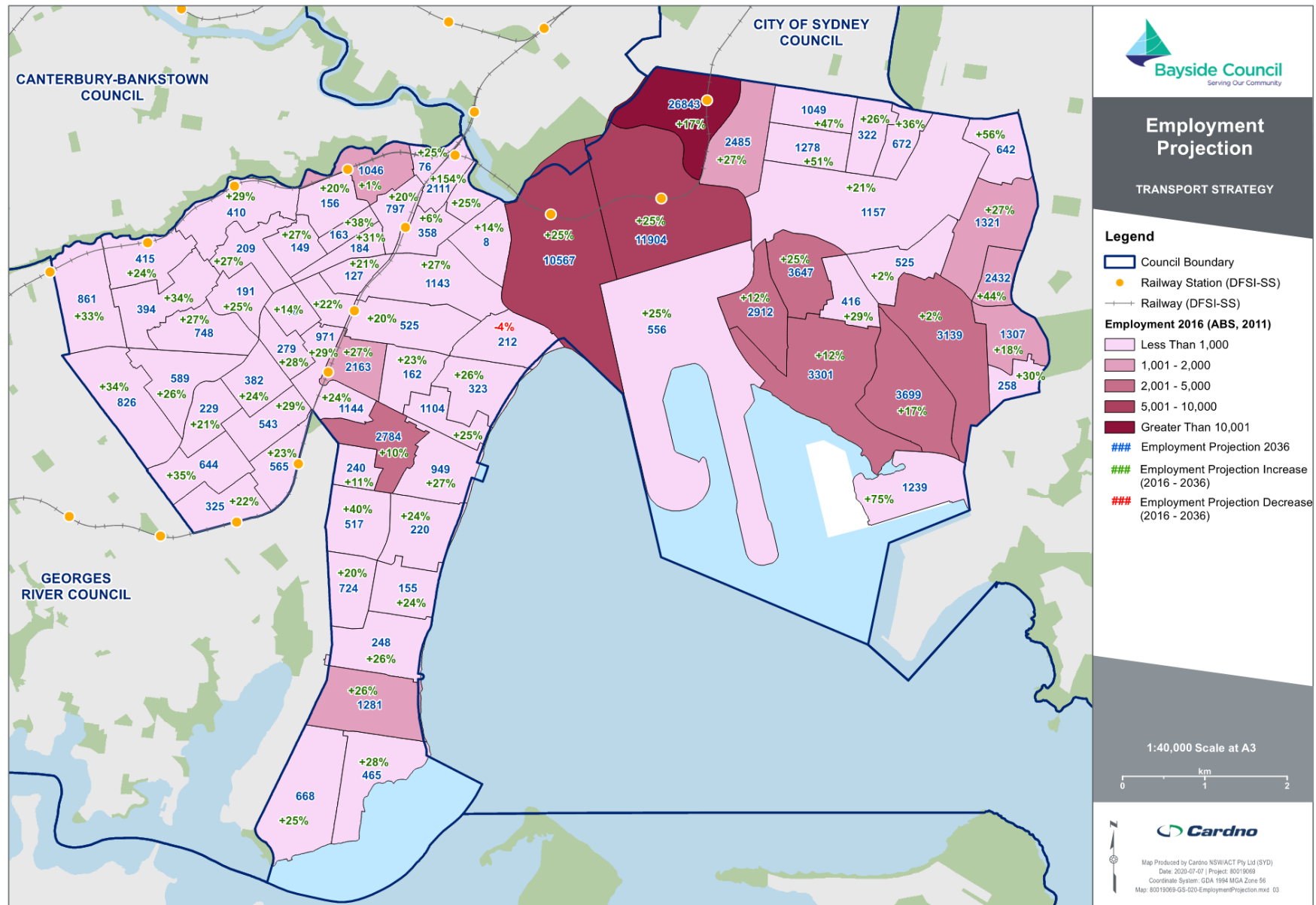
Figure 5-7   Workforce projection (2016 – 2036)
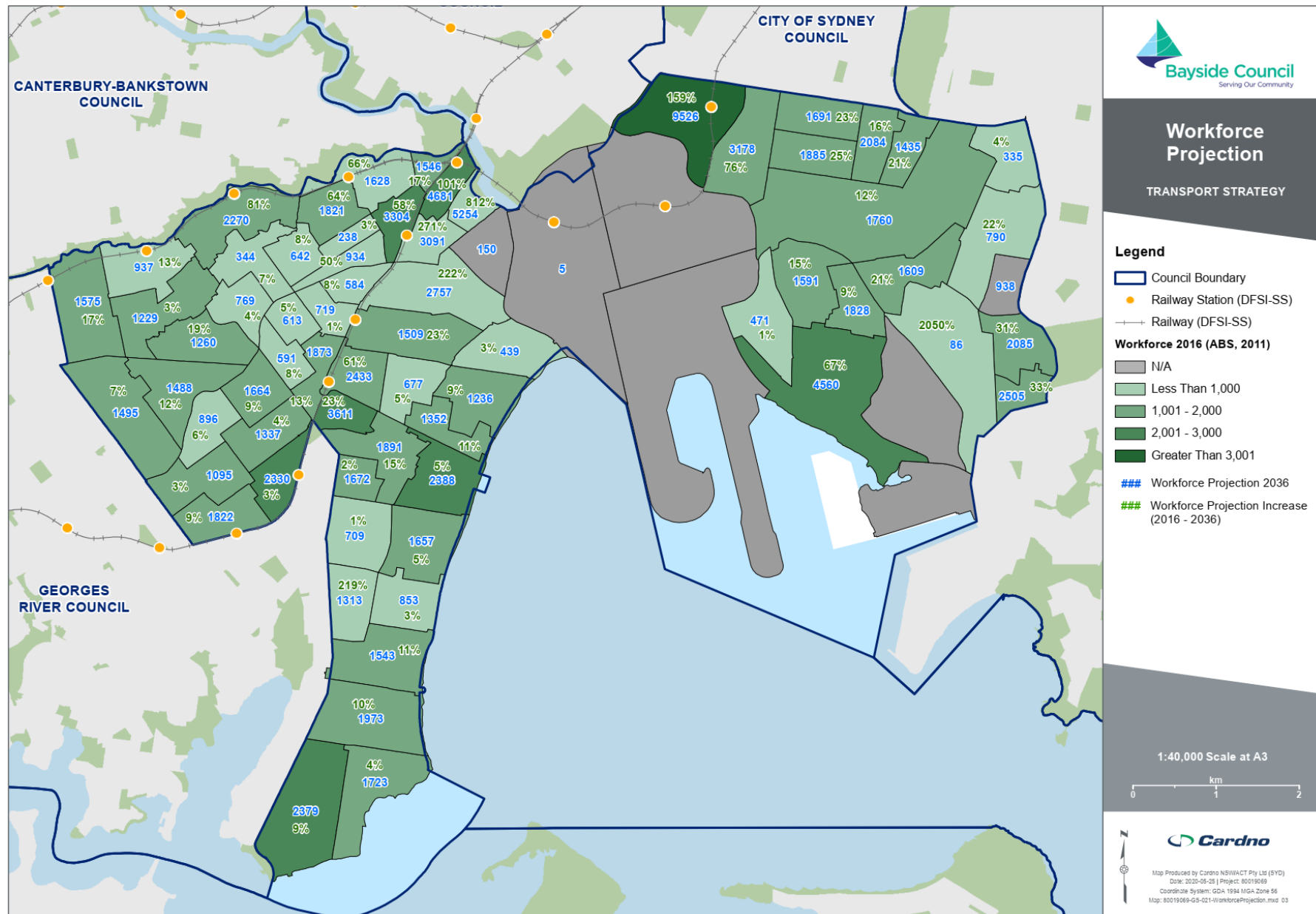
6 Transport network overview

The Bayside transport network is well-established across an extensive road network, trunk rail corridors and arterial bus corridors. The active transport network is developing (particularly with regards to cycling infrastructure). High value freight is not delineated from the general road network in terms of enhanced priority.

The Bayside LGA also supports significant through traffic (as a periphery LGA to the Sydney CBD and Port Botany area), identified as one of the most significant transport issues facing the LGA.

This section outlines major transport demand generators, public transport networks, active transport networks, freight networks and road safety.

6.1 Connectivity and major movements

Key movement corridors to and through the Bayside LGA include the Princes Highway Corridor connecting southern Sydney to the Harbour CBD, the M5 corridor connecting the south-west to the east, and the Anzac Parade corridor, connecting south-eastern suburbs.

While these corridors support major movements through the Bayside LGA, key land uses in the Bayside LGA are some of the important destinations associated with these corridors. These include Sydney Airport, Port Botany, Mascot, Eastgardens, and the Botany Industrial Park.

Connectivity to the Bayside LGA is constrained by a number of natural and built barriers. The Cooks River and Sydney Airport bisects the LGA though the centre in a north-south direction, with only four road crossings provided, which then skirt the boundary of the airport. The Wolli Creek and Bardwell Valley parklands, as well as the T8 Airport and South Line present as a barrier to the north, on the western side of the Bayside LGA.

6.2 Active transport networks

Active transport networks support safe and continuous walking and cycling journeys. Safe, direct, comfortable and connected active transport networks will support mode shift to sustainable and healthy transport choices. The safety and efficiency of such facilities is key to user take-up and will contribute to a vibrant, desirable and healthy Bayside community.

6.2.1 The Green Grid

In acknowledging that green space is a key hallmark of liveability in urban areas, the Government Architects Office NSW has identified a network of high-quality green space that connects town centres, public transport hubs, and major residential areas. Known as the Sydney Green Grid, it is an integral part of the Greater Sydney Region and District Plans. Green grid connections for the Bayside LGA and surrounds are shown in **Figure 6-1**.

Figure 6-1   Sydney Green Grid

PROJECT OPPORTUNITY	DOMINANT GRID LAYER
1. The Greenway and the Hawthorne Canal	HYDROLOGICAL
2. The Great Coastal Walk: South Head to La Perouse	RECREATIONAL
3. Anzac Parade: Moore Park to La Perouse	TRANSPORT
4. Sydney Harbour Foreshore and Parramatta River Walk	RECREATIONAL
5. The Bay Run and Iron Cove Creek	RECREATIONAL
6. The Cooks River Open Space Corridor	HYDROLOGICAL
7. Parramatta Road Urban Renewal Corridor	TRANSPORT
8. Mill Stream and Botany Wetlands Open Space Corridor	HYDROLOGICAL
9. Alexandra Canal	HYDROLOGICAL
10. Bourke Street and George Street Active Transport Green Links	TRANSPORT
11. Rockdale Wetlands Open Space Corridor	ECOLOGICAL
12. Wolli Creek Regional Park and Bardwell Valley Parklands	ECOLOGICAL
13. The Coastal Walk: Botany Bay Foreshores	RECREATIONAL
14. M5 Motorway Open Space Corridor	TRANSPORT
15. East Hills Rail Line Open Space Corridor	TRANSPORT
16. Hen and Chicken Bay Foreshore	RECREATIONAL
17. White Bay and Blackwattle Bay Foreshore and Open Space	TRANSPORT
18. South East Light Rail Corridor	TRANSPORT
19. Eastern Beach Suburb Street Green Links	RECREATIONAL
20. Sydney Harbour Eastern Bays Foreshore	RECREATIONAL
21. Freight Rail Lines Chullora to Port Botany	TRANSPORT
22. Rhodes and Concord Open Space and Hospital Precincts	RECREATIONAL
23. Fitzgerald Avenue and Heffron Park Open Space, Botany	RECREATIONAL
24. Powells Creek and Mason Park, Strathfield	HYDROLOGICAL
25. Tom Uren Trail, Balmain	RECREATIONAL
26. Joseph Banks Reserve and Foreshore Drive	HYDROLOGICAL
27. La Perouse to Kurnell Ferry	TRANSPORT
28. Cooks River to Homebush Bay Green Link	RECREATIONAL
29. Lilyfield Road Active Transport Corridor	TRANSPORT
30. Johnstons Creek and Harold Park	HYDROLOGICAL
31. Burwood Green Link: Burwood Park to Hen and Chicken Bay	RECREATIONAL
32. St Lukes Park and Concord Oval Green Link	RECREATIONAL
33. Sydney Harbour Bays Green Links: Balmain and Rozelle	RECREATIONAL
34. Randwick Barracks and Environment Park to Coast Link	ECOLOGICAL
35. Central to Eveleigh Railyards	DEVELOPMENT
36. Illawarra Rail Line: Wolli Creek to Redfern	TRANSPORT
37. Bankstown to Sydenham Open Space Corridor	TRANSPORT
38. Airport to Bourke Street Active Transport Green Link	TRANSPORT
39. Whites Creek and Whites Creek Lane, Leichhardt	HYDROLOGICAL
40. East-West Coastal Green Links: Mascot to Maroubra	RECREATIONAL
41. East West Coastal Green Links: Randwick to Coogee	RECREATIONAL
42. East West Coastal Green Links: Hyde Park to Bronte	RECREATIONAL
43. Breakfast Point and Cabarita Foreshores	RECREATIONAL
44. Bondi Junction to Double Bay Green Link	RECREATIONAL
45. Bondi Junction to Rose Bay Green Link	RECREATIONAL
46. Bondi Junction to Bondi Beach Green Link	RECREATIONAL
47. Cooks River Secondary Green Links: Strathfield to Belmore	RECREATIONAL
48. Cooks River Secondary Green Links: Ashfield to Canterbury	RECREATIONAL
49. Cooks River Secondary Green Links: Burwood to Campsie	RECREATIONAL
50. Boulevarde Streets Green Links from Urban Centres to Botany Bay	RECREATIONAL

Source: Central District, Sydney Green Grid Spatial Framework and Project Opportunities, Tyrrell Studio, 2017

6.2.2   Pedestrian infrastructure

Overall, footpath networks across the LGA are well-established, with at least one footpath on a majority of roads in the LGA. Around commercial centres and higher density areas footpaths are generally provided on both sides of the road. On major roads such as the Princes Highway, crossings are not always provided across all approaches at signalised intersections and pedestrian wait times are relatively long. There are also long distances without a formal crossing location for hundreds of metres on several key roads including Forest Road, General Holmes Drive and Botany Road.

Many town centres have pedestrian fences down the centre median, directing pedestrians to cross at designated crossings points like signalised intersections and zebra crossings.

Residential footpath width specifications are in the process of being harmonised. It is noted the former Rockdale and Botany Councils had standard footpath widths of 1.5 and 1.2 metres respectively.

6.2.2.1   Pedestrian accessibility and priority

Pedestrian crossing distances along the major roads of the Bayside Council vary from between zero and 50 metres to over 300 metres. Pedestrian crossings are within a 100 metres proximity in a number of key areas including the Princes Highway and Bay Street intersection, Bay Street and The Grand Parade intersection and the Forest Road and Stoney Creek Road intersections. However, large sections of key roads within the LGA require walking distance of 300 metres or greater between pedestrian crossings. The roads with greatest distances between pedestrian crossings include Bay Street, Bunnerong Road, Stoney Creek Road and Forest Road. Limited pedestrian crossing availability restricts north south movement across Bay Street and Stoney Creek Road and east west movement across Bunnerong Road and Forest Road.

The distances between pedestrian crossings, and the correlation between crossings and pedestrian and cycling crashes is shown in **Figure 6-2**, **Figure 6-3**, **Figure 6-4**. Pedestrian and cyclist crashes are discussed in more detail in **Section 6.7.5**.

Many pedestrian crashes occur at intersections. It is noted that many mid-block crashes involving pedestrians occur in locations where formal crossing distances are 300 metres or longer. This does not confirm causation as most of the road length fall into this category.

Figure 6-2   Distance between pedestrian crossings (Bayside East)
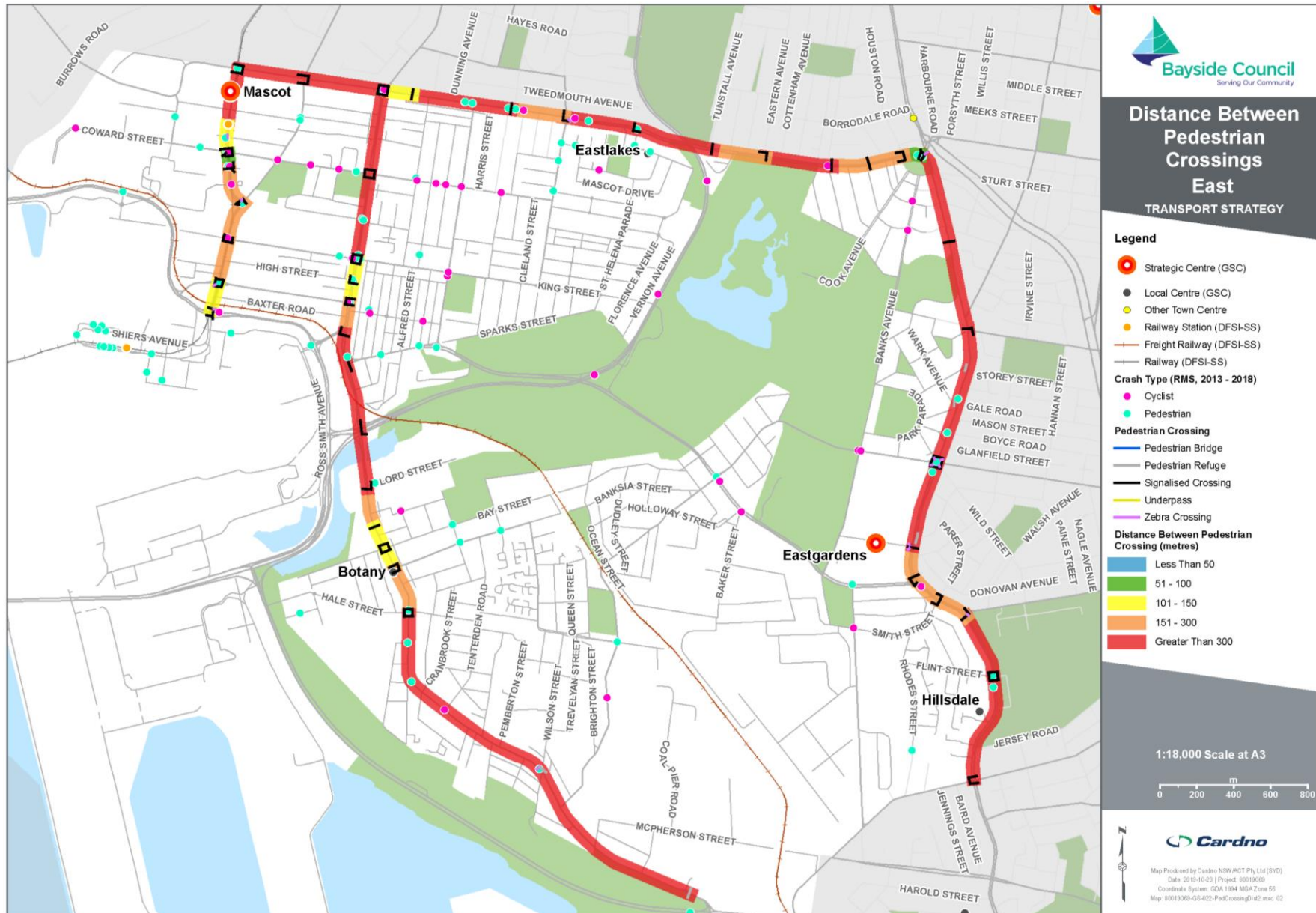
Figure 6-3   Distance between pedestrian crossings (Bayside West)
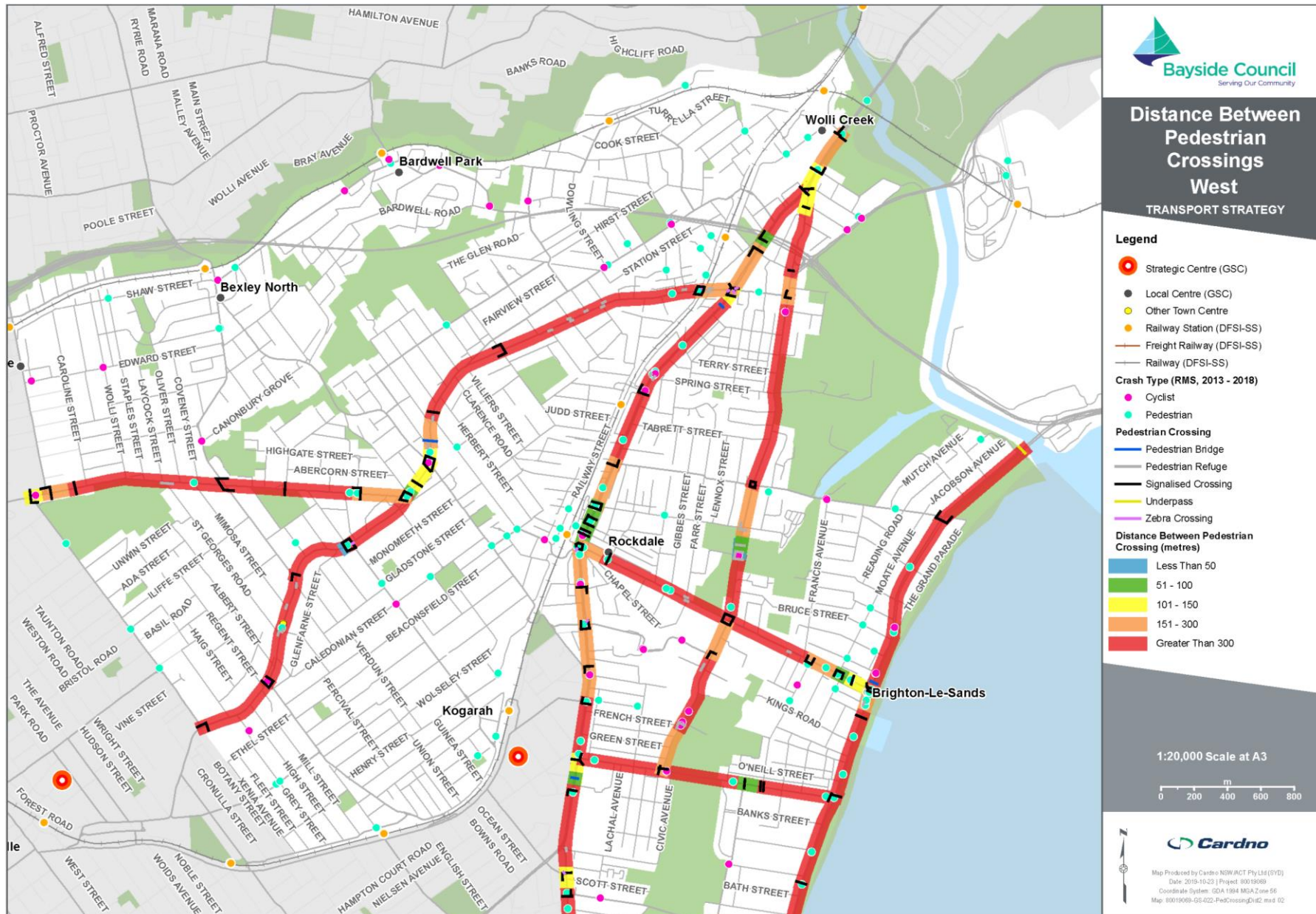
Figure 6-4   Distance between pedestrian crossings (Bayside South)
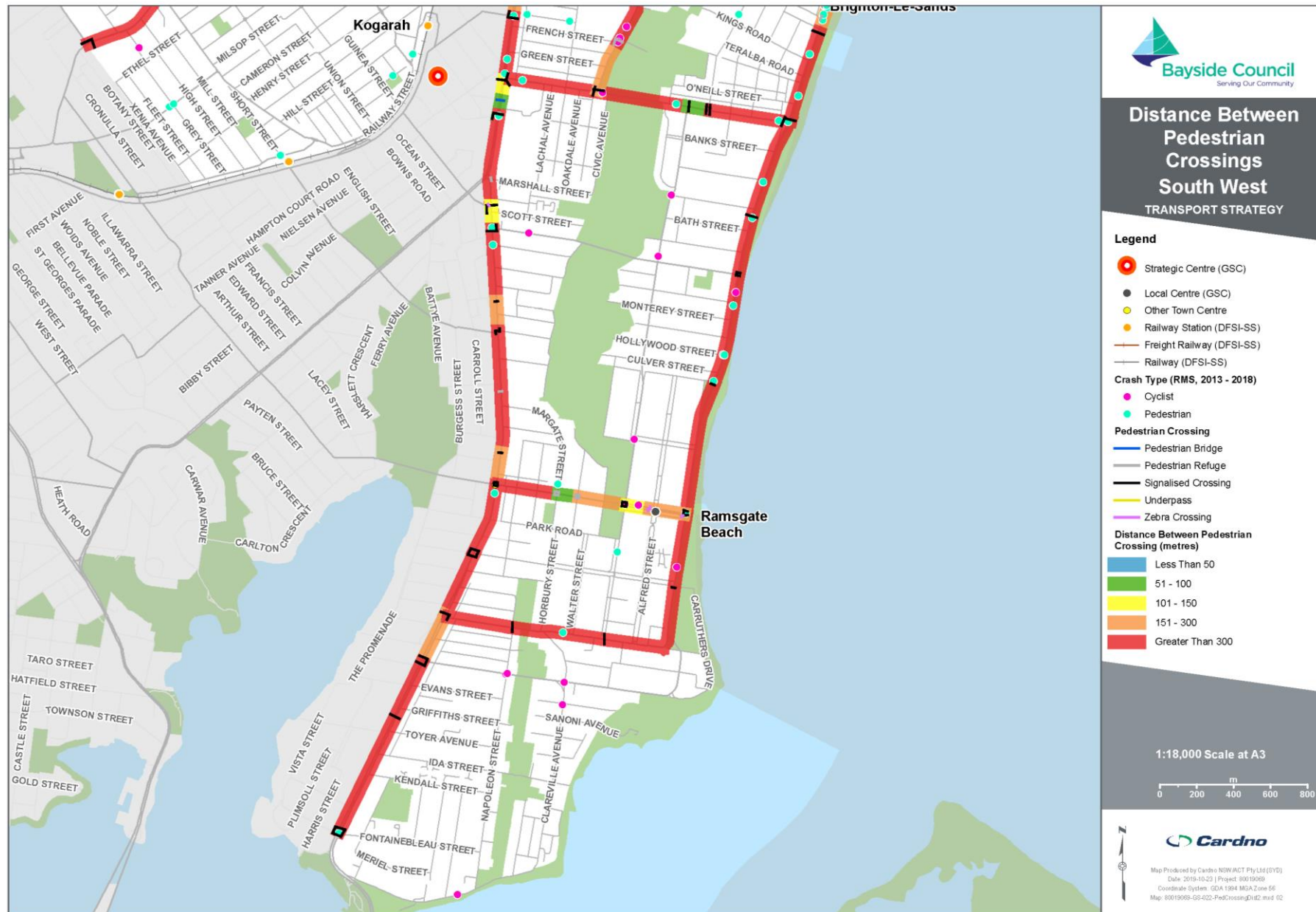
6.2.3   Walking catchments

Walking catchments that are attractive to people are highly variable and are related to the destination attractiveness, human behaviour factors, the trip time and the time expected to be spent at the destination. Catchment mapping has assumed commonly acceptable or what is considered a reasonable walking distance.

6.2.3.1   Strategic and local centres

Bayside's strategic and local centres are described in **Section 4.1** and **4.2**

The Bayside Council walking catchments around all the strategic and local centres in **Figure 6-5** show the 10 to 15 minute walking catchments.

Centres generally provide access to day to day goods and services for residents. They can be clusters of local shops, vibrant streets with diverse shopping and eating opportunities and/ or shopping centres. The form and function of centres can evolve over time. They are located around transport hubs and can also host community facilities including libraries, halls, education land uses and open community space.

Much of Bayside's residential areas are within the walkable catchment of a strategic or local centre. Other localities are served by small centres or shops and services that contain some of the daily needs of people.

6.2.3.2   Bus stop catchments

Bus stops are generally assumed to have catchments attractive to users of up to 800 metres (approximately 10 minutes) for many users.

The Bayside Council provides a comprehensive bus network with bus stops that are lie within a 10-minute walking distance from all major residential and commercial areas in the LGA. The catchment extends to quieter residential areas in Kyeemagh, Banksia and Hillsdale.

The bus stop walking catchments are shown in **Figure 6-6**.

6.2.3.3   Train station catchments

Train stations are generally assumed to have catchments attractive to users of up to a 1,200 metre (approximately 15 minute) walking catchment for many users.

The train station catchments within Bayside Council are centred around stations on the T8 Airport and South Line and T4 Eastern Suburbs & Illawarra Line. As a result, key destinations such as the international and domestic airports are within the train station walking catchment. Additionally, the train station catchment covers local centres such as Rockdale and Wolli Creek and strategic centre such as Kogarah and Mascot. The train station catchments are however limited to two train lines. Hence local centres along the LGA's southern fringe such as Brighton-Le-Sands and Ramsgate beach have no walkability to train stations. Furthermore, the eastern side of Bayside Council, including local centres such as Botany, Eastlakes and Hillsdale and the strategic centre of Eastgardens also fall outside the train station catchment.

The train station walking catchments are shown in **Figure 6-7**.

Figure 6-5   Local centre walking catchment
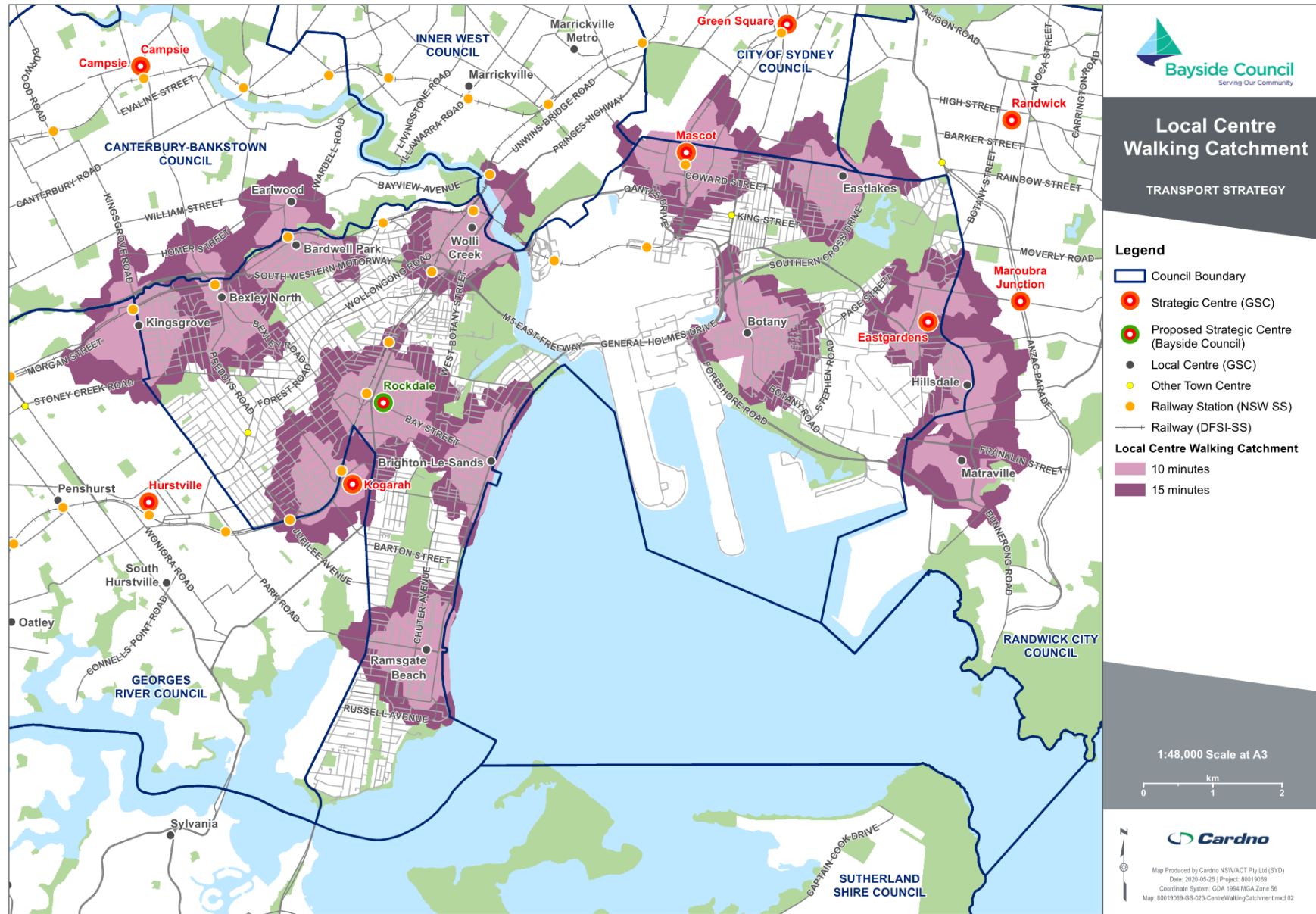
Figure 6-6   Walking catchment to bus stops
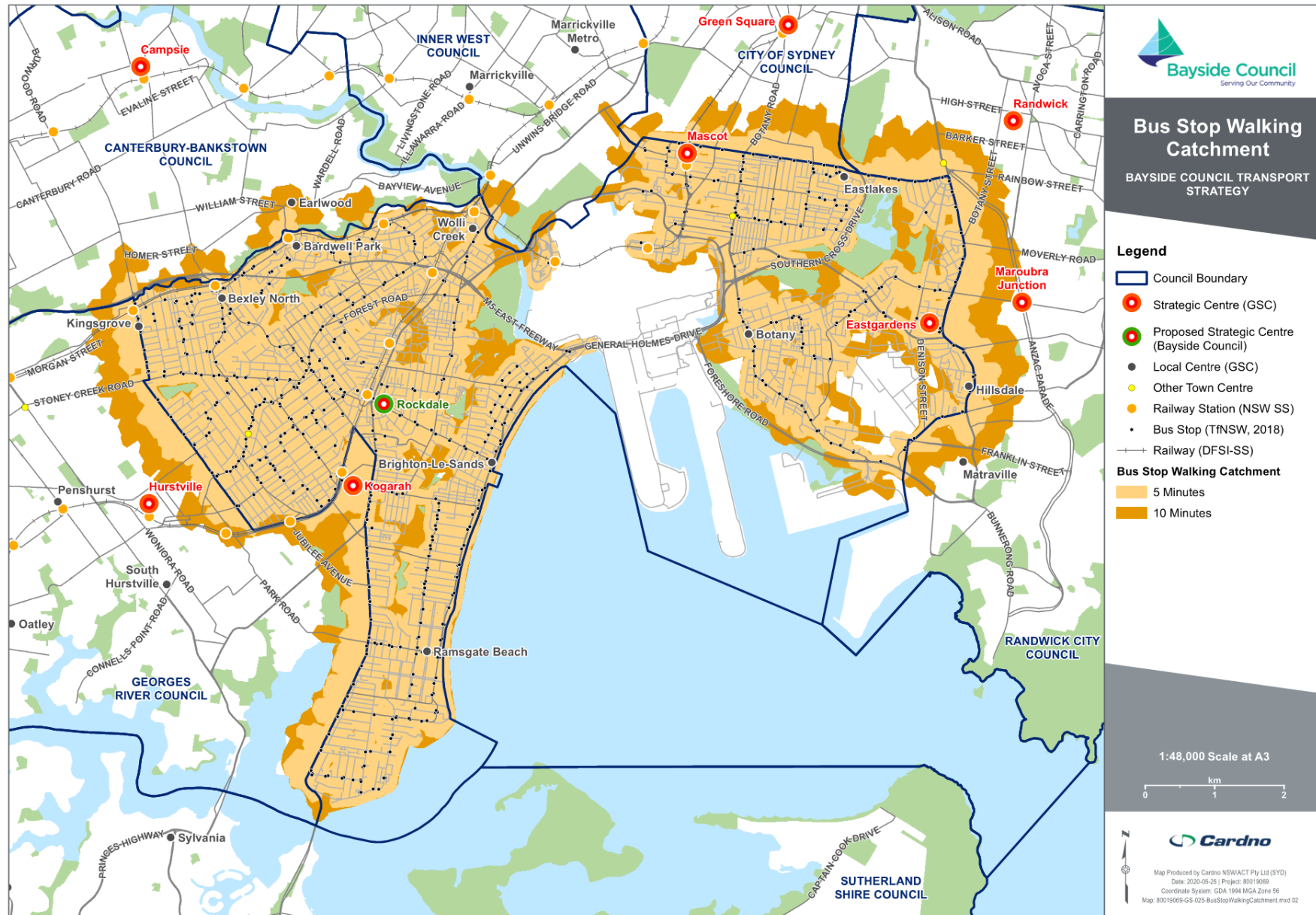
Figure 6-7   Walking catchment to train stations
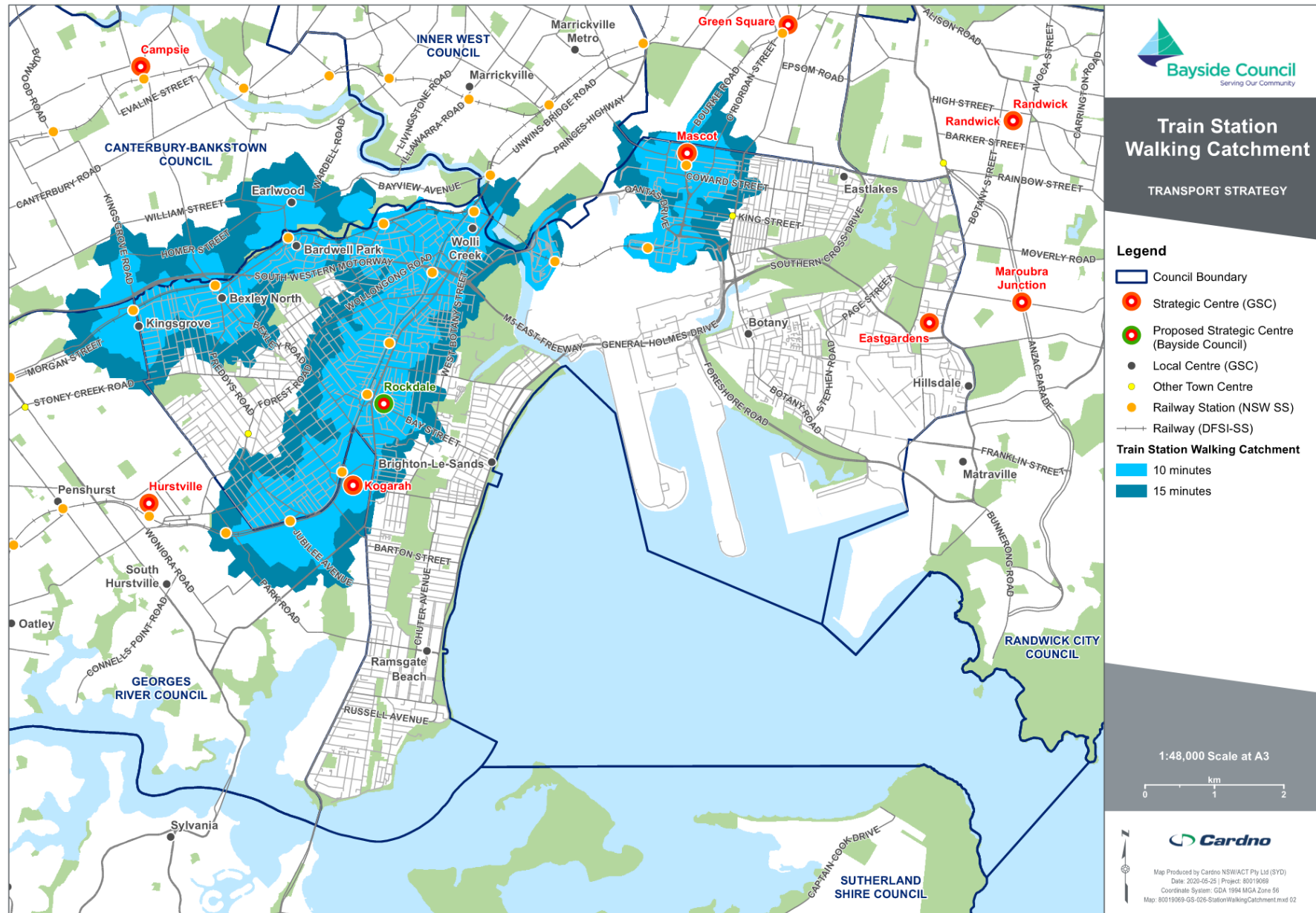
6.2.4 Bicycle network

Cycling infrastructure is generally limited to on-road cycling routes and some shared path routes in key recreational areas. Key cycling connections include the Alexandria Canal, a shared path along Wentworth Avenue and shared path along the Grand Parade foreshore connecting to shared paths through Kyeemagh and Barton Park.

Bike riding (mode share) is not at the level expected for a fringe inner city LGA where key strategic centres are within easy cycling distance.

The lack of consistent, separated, high quality cycleway network, results in cyclists needing to share the road with high volumes of general traffic and large freight vehicles. Community concerns about on road safety when cycling, is likely a barrier to higher participation.

The topography is generally well-suited to cycling. The current bicycle network is shown in **Figure 6-8**.

Figure 6-8   Current cycle network
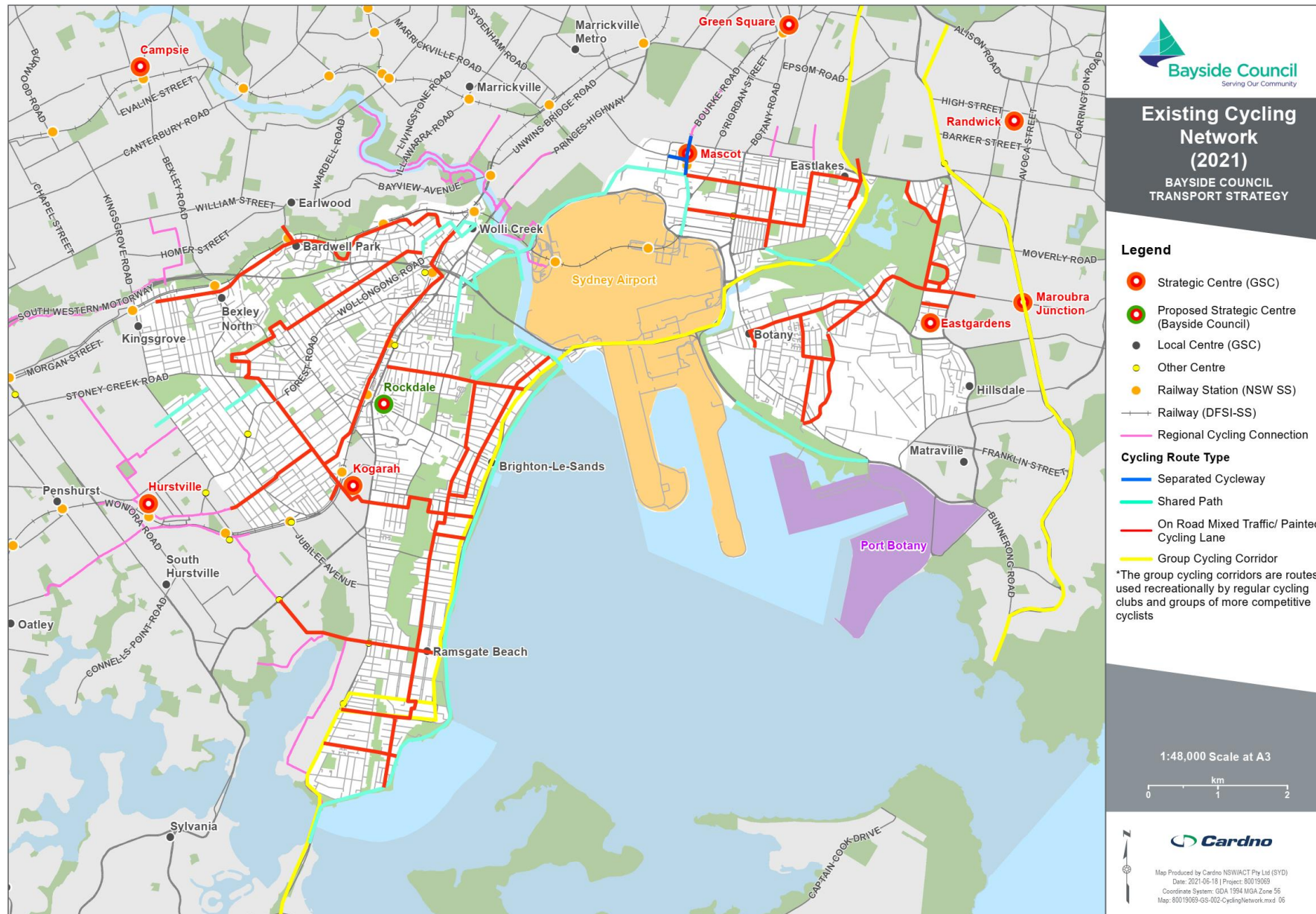
6.2.5   Key cycling routes

A cycle route 'heat map' developed by Strava (a mobile device fitness application) uses GPS data to show the most popular cycling routes of users. Strava does not represent a wide demographic of cyclists, it indicates route preferences for people who cycle for leisure and sport. Southern Cross Drive and the Grand Parade is by far the most highly cycled route in the LGA on Strava. This is a route used by many cycling clubs with origin points typically around Centennial Park, and destinations of Cronulla, Sutherland or Waterfall. These clubs ride on the road and are not suited to riding on the shared path along the foreshore. Some cyclists elect to use the quieter Chuter Avenue-Francis Avenue route. While there is some Strava cycling activity in the eastern part of the Bayside LGA around the port, Bunnerong Road and Anzac Parade appears to be a preferred route north-south links towards Molineux Point and La Perouse in Randwick City Council. The cycling connection to Sydney Airport's international terminal appears to be moderately used. The Strava heat map for the area covering the Bayside LGA is shown on **Figure 6-9**.

Figure 6-9   Strava heat map
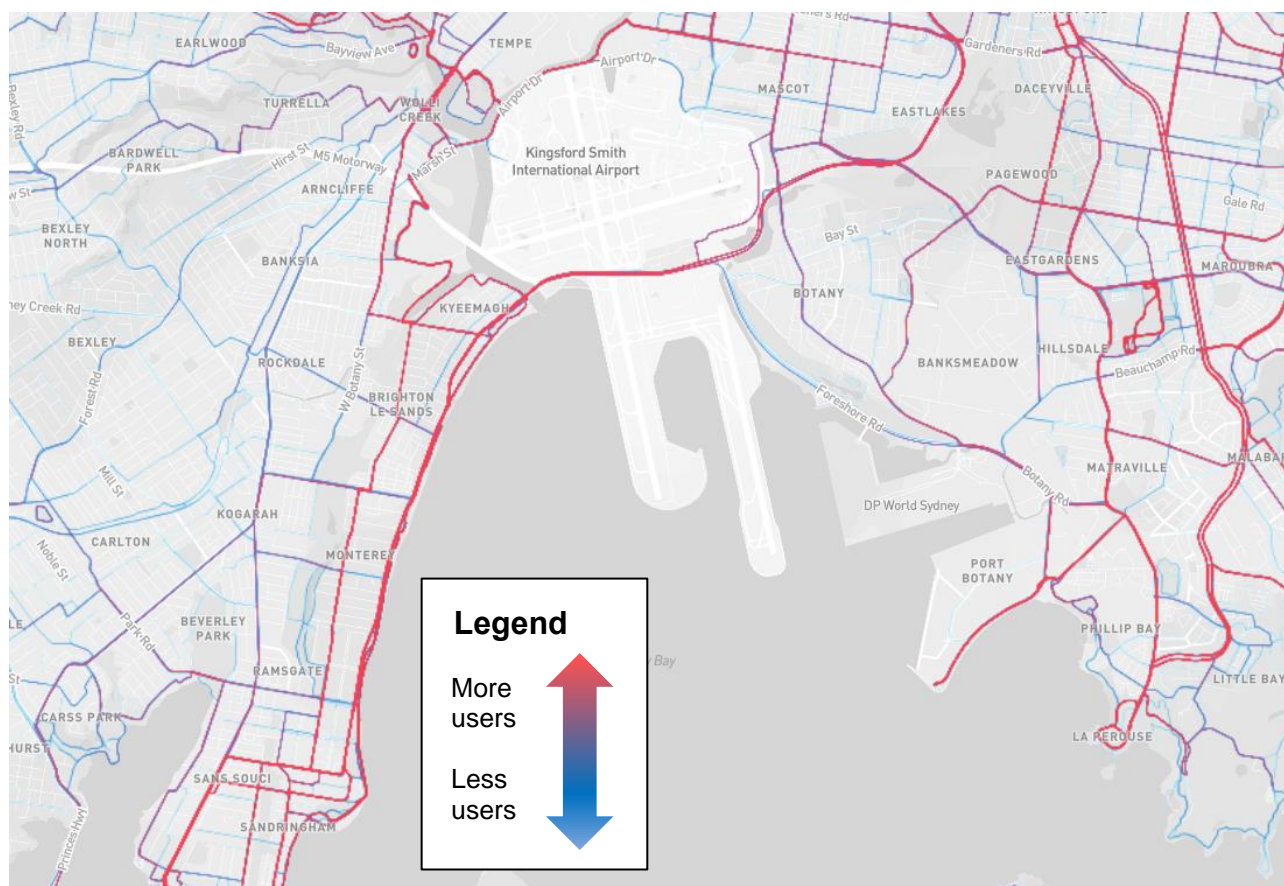
Source: https://www.strava.com/heatmap#13.40/151.13801/-33.95977/bluered/all, accessed 26 February 2019

6.2.5.2   Group cycling

Southern Cross Drive and The Grand Parade, are used by regular weekend recreation cycling groups or 'bunches' (and a number of organised cycling clubs). These groups often leave a central Sydney location around 5:00 – 7:00am and use the arterial roads to ride southwards to Cronulla, Waterfall or the open roads further to the south. These bunches often return back to central Sydney by 10:00am along these same arterial roads.

This regular practise along major road corridors is more frequent on weekends when traffic volumes are lower. The sharing of these key arterials means there still is the potential to lead to incidents when longer vehicles are present or when heavier volumes of traffic are observed. During weekday peak periods, these arterial route are not considered safe nor efficient for commuter cycling.

6.3 Public transport networks

6.3.1 Trains

The T4 Illawarra Line and the T8 Airport & South Lines service the Bayside LGA. The T4 Illawarra Line enters the Bayside LGA at Cooks River and exits at Kogarah. The stations served include Wolli Creek, Arncliffe, Banksia, Rockdale and Kogarah. Train timetable changes mean that with the exception of Wolli Creek, all these stations generally have a service frequency of 10 minutes during peak periods (approximately every third train).

The T8 Airport & South Lines service two stations at Sydney Airport, the Domestic Terminal and the International Terminal, as well a number of stations along the Bardwell Valley corridor. These include Wolli Creek, Turrella, Bardwell Park and Bexley North. The next station of Kingsgrove is wholly within Georges River Council, but services the far western corner of the Bayside LGA. The service frequency at all stations except Wolli Creek is approximately 10minutes during peak periods, though there is some variability.

Fares are overseen by IPART on a network distance-based metric, with the airport terminal stations subject to additional access fees. A summary of the Airport Rail Link contract is available at https://www.treasury.nsw.gov.au/sites/default/files/2017-02/railways-contract.pdf

It is understood the airport railway fee is unpopular with many users. A parliamentary review of a reduction or removal for airport staff of station access fees can be viewed at https://www.parliament.nsw.gov.au/pbo/Documents/2019%20ALP%20Election%20Policy%20Costings/A175%20-%20Costing.pdf

The document indicates the policy was estimated to have cost taxpayers $89 million over the four years 2018/ 2019 to 2021/ 2022. It was also identified that it would be difficult to accommodate the forecast additional demand during peak periods.

The T4 and T8 lines have high peak period crowding/ capacity limitations. Transport for NSW[5] notes the significant increase in patronage on the T4 (the busiest line on the Sydney Trains network) and the T8 in recent years. On the T8 line, patronage at Mascot Station increased by 94 per cent between 2014 and 2017, and by 38 per cent and 58 per cent at the Domestic and International terminal stations. Patronage on the T4 line at Wolli Creek Station and Rockdale Station is up by 25 per cent and 17 per cent respectively over the same period. Transport for NSW reports that about half the services in the busiest morning peak hour on both lines experience crowding that can affect the service reliability.

An overview of the train network is shown on **Figure 6-10**.

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[5] More trains, more services brochure June 2018: https://www.transport.nsw.gov.au/projects/more-trains-more-services

Figure 6-10   Bayside public transport overview
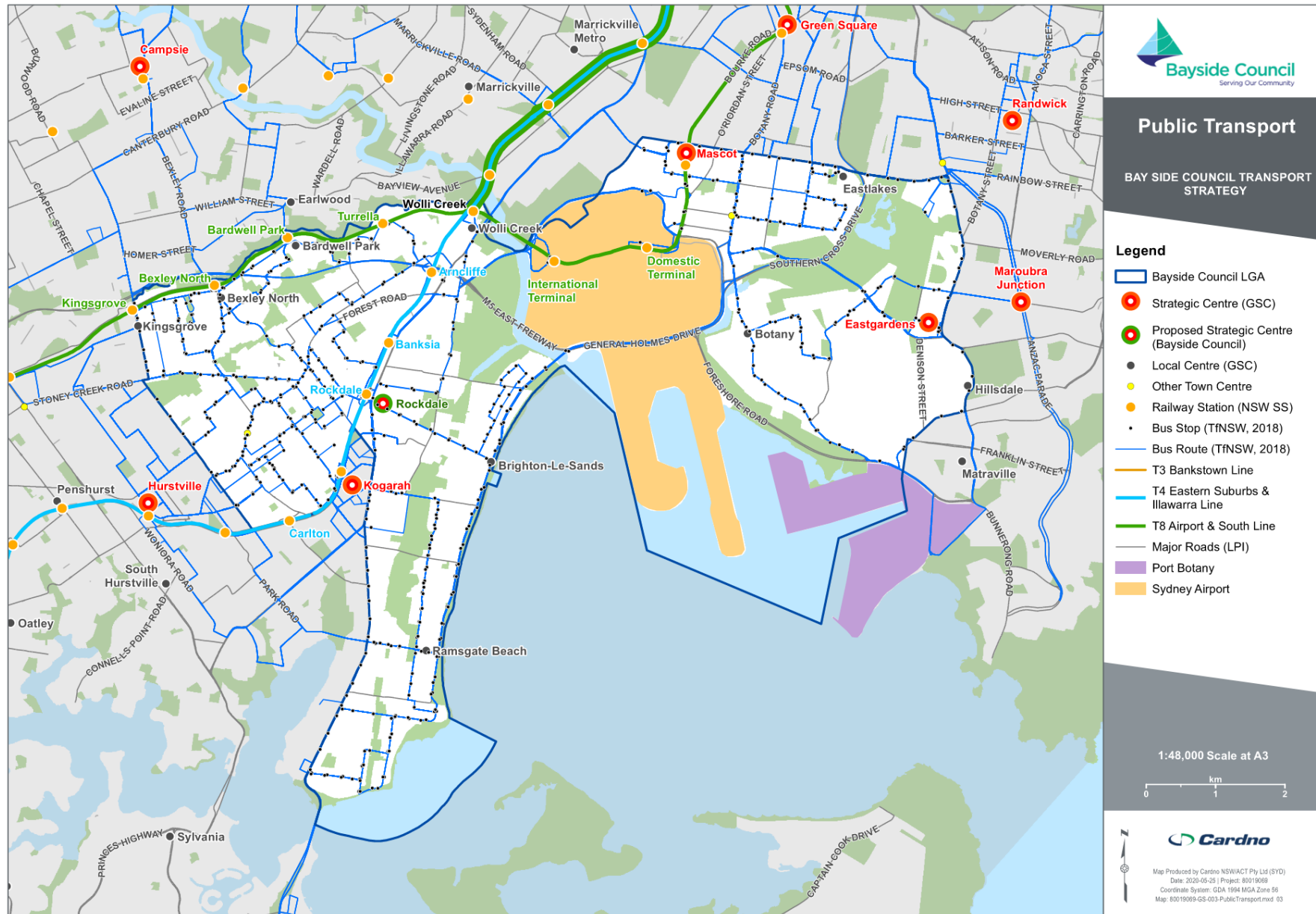
6.3.2   Buses

Bayside has a range of bus services. Some bus routes are designed for catchment coverage with a trade-off of directness.

Several private companies operate public bus services in Bayside, shown in **Figure 6-11**. This adds difficulty in identifying the entire network, as some routes will not be shown where they operate in another regions area.

Service payment is integrated with Transport for NSW Opal cards. Fares are overseen by IPART on a network distance-based metric.

Bus stop and routes locations are shown on **Figure 6-10**.

Figure 6-11   Sydney buses zone map
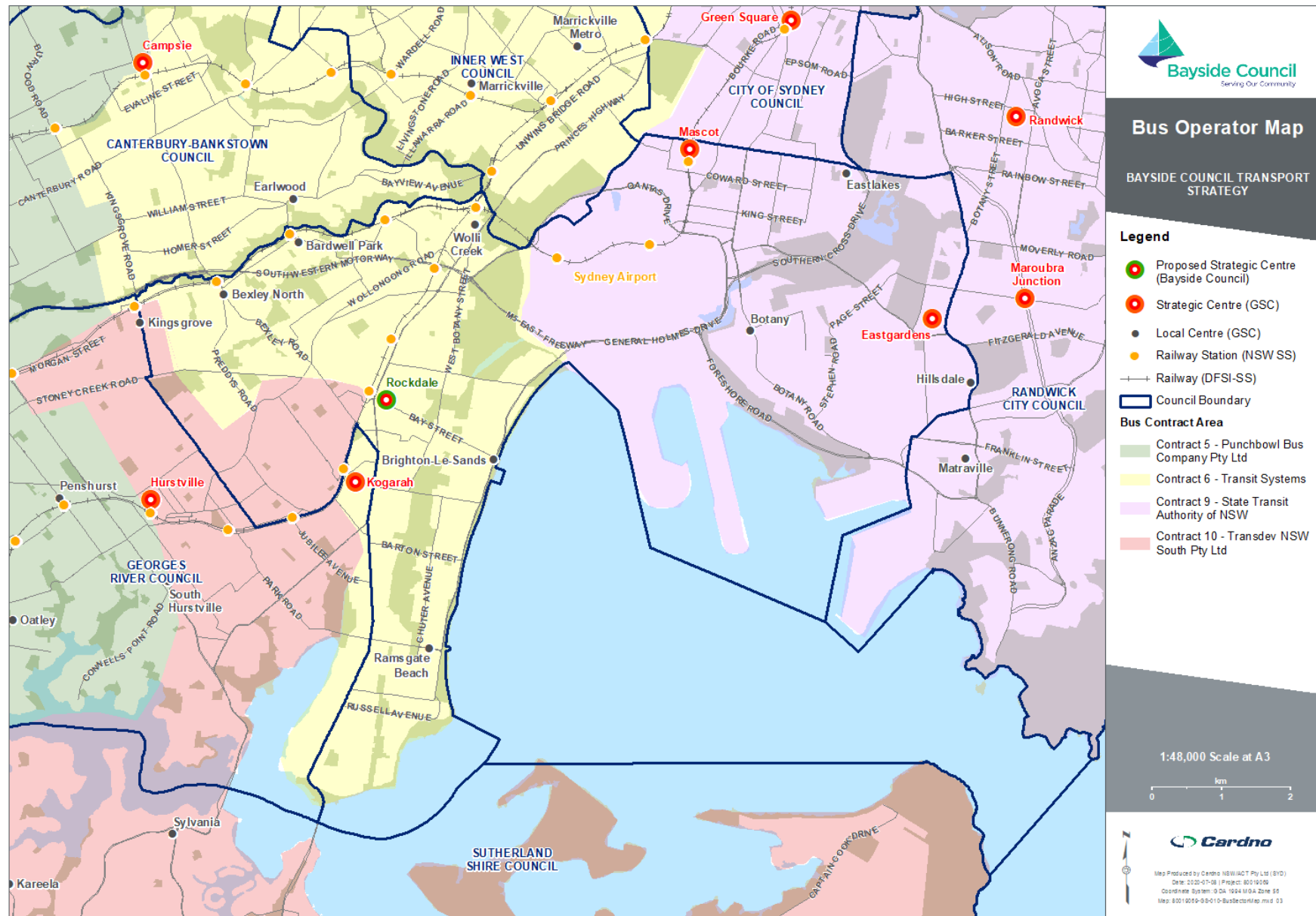
6.3.3 30 minute travel

General Transit Feed Specification (GTFS) data was analysed to determine areas within Bayside that do not have public transport services allowing access of strategic centres within 30 minutes. GTFS allows all public transit agencies to publish their transit data in a consolidated format that can be used to efficiently analyse timetable data and coverage.

The strategic centres assessed for 30 minute access in this analysis are:

> Mascot;

> Eastgardens;

> Kogarah; and

> Hurstville.

Three time frames were assessed, as described in **Table 6-1**.

Table 6-1   30 minute public transport access time periods assessed

Time and day	Period
Thursday 31 Oct 2019, 8:00am – 8:30am	Represents a typical weekday morning peak period
Thursday 31 Oct 2019, 12:00pm – 12:30pm	Represents a typical weekday off-peak period
Saturday 2 November, 12:00pm – 12:30pm	Represents a typical weekend peak period

During the typical weekday morning peak period, Bayside has the most coverage by public transport. Areas not in a 30-minute public transport catchment of a strategic centre include Sandringham, Botany industrial area and Kyeemagh, shown in **Figure 6-12**.

During the typical weekday off-peak period, areas within 30-minute access reduces the most, with areas such as Bardwell Valley, Sandringham and Botany decreasing in coverage, shown in **Figure 6-13**.

During the typical weekend peak period, coverage also reduces in Sandringham and Bardwell Valley, but increases at the Botany industrial land area, shown in **Figure 6-14**.

Areas consistently not within 30 minute public transport access of a strategic centre are:

> The southern end of the Sandringham Peninsula in the suburb of Sandringham;

> Botany industrial land and some residential areas; and

> Bardwell Valley.

Similarly, the 30 minute catchments for the Metropolitan Centre of the Sydney CBD is shown in **Figure 6-15**, **Figure 6-16**, and **Figure 6-17**. The assessment found that the Parramatta metropolitan centre is not within a 30 minute catchment of Bayside at these time periods.

Figure 6-12   30 minute public transport catchment to strategic centres (Thursday 31 Oct 2019, 8.00am – 8.30am)
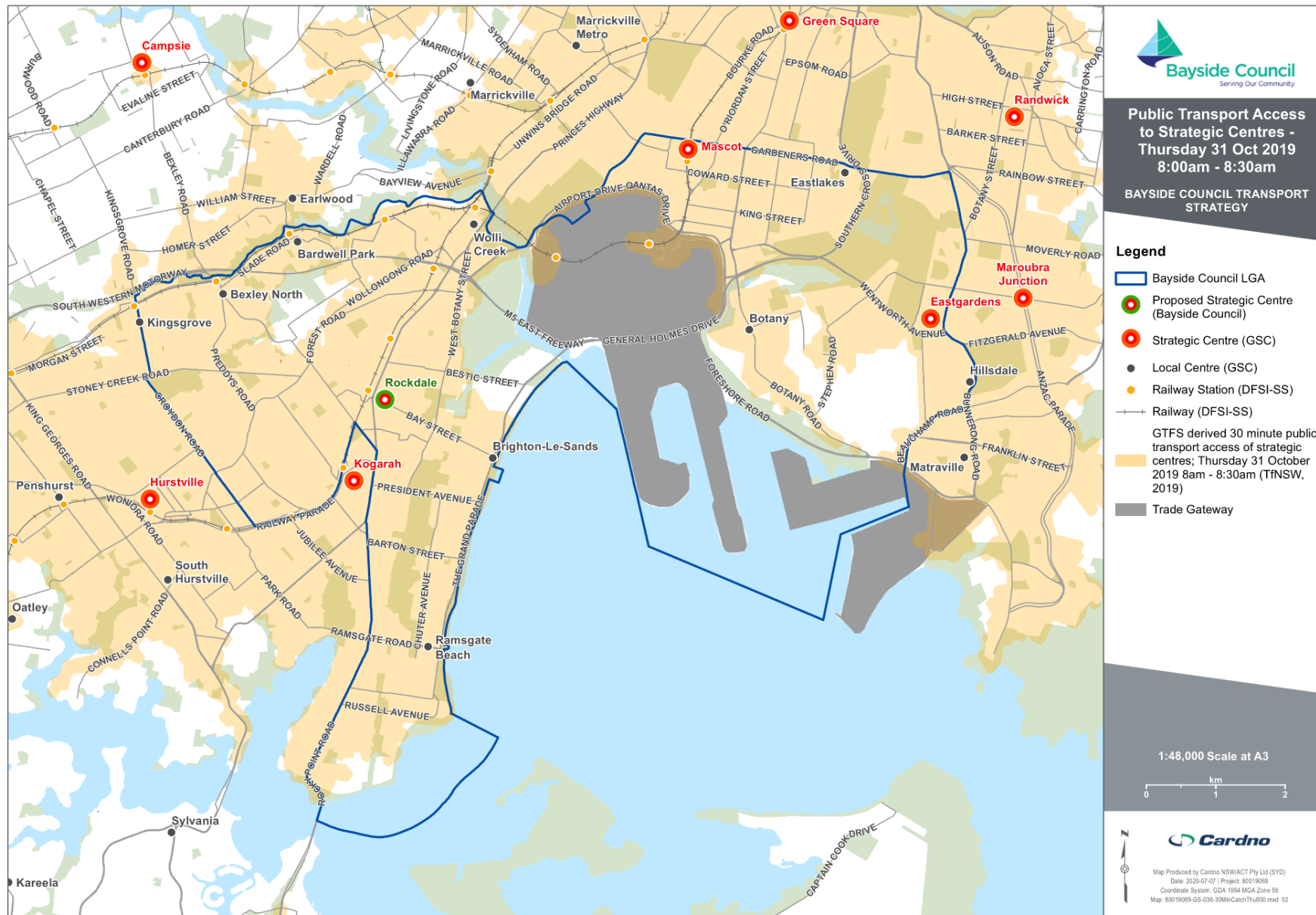
Figure 6-13   30 minute public transport catchment to strategic centres (Thursday 31 Oct 2019, 12.00pm – 12.30pm)
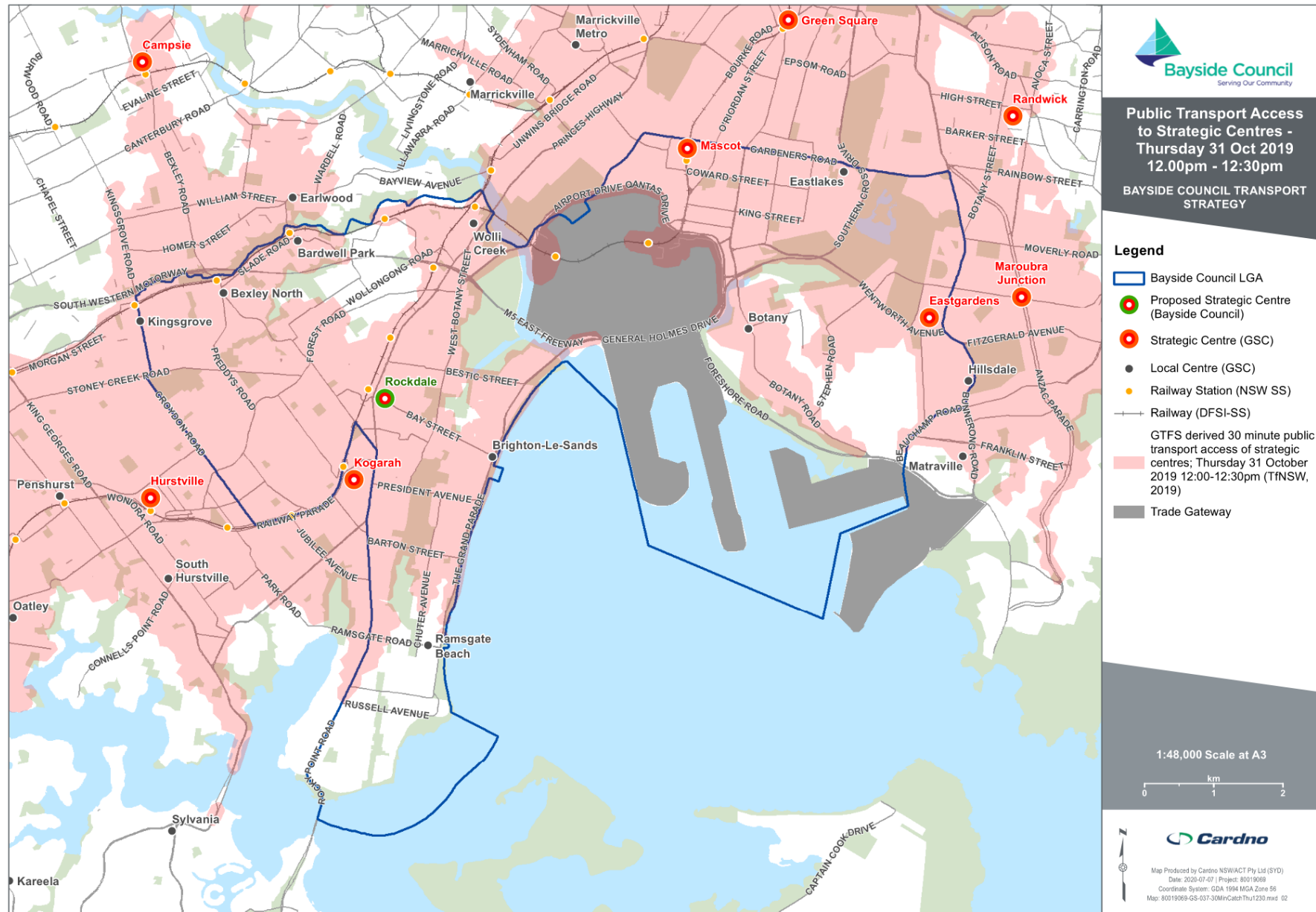
Figure 6-14   30 minute public transport catchment to strategic centres (Saturday 2 November, 12.00pm – 12.30pm)
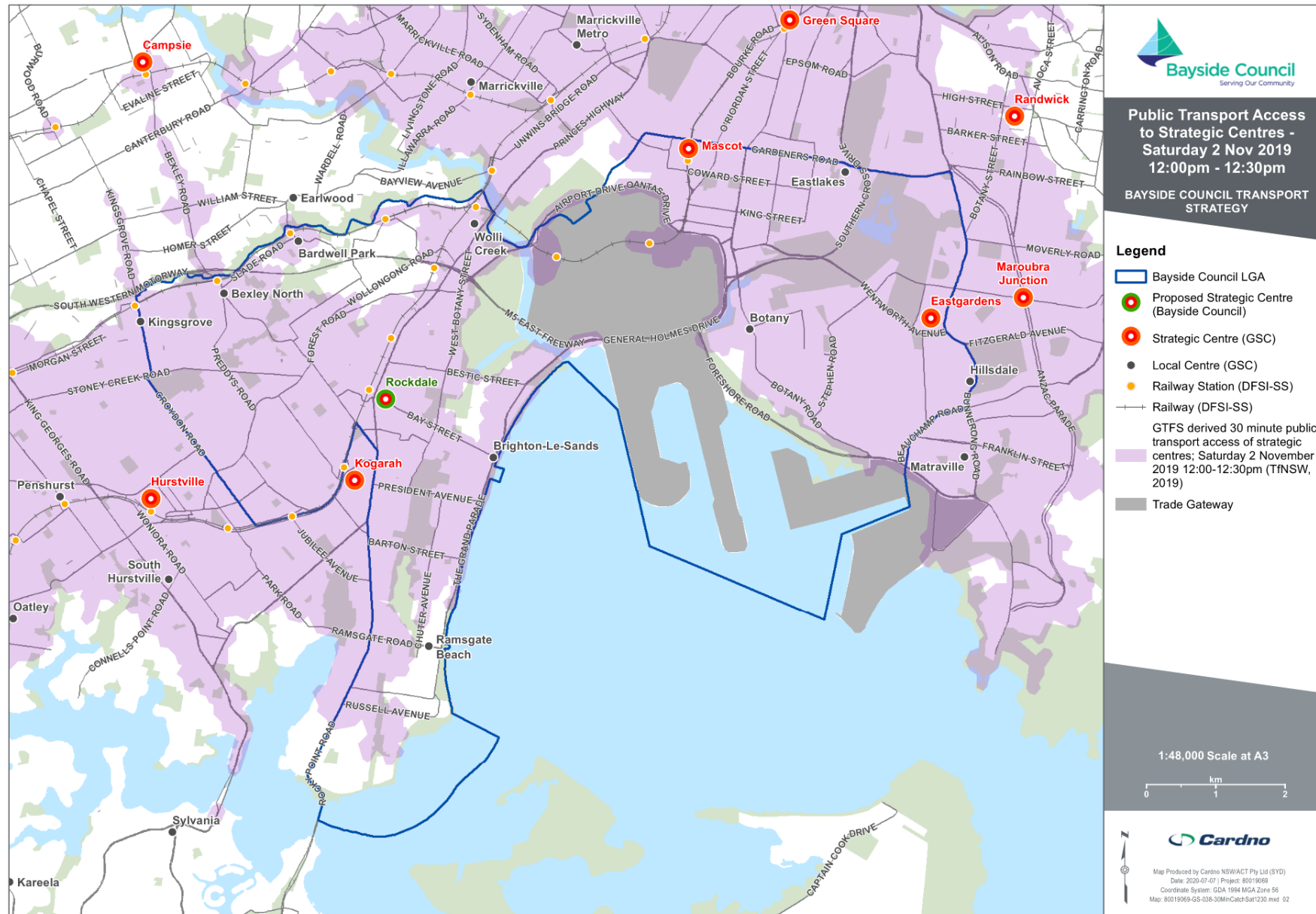
Figure 6-15   30 minute public transport catchment to Metropolitan centres (Thursday 31 Oct 2019, 8.00am – 8.30am)
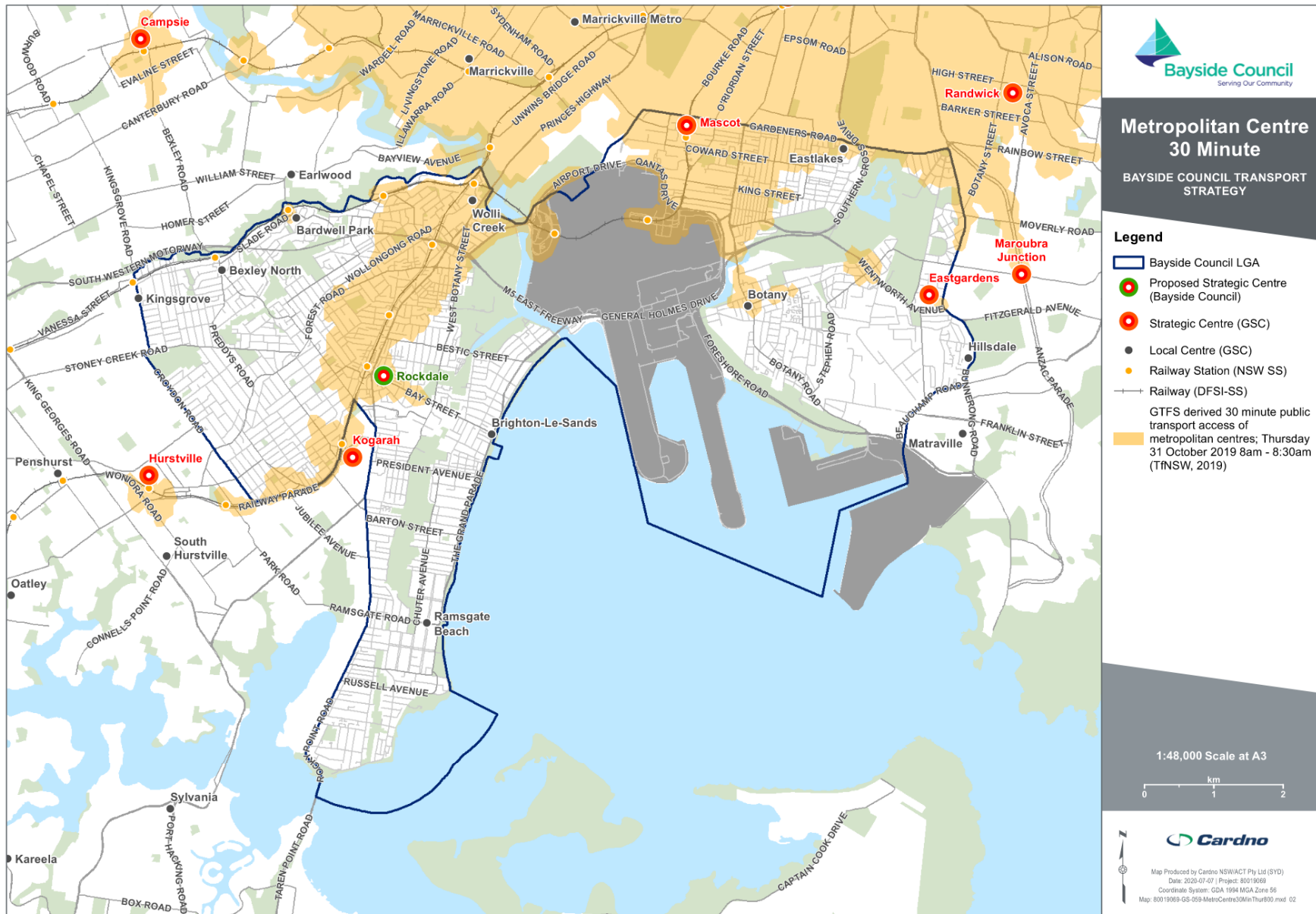
Figure 6-16   30 minute public transport catchment to Metropolitan centres (Thursday 31 Oct 2019, 12.00pm – 12.30pm)
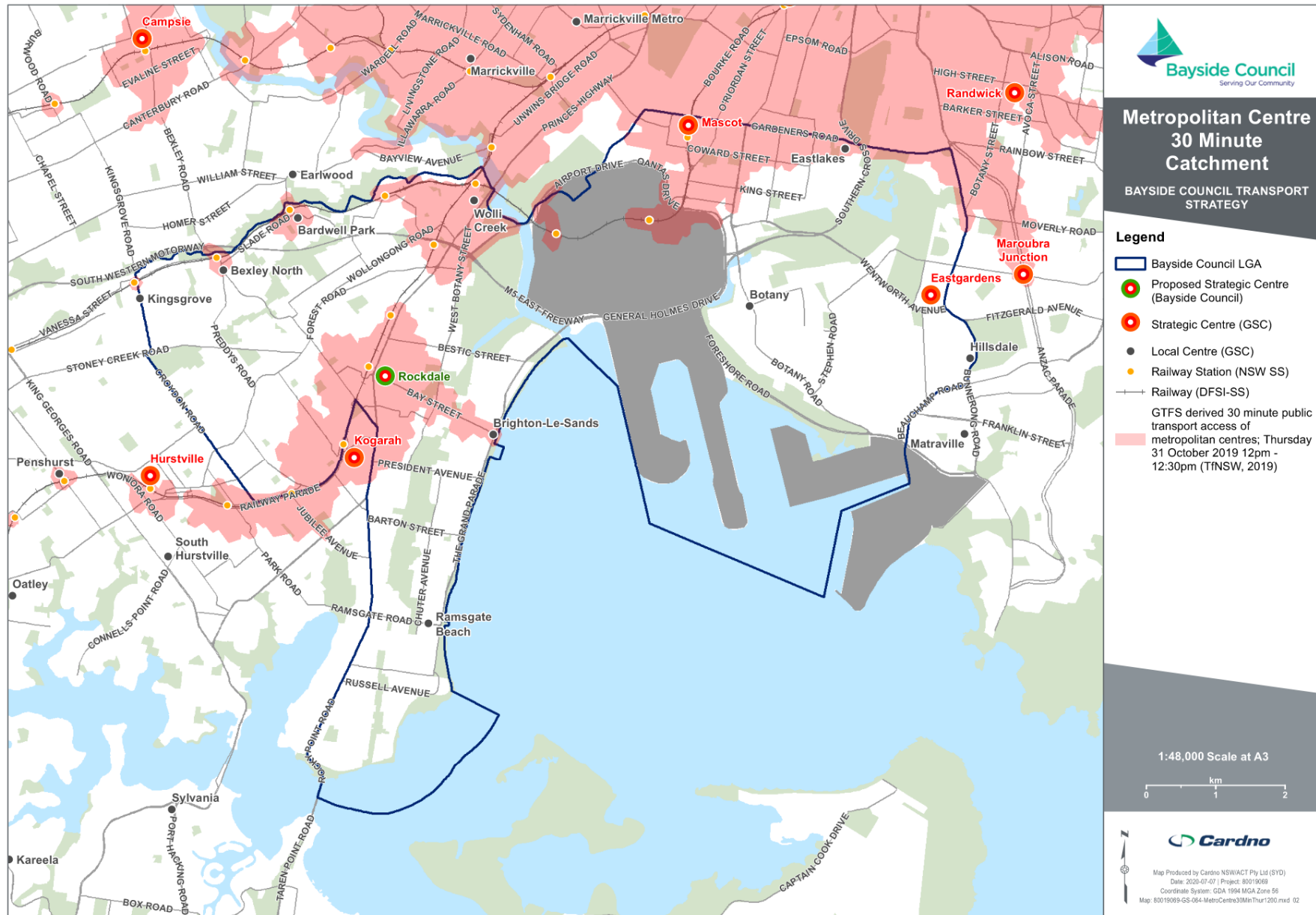
Figure 6-17   30 minute public transport catchment to Metropolitan centres (Saturday 2 November, 12.00pm – 12.30pm)
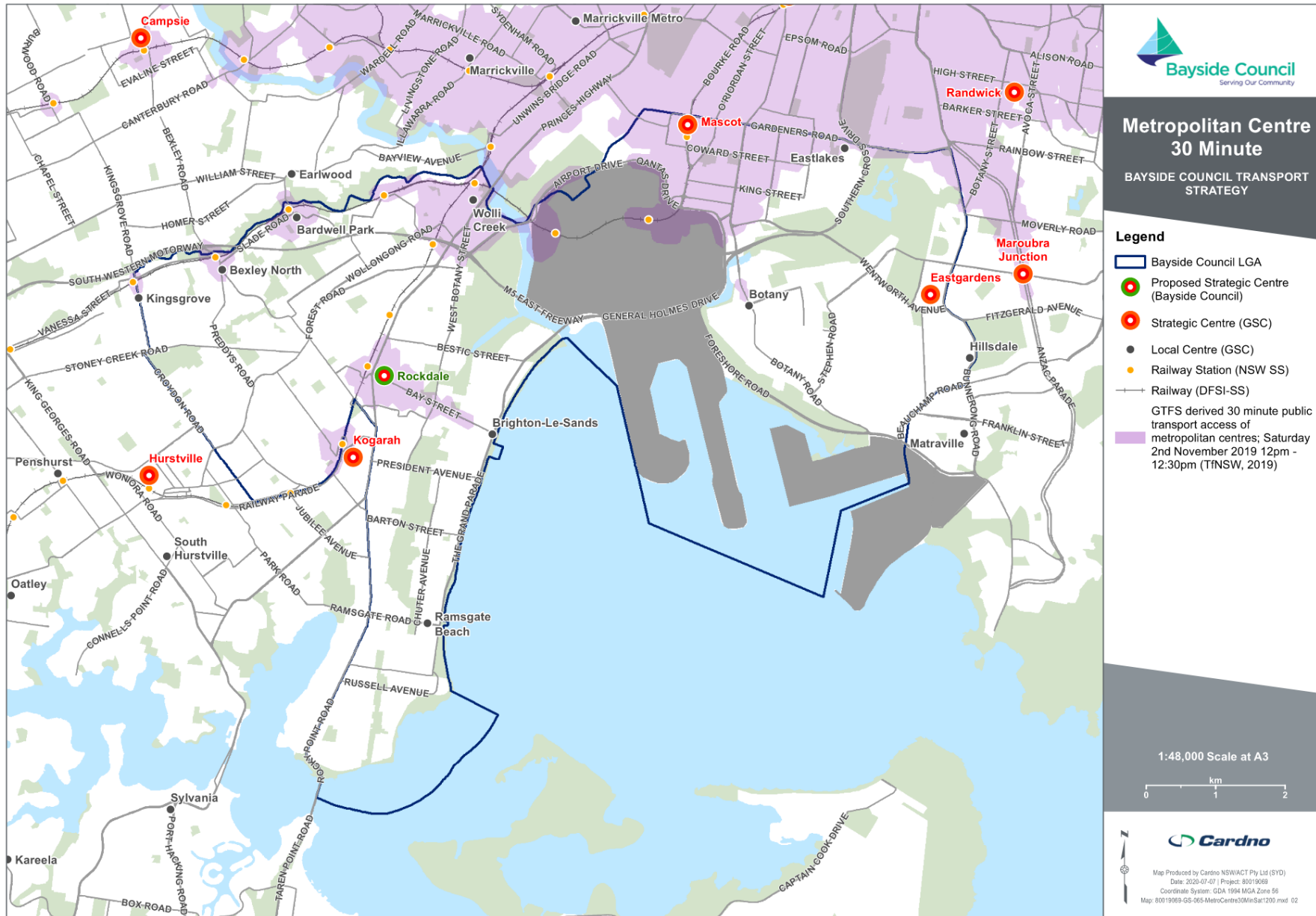
6.3.4   Public transport service frequencies

GTFS data was analysed to determine the areas within Bayside that experience the highest and lowest frequency of bus and train services.

The time periods assessed in this analysis are:

> Thursday 31 Oct 2019, 8:00am – 8:30am;

> Thursday 31 Oct 2019, 12:00pm – 12:30pm;

> Thursday 31st October, 7:00pm – 7:30pm; and

> Saturday 2 November, 12:00pm – 12:30pm.

The stations within Bayside that receive the highest frequency of services are Wolli Creek Station, Domestic Airport Station and International Airport Station.

Timetable frequency assessment for train services is shown in **Table 6-2**.

For all time periods, the most frequently serviced bus stops are located on Botany Road and Gardeners Road. Areas with consistently low service frequency include Bexley, Bexley North, Kyeemagh and south Mascot.

Bus stop frequency for the four time frames are shown in **Figure 6-18**, **Figure 6-19**, **Figure 6-20** and **Figure 6-21**.

Table 6-2   Train station service frequency – GTFS analysis

Platform	Platform number	Service and direction	Thursday 31st October (8am - 8.30am)		Thursday 31st October (12pm - 12.30pm)		Thursday 31st October (7pm - 7.30pm)		Saturday 2nd November (12pm - 12.30pm)	
			Number of trips	Maximum wait time	Number of trips	Maximum wait time	Number of trips	Maximum wait time	Number of trips	Maximum wait time
Arncliffe Station	Platform 1	T4 Northbound	3	10	0	≥ 30 mins	2	≥ 30 mins	0	≥ 30 mins
	Platform 2	T4 Southbound	3	10	0	≥ 30 mins	3	10	0	≥ 30 mins
	Platform 3	T4 Northbound	0	≥ 30 mins	1	Unknown	0	≥ 30 mins	1	Unknown
	Platform 4	T4 Southbound	0	≥ 30 mins	1	Unknown	0	≥ 30 mins	1	Unknown
Banksia Station	Platform 1	T4 Northbound	3	10	0	≥ 30 mins	2	≥ 30 mins	0	≥ 30 mins
	Platform 2	T4 Southbound	3	10	0	≥ 30 mins	3	10	0	≥ 30 mins
	Platform 3	T4 Northbound	0	≥ 30 mins	1	Unknown	0	≥ 30 mins	1	Unknown
	Platform 4	T4 Southbound	0	≥ 30 mins	1	Unknown	0	≥ 30 mins	1	Unknown
Bardwell Park Station	Platform 1	T8 Eastbound	3	15	2	15	2	15	2	15
	Platform 2	T8 Westbound	2	15	2	15	2	15	2	15
Bexley North Station	Platform 1	T8 Eastbound	2	15	2	15	2	15	2	15
	Platform 2	T8 Westbound	2	15	2	15	2	15	2	15
Carlton Station	Platform 1	T4 Northbound	3	10	0	≥ 30 mins	2	19	0	≥ 30 mins
	Platform 2	T4 Southbound	3	10	0	≥ 30 mins	3	10	0	≥ 30 mins
	Platform 3	T4 Northbound	0	≥ 30 mins	2	16	0	≥ 30 mins	1	Unknown
	Platform 4	T4 Southbound	0	≥ 30 mins	2	≥ 30 mins	0	≥ 30 mins	1	Unknown
Domestic Airport Station	Platform 1	T8 Eastbound	6	6	4	8	4	8	4	11
	Platform 2	T8 Westbound	4	9	4	9	4	9	4	11
International Airport Station	Platform 1	T8 Eastbound	6	6	4	8	4	8	4	11
	Platform 2	T8 Westbound	5	9	4	9	4	9	4	11
Kingsgrove Station	Platform 1	T8 Eastbound	2	15	2	15	2	15	2	15
	Platform 2	T8 Westbound	1	Unknown	2	15	2	15	2	15
Kogarah Station	Platform 1	T4 Northbound	3	10	0	≥ 30 mins	2	19	0	≥ 30 mins

Platform	Platform number	Service and direction	Thursday 31st October (8am - 8.30am)		Thursday 31st October (12pm - 12.30pm)		Thursday 31st October (7pm - 7.30pm)		Saturday 2nd November (12pm - 12.30pm)	
			Number of trips	Maximum wait time	Number of trips	Maximum wait time	Number of trips	Maximum wait time	Number of trips	Maximum wait time
	Platform 2	T4 Southbound	3	10	0	≥ 30 mins	3	10	0	≥ 30 mins
	Platform 3	T4 Northbound	0	≥ 30 mins	3	≥ 30 mins	1	Unknown	3	12
	Platform 4	T4 Southbound	0	≥ 30 mins	3	13	0	≥ 30 mins	3	≥ 30 mins
Mascot Station	Platform 1	T8 Eastbound	6	6	4	8	4	8	4	11
	Platform 2	T8 Westbound	4	9	4	9	4	9	4	11
Rockdale Station	Platform 2	T4 Northbound	3	10	0	≥ 30 mins	2	19	0	≥ 30 mins
	Platform 3	T4 Southbound	3	10	0	≥ 30 mins	3	≥ 30 mins	0	≥ 30 mins
	Platform 4	T4 Northbound	0	≥ 30 mins	3	≥ 30 mins	1	Unknown	3	12
	Platform 5	T4 Southbound	0	≥ 30 mins	3	13	0	≥ 30 mins	3	13
Turrella Station	Platform 1	T8 Eastbound	2	15	2	15	2	15	2	15
	Platform 2	T8 Westbound	2	15	2	15	2	15	2	15
Wolli Creek Station	Platform 1	T8 Eastbound	5	6	4	8	4	8	4	11
	Platform 2	T8 Westbound	5	9	4	9	4	9	4	11
	Platform 3	T4 Northbound	9	4	3	11	5	10	5	10
	Platform 4	T4 Southbound	8	6	3	11	6	5	3	11

Source: GTFS data analysis (2019)

Figure 6-18   Bus stop service frequency - Thursday 31 Oct 2019, 8.00am – 8.30am
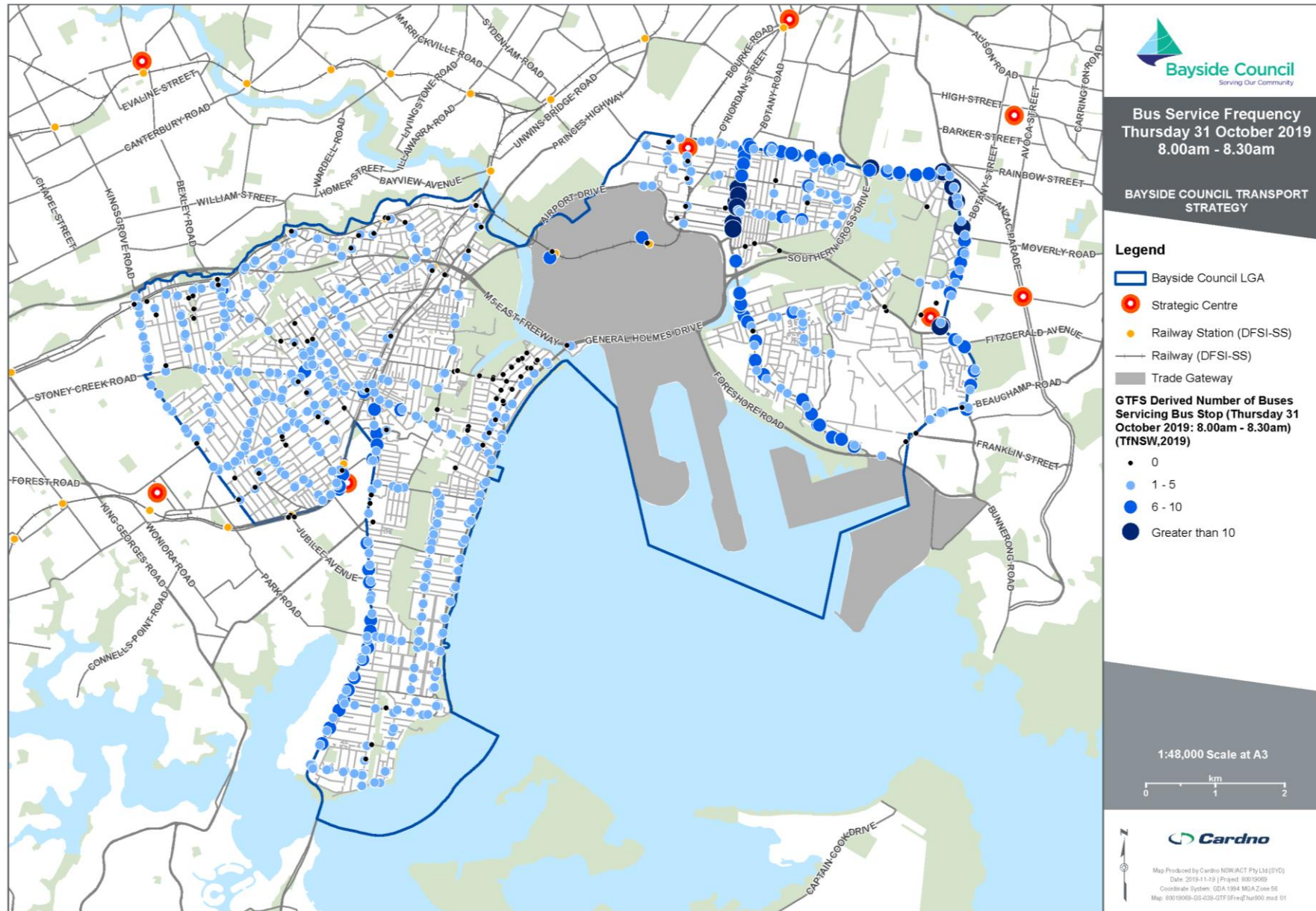
Figure 6-19   Bus stop service frequency - Thursday 31 Oct 2019, 12.00pm – 12.30pm
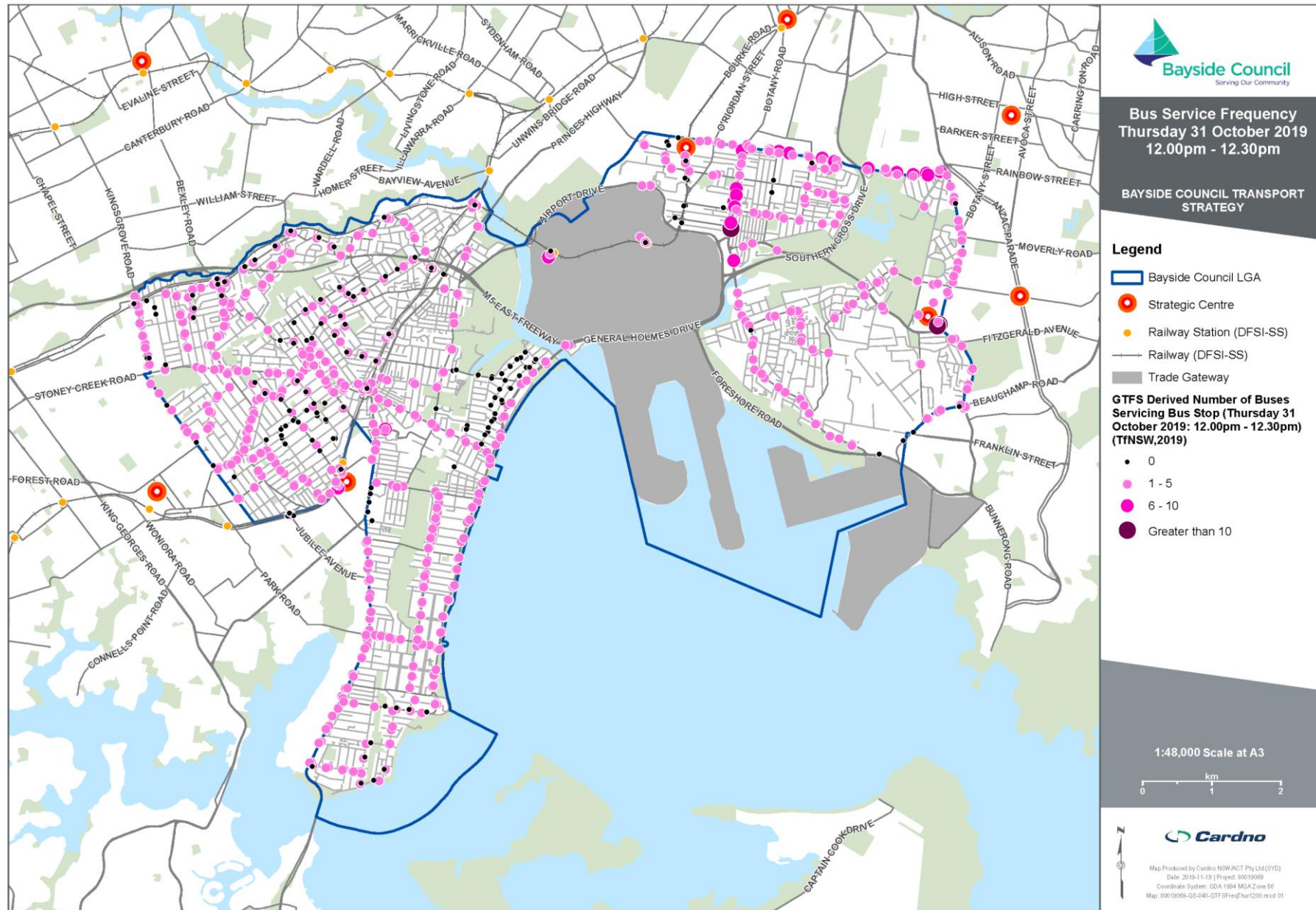
Figure 6-20   Bus stop service frequency - Thursday 31st October, 7.00pm - 7.30pm
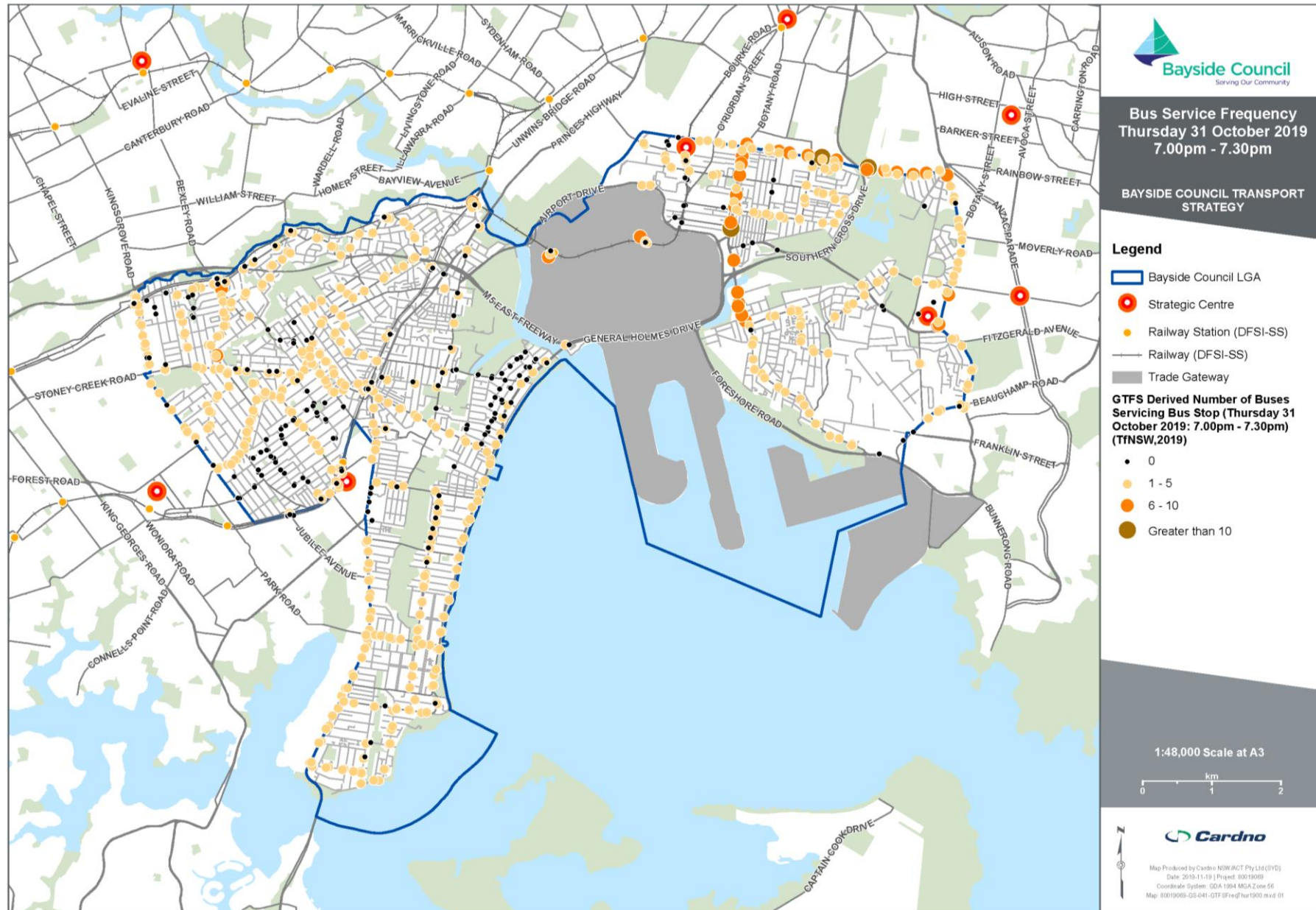
Figure 6-21   Bus stop service frequency - Saturday 2 November, 12.00pm – 12.30pm
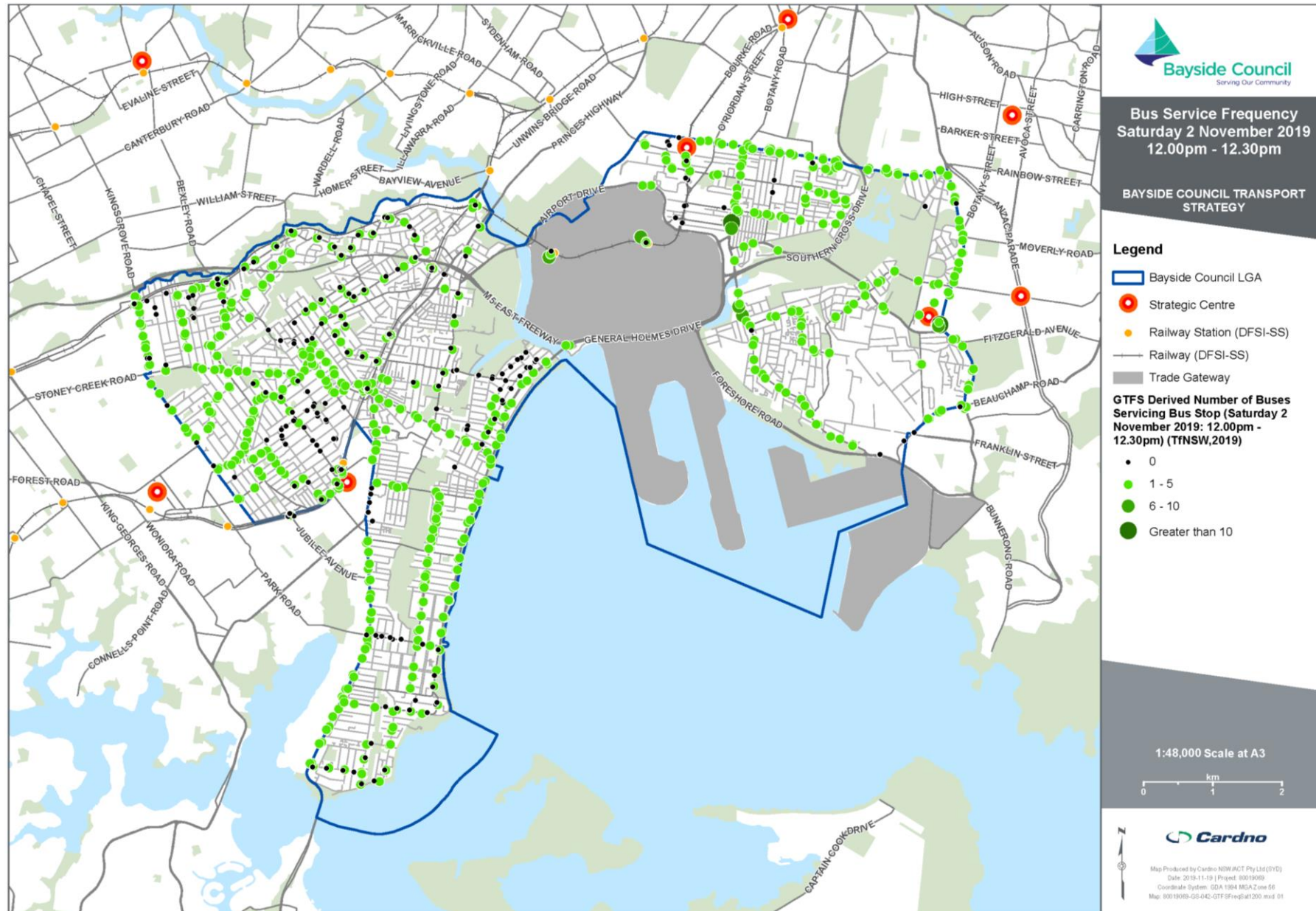
6.3.4.2   High frequency public transport accessibility

Walking catchments for the transit stops that provide the highest frequency in Bayside were measured. The stops that were deemed to provide the highest frequency were those that were serviced by three or more public transport services on Thursday 31 October 2019 between 12.00pm and 12.30pm.

These include 169 bus stops, and Mascot Station, Wolli Creek Station, Domestic Airport Station, International Airport Station, Rockdale Station and Kogarah Station. The bus stops are mostly located on the Grand Parade, Gardeners Road, Botany Road, Bay Street, New Illawarra Road, Croydon Road and Bunnerong Road.

Suburbs that are outside of the high frequency public transport catchment are Bardwell Park, Carlton, Ramsgate, Arncliffe, Banksia and Botany.

The five and ten minute walking catchments for high frequency public transport stops in Bayside for Thursday 31 October 12.00pm – 12.30pm is shown in **Figure 6-22**.

Figure 6-22   High frequency bus stop walking catchment (Thursday 31 October 2019 – 12.00pm – 12.30pm)
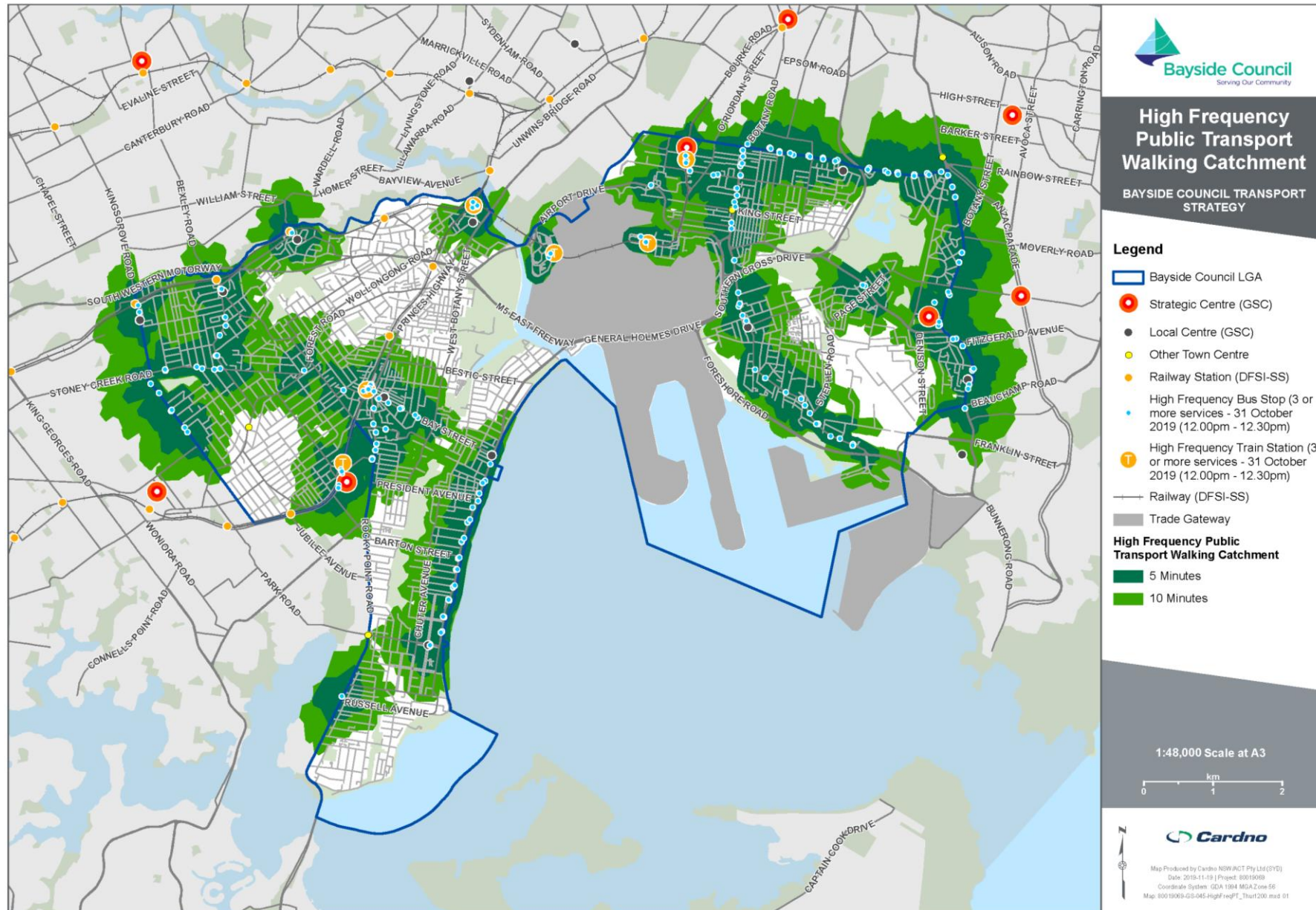
6.4 Road network

The road network forms the core of the transport network supporting pedestrians in the verge, bicycles, buses, freight and general traffic. Roads are assigned a classification of state, regional or local according to each road's connectivity and importance to the broader road network. For example, roads that have a high freight task are generally assigned a state road classification. Transport for NSW is required to maintain a schedule of classified roads under the *Roads Act 1993* s153 (4)[6].

A classified road is a road which Transport for NSW is responsible for maintaining and funding. They are classed as either highways or state/main roads and are generally recognised as key arterial links within the road transport network. Regional roads provide an intermediate function and are funded by Transport for NSW but maintained by Councils. Local roads are maintained and funded by Councils. The relationship between different road classes, funding and maintenance responsibility and selected Bayside LGA roads are shown in **Table 6-3**.

Due to the arterial nature of the roads, and the critical function they play in the road network, any changes to the layout or function of the road need to be in collaboration and agreement and approved by Transport for NSW.

Table 6-3   Road Classification Local Context

Road Classification	Class	Funding	Maintenance
Classified Road	**Highway**	**Transport for NSW**	**Transport for NSW**
	Roads (Classification No).: Princes Highway (1)		
	State Road/ Main Road	**Transport for NSW**	**Transport for NSW**
	Roads (Classification No) (Road Network Plan No.): Forest Road (168) (RNP 53) Bay Street-Frederick St-Bexley Road (169) Stoney Creek Road (665) (RNP 53) President Avenue (667) (RNP 56) General Holmes Drive-Grand Parade-Sandringham Street (194) (RNP 56) Rocky Point Road (199) (RNP 56) M5 East (6005) Southern Cross Drive (593)	Wentworth Avenue (344) (RNP 15) Gardeners Road (183) (RNP 11) Bunnerong Road (171) Denison Street-Beauchamp Road-Denison Street (616) (RNP 15) General Holmes Drive (194) O'Riordan Street (658) Kent Road-Bourke Road (659) Botany Road (170) (RNP 15) Foreshore Road (617) (RNP 15)	
Unclassified	**Regional**	**Transport for NSW**	**Council**
	Roads (Classification No) (Road Network Plan No.): Kingsgrove Road-Croydon Road (7309) Hartill Law Avenue-Slade Road-New Illawarra Road (7030) Wolli Creek Road (small section) (7086) Queen Victoria Street (7009) Ramsgate Road (624) Harrow Road (7048) Flora Street (7038)	West Botany Street (2032) Bestic Street (7037) Chuter Street (7003) Coward Street (7045) Robey Street (7022) King Street-Maloney Street (7023) Maroubra Road-Heffron Road-Page Street-Stephen Road (7044) Beauchamp Road (7340)	
	Local	**Council**	**Council**
	All other roads		

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[6] http://www.rms.nsw.gov.au/business-industry/partners-suppliers/lgr/documents/classified-roads-schedule.pdf

Traffic volumes on some of the key roads in the Bayside LGA are presented in **Section 7.6**.

6.4.2 Speed limits

Transport for NSW enforces speed limits on NSW roads that reflect the land uses and class of each road. The default speed limit for urban roads that do not have a sign posted speed limit is 50 kilometres per hour. Speed limits for key roads in Bayside are shown in **Figure 6-23**.

6.4.3 School zones

Transport for NSW enforces school zones in NSW to help protect children on their way to and from schools on roads connecting to school premises. The lower speed zones of 40 kilometres per hour aim to reduce the risk and severity of crashes occurring on roads connecting to schools. School zones consist of warning signage, dragons' teeth road markings and flashing lights to increase awareness of children using the road.

The locations of school zones in Bayside are shown in **Figure 6-23**.

Figure 6-23   Key road speed limits
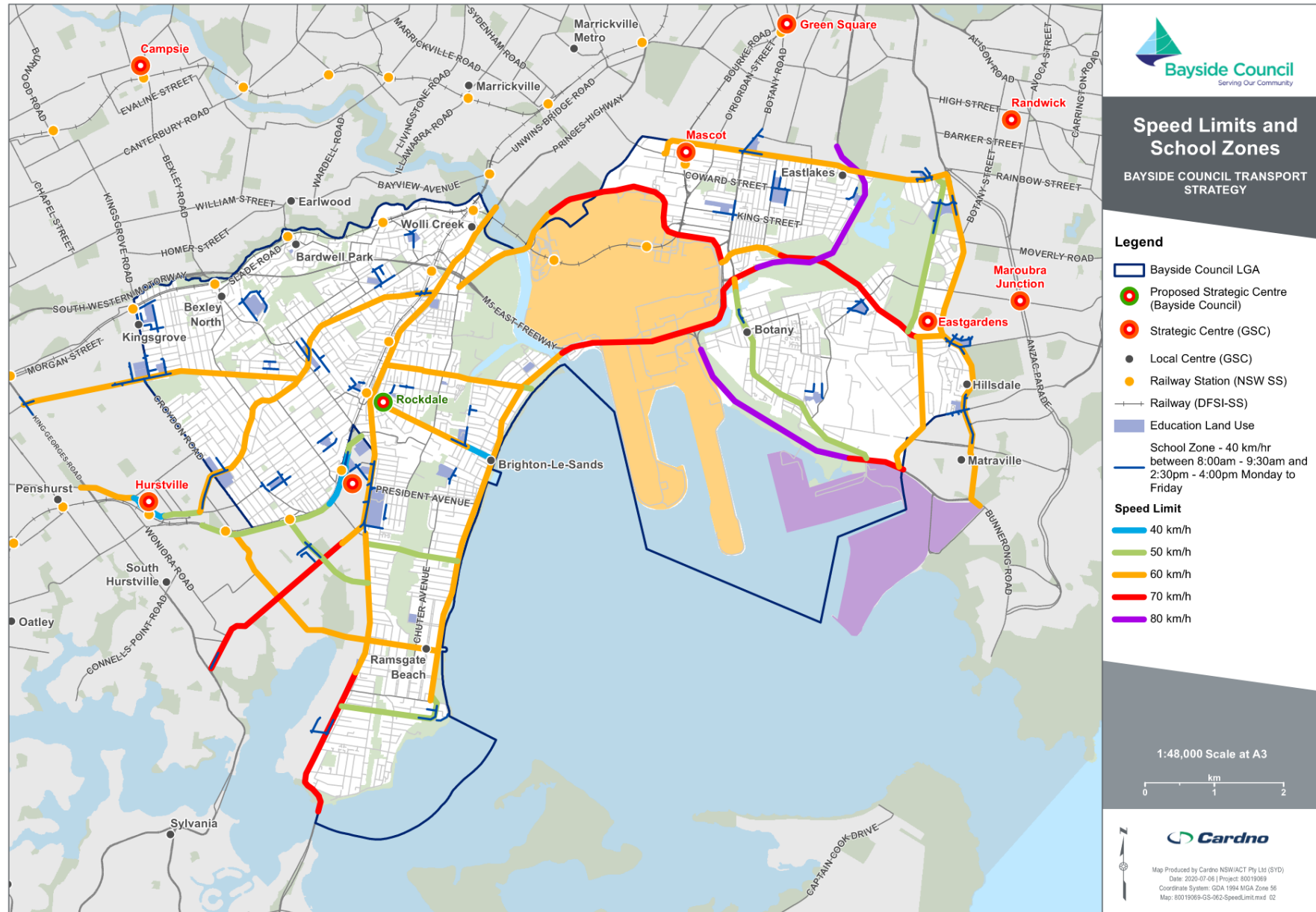
6.5 Freight network

There are major freight generating land uses located within Bayside LGA including; Sydney Airport, Port Botany and the Botany Industrial Park. The ground freight transport network consists of rail and road infrastructure.

6.5.1 Rail

Port Botany is serviced by a dedicated freight rail line which carries containers between the port and intermodal terminals, some of which are located at Cooks River, Enfield, Yennora and Minto. The port rail also handles long distance freight from localities such as Bathurst, Dubbo, Moree and Narrabri (among others). This line is constrained by a section of single track between an area near O'Riordan Street, Mascot and Banksia Street, Pagewood.

Rail freight also operates on the T4 Illawarra line during off-peak periods (i.e. excluding approximately 6:00am to 9:00am and 3:30pm to 6:30pm weekdays). This tends to be a range of bulk commodity products bound for Port Kembla (coal, iron ore, grain), as well as flour products and derivatives (such as ethanol) associated with the Manildra facility at Bombaderry. Steel is also manufactured at Port Kembla and transported by train to Melbourne and Brisbane on a nearly daily basis. Stone aggregate material is also transported from a quarry at Dunmore (near Kiama) to Cooks River.

6.5.2 Road

Key freight routes include Bunnerong Road, Anzac Parade, Botany Road, General Holmes Drive, O'Riordan Street, the Princes Highway and Southern Cross Drive. To the south, the main roads are the Grand Parade and the Princes Highway, and to a lesser extent Rocky Point Road. There are limited freight routes to the east, and the main routes to the west include the M5 East and Forest Road/ Stoney Creek Road.

An overview of the road and freight networks is shown on **Figure 6-24**. Roads with enclosed spaces, generally tunnels are restricted to dangerous goods including the M5 East. Dangerous freight goods include tankers and other trucks carrying flammable or hazardous substances. Dangerous goods routes are not prescribed, they are routes used by oversized or hazardous goods along a tunnel free state road network.

To avoid the M5 East tunnels, dangerous goods freight vehicles typically travel on Stoney Creek Road, Forest Road, Marsh Street, Airport Drive, Wentworth Avenue and Denison Street, connecting between Port Botany and Sydney's west or south.

Figure 6-24   Freight network
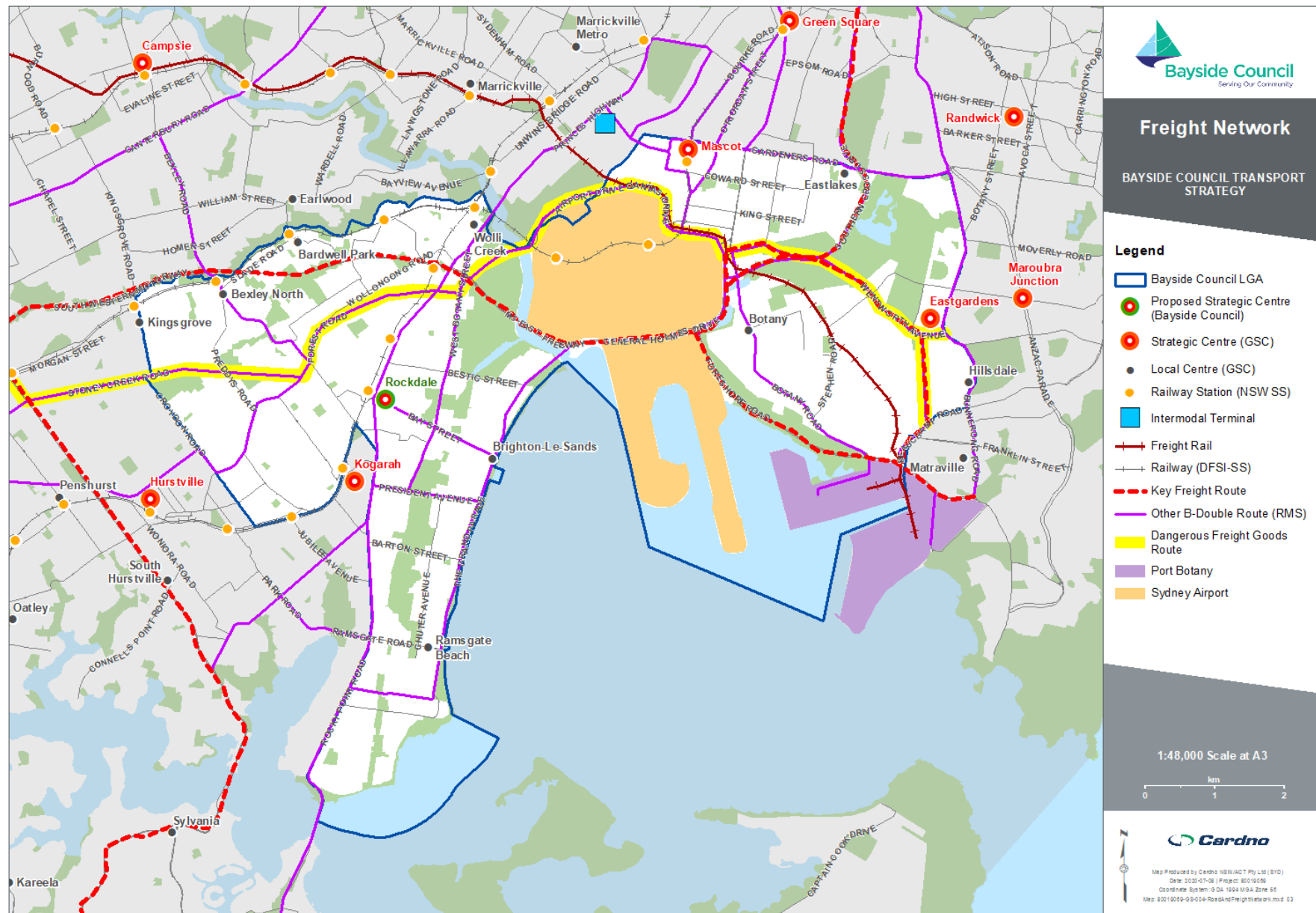
6.6 Parking

The parking 'system' is defined to be all public and private parking, designed for the use of employees, residents or visitors and located on-street or off-street. Through a range of mechanisms, Council has direct control or influence on all aspects of this system.

Councils website[7] outlines key benefits of car parking but outlines the primary use of roadways are to facilitate movement.

6.6.1 Car ownership

Resident car ownership is a large influencer on car parking demand in most local areas. Car ownership rates should be a consideration where it is desired to set car parking provisions for developments.

2016 Census data analysed by Profile ID shows that each household owns approximately, on average, 1.37 vehicles. The data also shows that there are:

> 7,761 households which own 0 vehicles;

> 23,643 households which own one vehicle;

> 15,448 households which own two vehicles; and

> 5,880 households which own more than four vehicles.

6.6.2 Car ownership rates – attached dwellings

Attached dwellings (apartments) represent the highest opportunity and number of new residential developments in Bayside Council.

An assessment on car ownership rates against parking requirements has been undertaken for the former Botany Bay LGA in **Table 6-4** and Rockdale City LGA in **Table 6-5**.

Table 6-4   Former Botany Bay Council LGA attached dwelling by vehicles and bedrooms

Attached Dwellings		Vehicles				
		0	**1**	**2**	**3**	**4**
Bedrooms	**0**	73	29	0	0	0
	1	427	818	146	15	4
	2	962	2,855	1,343	145	23
	3	213	557	440	93	24
	4	0	15	14	4	0

Summary						
Too many cars				454 (5.5%)		
Too many spaces	5,102 (62.2%)					
Just right			2,644 (32.2%)			
Overspill to street estimate			524			

Source: Census, Australian Bureau of Statistics, 2016

Based on the assessment, 454 dwellings have more cars than parking spaces, 2,644 have a car parking space for their car(s) and 5,102 dwellings have car parking spaces they probably do not require for a car.

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[7] Bayside Council website: https://www.bayside.nsw.gov.au/services/parking

Table 6-5   Former Rockdale City Council LGA attached dwelling by vehicles and bedrooms

Attached Dwellings		Vehicles				
		0	1	2	3	4
Bedrooms	0	67	43	3	0	0
	1	764	1,273	167	14	0
	2	2,385	7,550	2,859	321	51
	3	479	1,996	1510	326	74
	4	22	135	224	91	27

Summary	
Too many cars	3,933 (19.3%)
Too many spaces	5,848 (28.7%)
Just right	10,600 (52%)
Overspill to street estimate	4,471

Source: Census, Australian Bureau of Statistics, 2016

Based on the assessment, 3,933 dwellings have more cars than parking spaces, 10,600 have a car parking space for their car(s) and 5,848 dwellings have car parking spaces they probably do not require for a car.

In Bayside, approximately 5,000 (524 + 4,471) vehicles are reliant on on-street parking.

The assessment indicates that a notable percentage of dwellings have too many car parking spaces. This is more prevalent in the former Botany Bay, where the requirement for two car parking spaces is a requirement for two bedroom dwellings, as opposed to three bedroom dwellings in the former Rockdale City in their respective DCPs.

An assessment of car ownership rates per number of bedrooms in flat or apartment buildings of four or more storeys (typical of newer high density residential developments) is shown in **Table 6-6**.

Table 6-6   Car ownership by number of bedrooms – flat or apartment in a four or more storey block

Bedrooms	Former Botany Bay	Former Rockdale	Overall average (Bayside)
0	0.28	0.43	0.36
1	0.83	0.74	0.78
2	1.14	1.10	1.11
3	1.37	1.43	1.42
4	1.67	1.93	1.92
Overall average	**1.11**	**1.15**	**1.14**

Base data source: Census, Australian Bureau of Statistics, 2016

The data shows most zero-bedroom (studio) apartments do not own a car. The average car ownership is less than 1.5 vehicles in apartments with three or less bedrooms, with an average of just over one car for two bedroom apartments. The average is less than two cars for dwellings with four-bedrooms and for this residential development type there is an overall car ownership rate of 1.14 vehicles.

6.6.3   Private parking – DCP overview

Private parking provision is governed by the Council's statutory parking policies. These regulate the supply of parking to meet the broader land use and transport goals for individual Precincts and areas.

Existing parking controls are outlined in the Development Control Plan (DCP). Bayside Council currently has two DCPs that were made for each of the former Botany Bay and Rockdale Council's. A Bayside DCP is currently in preparation and this will include a review of the parking controls.

An assessment of car ownership and DCP parking rates indicates that on the aggregate, each DCP is creating an oversupply of residential car parking.

Bicycle parking

Bicycle parking encourages the participation in the mode contributing to accessibility and convenience.

The Rockdale DCP specifies bicycle parking provisions for Multi Dwelling Housing (Apartments), Retail and Commercial and Child Care Centres.

The Botany Bay DCP specifies for non-residential land uses that exceed 600 square metres Gross Floor Area (GFA), bicycle parking be provided equivalent to ten per cent of all car parking. For residential flat buildings over 600 square metres GFA, secure storage is to be provide as per **AS 2890.3**.

Motorcycle/ scooter parking

Motorcycles and scooters are a space efficient form of transport. In the absence of motorcycle bays, these vehicles will use car parking spaces.

Rockdale specifies rates for key land uses. Botany Bay has no requirements.

Accessible car spaces

Accessible car parking space requirements are set out in the Building Code of Australia.

Car share

There are no car share requirements or stated mechanisms to reduce car parking requirements because of car share.

Travel Plan

Travel plans can be used to justify lower car parking provisions in the Botany Bay DCP.

Car spaces - residential

Each DCP specifies a minimum parking rate of one vehicle and up to two vehicles, depending on the number of bedrooms. This is notably higher than provisions required in the neighbouring Inner West Council and City of Sydney.

Differences apply for two-bedroom apartments, with the Botany DCP requiring two spaces and the Rockdale DCP requiring one space. Botany's requirement for two-bedroom apartments is twice as much than is typical throughout Sydney.

Car spaces – Shop/ Retail

Rockdale's car parking rate of 1/ 40 square metres of GFA is consistent with many suburban localities in Sydney. Botany Bay has a requirement of 1/ 25 square metres which is higher than typical.

Car spaces – Commercial/ Office

A requirement of 1 / 40 square metres of GFA is consistent between both DCPs.

Car parking rate summary

A review of car parking rates indicates that rates are generally consistent with requirements for suburban locations, but higher than the neighbouring inner city councils of Inner West and City of Sydney.

6.6.4 Public parking

Publicly accessible car parking is provided throughout Bayside at on and off-street locations.

Public on-street and off-street parking is provided by Council for the benefit of the community, and managed to support specific land uses or functions. The form of management used includes supplying restrictions by time, duration or type, as well as demand reduction measures such as paid parking.

On key roads, parking is restricted at peak times through clearway management to facilitate additional traffic capacity. Outside of these key corridors, on-street parking is either uncontrolled or managed through short-stay duration restrictions during business hours.

In activity centres, kerbside parking serves people accessing businesses and services and helps to act as a buffer between general traffic movement and pedestrian space.

Accessible parking

Accessible parking contributes to social equity. The Australian Disability Parking Scheme establishes a nationally consistent eligibility criteria and minimum parking concessions to reduce barriers for participants when travelling throughout Australia[8].

Transport for NSW (former Roads and Maritime Services) manage the Mobility Parking Scheme for NSW in accordance with the national scheme[9].

Accessible car parking standards are outlined in:

> **AS 2890.5 – 1993** Parking facilities Part 5: On-street parking; and

> **AS/NZS 2890.6:2009** Parking facilities Part 6: Off-street parking for people with disabilities.

Council generally provide accessible car parking spaces in off-street locations because it is easier to meet the Australian Standard. In on-street locations, a width recommendation of 3.2 metres is inconsistent with standard car parking widths.

There is no set guidance on how much accessible parking should be provided in on-street locations, it is usually provided based on the requirements of the local context.

The Building Code of Australia has a common requirement of one per cent of all spaces be accessible for many land uses, with some land uses (i.e. hospitals) having additional requirements based on an anticipated increase in demand for these spaces

Taxi zones

On-street taxi zones are provided on an as needs basis near land uses and precincts that generate a notable demand. This includes shopping centres and major train stations.

Permit parking

Council offers a large range of permit parking schemes specific to individual areas and Precincts. These are generally provided in localities where there are high and competing parking demands.

Residential parking schemes are provided to protect parking encroachment from surrounding land uses. Council uses Transport for NSW (formerly Roads and Maritime Services) guidance for the maximum number of permits issues. Eligible users can apply for parking permits on Councils website[10].

Bayside Council documents permit zones through their online mapping system, within the property module. These can be viewed at: http://maps.bayside.nsw.gov.au/Intramaps80/?module=Property

An extract is shown in **Figure 6-25**. This shows a large amount of parking scheme areas in Mascot and Kogarah and well as smaller areas at other centres.

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[8] https://www.dss.gov.au/our-responsibilities/disability-and-carers/programmes-services/for-people-with-disability/australian-disability-parking-scheme

[9] https://www.rms.nsw.gov.au/roads/using-roads/mobility-parking/

[10] https://www.bayside.nsw.gov.au/services/parking/apply-parking-permit

Figure 6-25 Bayside online mapping extract
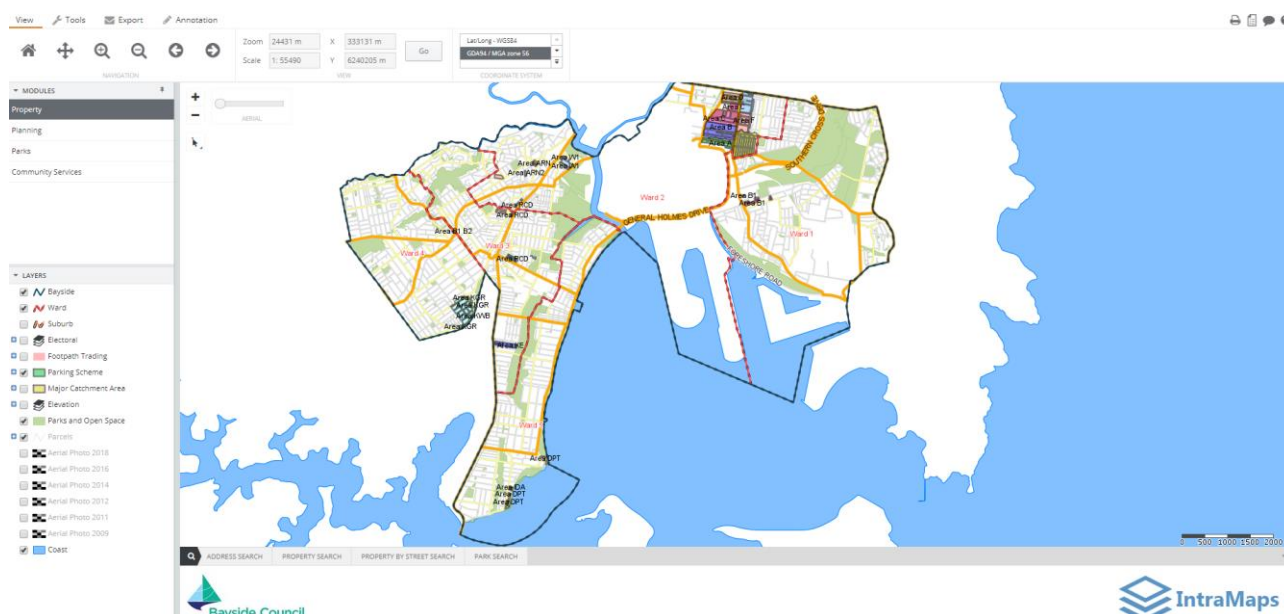
Source: http://maps.bayside.nsw.gov.au/Intramaps80/?module=Property, viewed May 2020

Loading zones

New developments that have significant service and delivery requirements are generally required to provide an on-site loading bay or bays sufficient for the needs of the land use.

In residential developments, these have several uses including waste and recycling collection, residents moving in/ out, deliveries from shops and online purchases and for trades people/ building maintenance.

On-street loading zones are provided in locations that service legacy developments and precincts that do not have on-site loading facilities.

On-street loading zones contribute to economic activity, however there can be conflicts between pedestrians and the movement of goods between vehicles and the serviced land use. On-street loading zones also provide the opportunity for vehicles to service several nearby properties, thereby potentially reducing vehicle movements and reducing the environmental impact of freight movements. More regularly, these can be used for online purchases of goods and meals.

No parking

NSW Road Rule 168 stipulates the conditions of no parking zones. Drivers are generally permitted to stop in a no parking zone for 2 minutes (unless signed otherwise) and the driver must be within 3 metres of the vehicle at all times.

'No parking' zones provide the opportunity for drop-off and pick-up movements. They can support taxi's, ride share and private vehicles, improving safety by reducing the occurrences of undertaking illegal drop-off/ pick-up movements in no stopping zones or on a through lane disrupting traffic. It is anticipated the need for no parking areas is likely to increase in line with the increasing popularity of ride share and eventually autonomous vehicles.

Kiss and Ride

Kiss and Ride zones operate under the same rules as 'no parking' zones, but are specifically intended to serve a passenger interchange function. Kiss and Ride zones are generally provided near train stations which help to facilitate safer access to public transport.

Kiss and Ride zones reduce the parking demand in the surrounding area by providing an efficient proximal location for very short-term parking needs.

Car share

Dedicated on-street car share spaces are often referred to as pods.

Car share decreases the need for some people to own a car and can therefore reduce parking demand and traffic generation. They can generally reduce traffic generation as a price signal is enforced by way of the cost of using a car is understood at the time of use and not hidden in the overall cost to purchase a vehicle.

Car share pods differ from traditional car hire in that cars can be used in half-hour increments, and are generally located near to where people live and work.

Car share systems include companies that offer and manage the service to the general public, peer to peer services for individual owners to rent out their own vehicles or strata corporations for use by an individual development.

Bayside does not currently have a car share policy and a recommendation of this strategy will be to prepare one. This should cover aspects including:

> Objectives of car share in Bayside;

> Fair use of Bayside land to host car share vehicles;

> Access to vehicles;

> General vehicle specifications in terms of safety and environmental impact.

> Data sharing of providers to Council including member numbers and use and minimum use thresholds;

> Any other factors identified at the time of preparation of the policy.

Go Get is a major provider of car share in Bayside Council. Cars are generally located around the higher density areas of the LGA including:

> Turrella/ Wolli Creek/ Arncliffe;

> Rockdale;

> Mascot;

> Domestic airport;

> Botany; and

> Brighton-Le-Sands.

Timed and parking restrictions

Parking restrictions generally exist in higher demand areas or to prioritise specific, higher priority users/ needs. These help to ensure that the public resource is shared and to encourage use of sustainable transport modes, particularly for long stay visitors.

Bayside generally has parking restrictions in activity centres to facilitate turnover and provide opportunities for people wishing to access centres by cars to do so.

Significant off-street parking locations

Notable parking locations in Bayside LGA are shown in **Figure 6-26**. This include a range of locations, some owned and managed by Council and others being publicly accessible, but owned and managed privately, generally for the benefit of the associated land use.

Figure 6-26   Off street parking locations
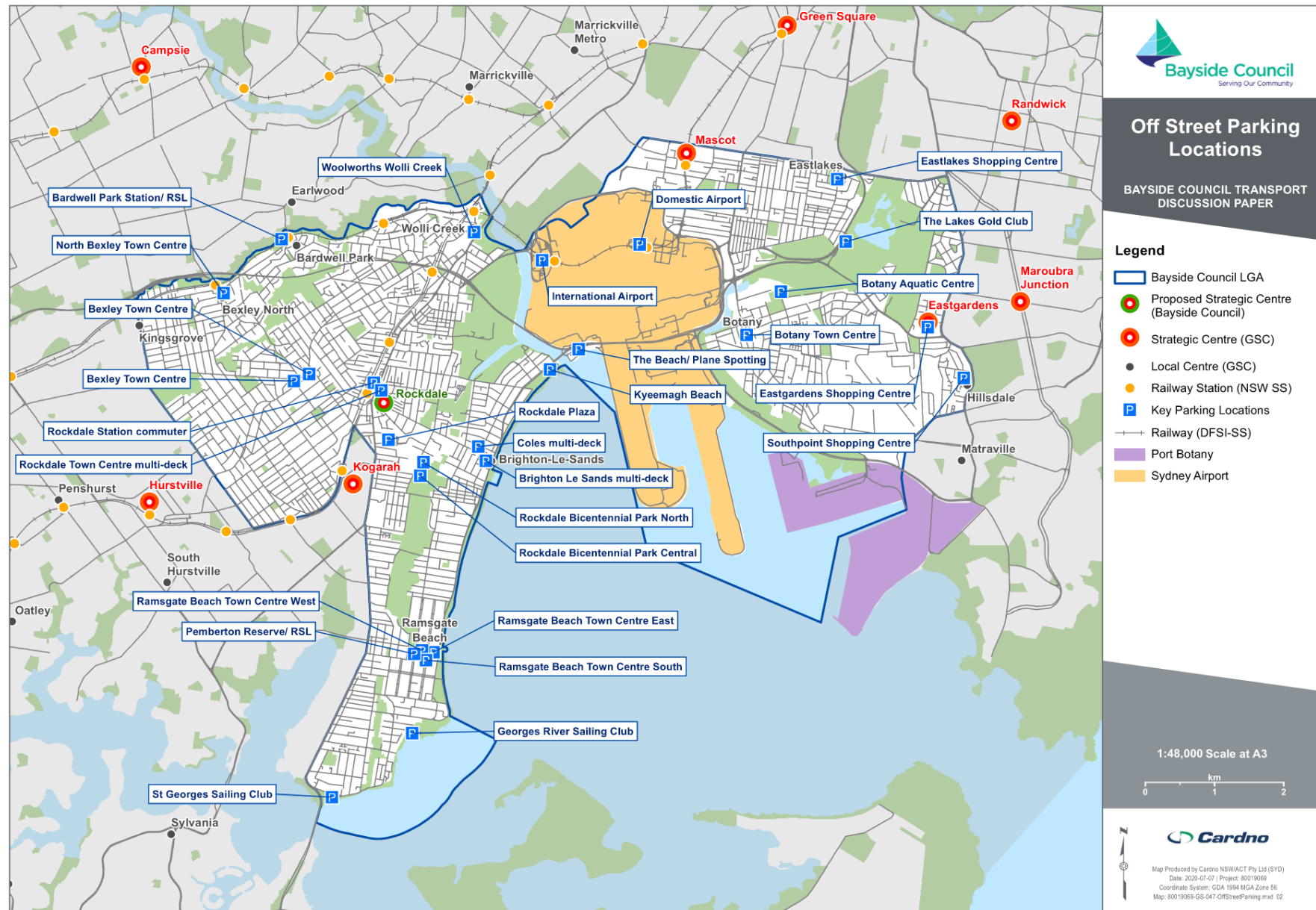
6.7 Crash history (recorded)

Crash data is reliant on incidents being reported to the NSW Police, either through police attendance at a crash scene or reporting by involved parties. It is generally understood that minor collisions without injuries are not reported. As such, analytics of all crashes is not possible. Notwithstanding, crash data does include more serious accidents. This allows analytics to identify trends in accidents and location issues/ crash clusters.

6.7.1 Crash severity and type

Five-year crash data history was analysed from 1 April 2013 to 31 March 2018 (inclusive). Overall, there were 4,047 crashes within Bayside. A summary of crashes by severity is shown in **Table 6-7** and by crash type (Road User Movement (RUM) code) in **Table 6-8**.

There were 17 fatal crashes in the Bayside LGA in the period, and 615 resulting in serious injury.

Table 6-7   Crash Summary by severity

	Fatal	Serious Injury	Moderate Injury	Minor/ Other Injury	Uncategorised injury	Non-casualty (tow away)	TOTAL
2013 (from 1 April)	1	120	167	100	-	459	**847**
2014	3	116	206	122	-	497	**944**
2015	1	117	172	168	-	273	**731**
2016	4	119	171	193	-	236	**723**
2017	5	122	187	178	-	178	**670**
2018 (to 31 March)	3	21	31	32	-	45	**132**
TOTAL	**17**	**615**	**934**	**793**	**-**	**1,688**	**4,047**

Source: Crash data, Transport for NSW, supplied 2019

Table 6-8   Crash Summary by RUM code

RUM Code and description	2013 (from 1 April)	2014	2015	2016	2017	2018 (to 31 March)	TOTAL
30 – Rear end	197	227	204	200	174	32	**1,034**
21 – Right through	122	109	69	70	65	17	**452**
71 – Off road left into object	78	84	59	63	43	7	**334**
10 – Cross traffic	57	59	34	31	43	6	**230**
39 – Other same direction	2	17	53	42	52	11	**177**
13 – Right near	33	40	26	16	25	3	**143**
35 – Lane change left	39	27	14	22	22	3	**127**
0 – Pedestrian nearside	16	23	17	15	12	4	**87**
47 – Emerging from driveway	18	23	10	15	16	4	**86**
34 – Lane change right	23	21	11	12	8	8	**83**
Sum of top 10 overall	**585**	**630**	**497**	**486**	**460**	**95**	**2,753**
All other types	262	314	234	237	210	37	1,294
TOTAL	**847**	**944**	**731**	**723**	**670**	**132**	**4,047**
Top 3, percentage of all crashes	47%	44%	45%	46%	42%	42%	45%
Top 5, percentage of all crashes	54%	53%	57%	56%	56%	55%	55%
Top 10, percentage of all crashes	69%	67%	68%	67%	69%	72%	68%

Source: Crash data, Transport for NSW, supplied 2019

6.7.2 Crashes by road user

There were 925 crashes involving trucks over the five-year period, accounting for 23 per cent of all crashes, this is a significant overrepresentation compared to their volume on the roads. Cyclists were involved in 96 crashes and pedestrians in 225 crashes. The crashes by road user for each year is shown in **Table 6-9**. The crashes are apportioned according to vulnerability and special vehicle types, for example, if a crash involved a motorcyclist and a truck, it is determined to be a motorcyclist crash. If a crash involved a car and pedestrian, it is determined to be a pedestrian crash.

Table 6-9   Crash involvement by road user

Year	Pedestrian	Cyclist	Motorcyclist	Bus	Truck	Car	Total
2013 (from 1 April)	48	12	46	4	201	536	847
2014	47	16	60	11	209	601	944
2015	33	23	47	4	160	464	731
2016	45	16	68	6	169	419	723
2017	44	24	61	8	153	380	670
2018 (to 31 March)	8	5	9	2	33	75	132
Total	**225**	**96**	**291**	**35**	**925**	**2,475**	**4,047**
%	5.6%	2.4%	7.2%	0.9%	22.9%	61.2%	100%

Source: Crash data, Transport for NSW, supplied 2019

6.7.3 Crash locations

Almost 50 per cent of all crashes occurred on 10 roads within the Bayside LGA, as shown in **Table 6-10**. All these roads are major classified roads, and the higher number of crashes is proportional to their longer lengths and higher volume of vehicles. Other streets with a high number of crashes outside these top 10 roads included Gardeners Road, Stoney Creek Road, Bay Street, Bexley Road and Rocky Point Road.

Crash clusters across the Bayside LGA are also shown in **Figure 6-27**.

Table 6-10   Crashes by road

Road	2013 (from 1 April)	2014	2015	2016	2017	2018 (to 31 March)	Five year total
Princes Highway	75	93	82	79	62	15	**406**
General Holmes Drive	68	73	53	63	43	9	**309**
Forest Road	50	48	44	46	62	11	**261**
Botany Road	29	47	26	29	35	4	**170**
West Botany Street	10	44	28	25	28	7	**142**
The Grand Parade	25	33	19	30	26	4	**137**
South Western M5 Motorway	23	37	17	31	17	7	**132**
Wentworth Avenue	30	37	22	14	20	6	**129**
Southern Cross Drive	36	25	13	14	19	5	**112**
Marsh Street	23	25	13	21	23	3	**108**
Top 10	**369**	**462**	**317**	**352**	**335**	**71**	**1,906**
Top 10, percentage of Total	44%	49%	43%	49%	50%	54%	**47%**
All other streets	**478**	**482**	**414**	**371**	**335**	**61**	**2,141**
Total	**847**	**944**	**731**	**723**	**670**	**132**	**4,047**

Source: Crash data, Transport for NSW, supplied 2019

Figure 6-27   Crash clusters April 2013 - March 2018
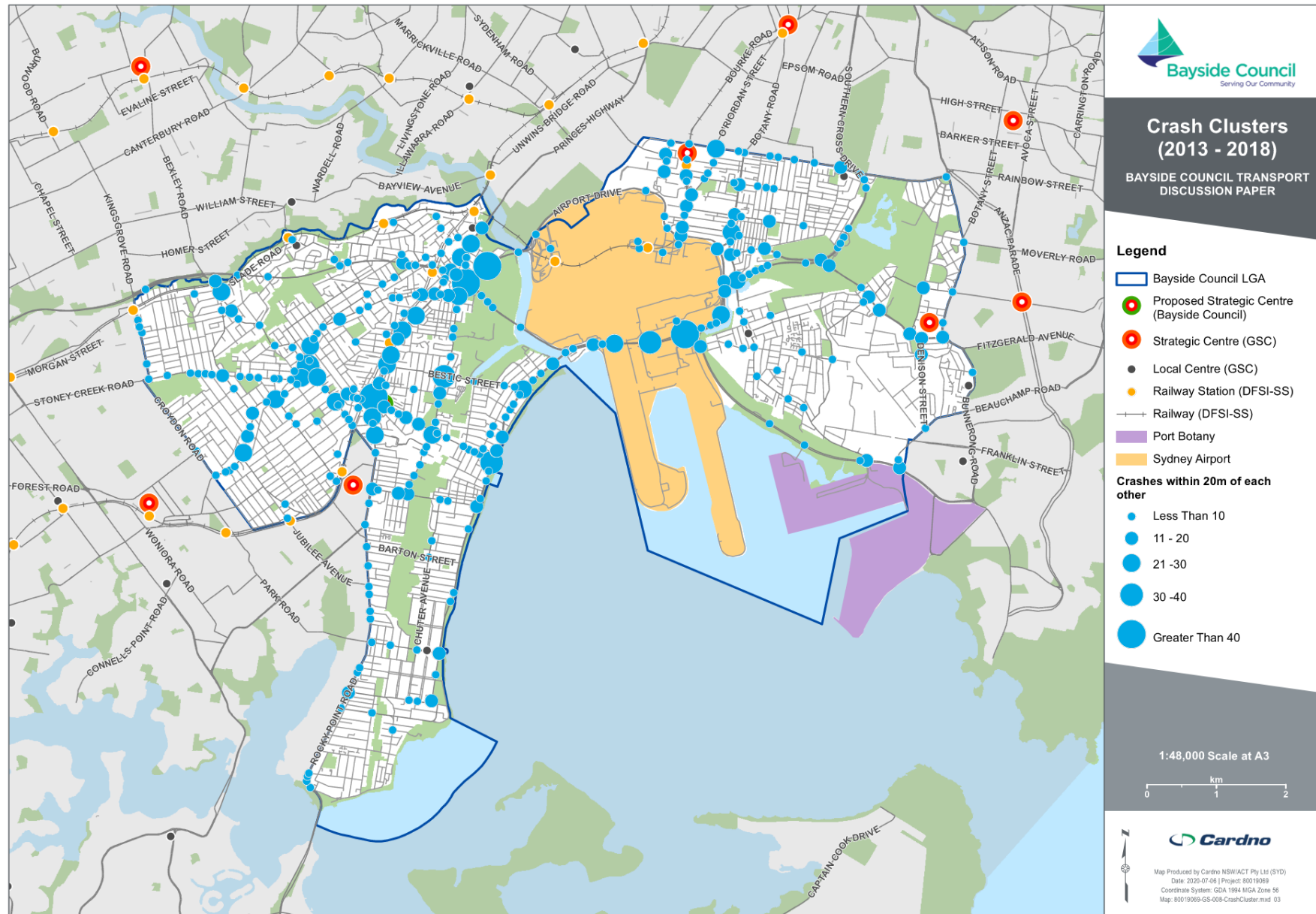
6.7.3.2 Crashes on local roads

Crashes on local roads accounted for 18 per cent (738) of the total crashes from April 2013 to and including March 2018. The top ten number of crashes on local streets are outlined in **Table 6-11**.

Table 6-11 Top 10 number of crashes on local roads

Local street name	Number of crashes
Coward Street (local road section)	23
Railway Street	15
Moate Avenue	14
Shaw Street	14
Rockdale Plaza Drive	13
Arncliffe Street	13
Bryant Street	11
Bardwell Road	10
Caledonian Street	10
Warialda Street	10

Source: Crash data, Transport for NSW, supplied 2019

The locations of local streets with crashes on them are shown in **Figure 6-28**. These crashes are clustered on Railway Street, Moate Avenue and Shaw Street.

Figure 6-28   Crashes on local streets
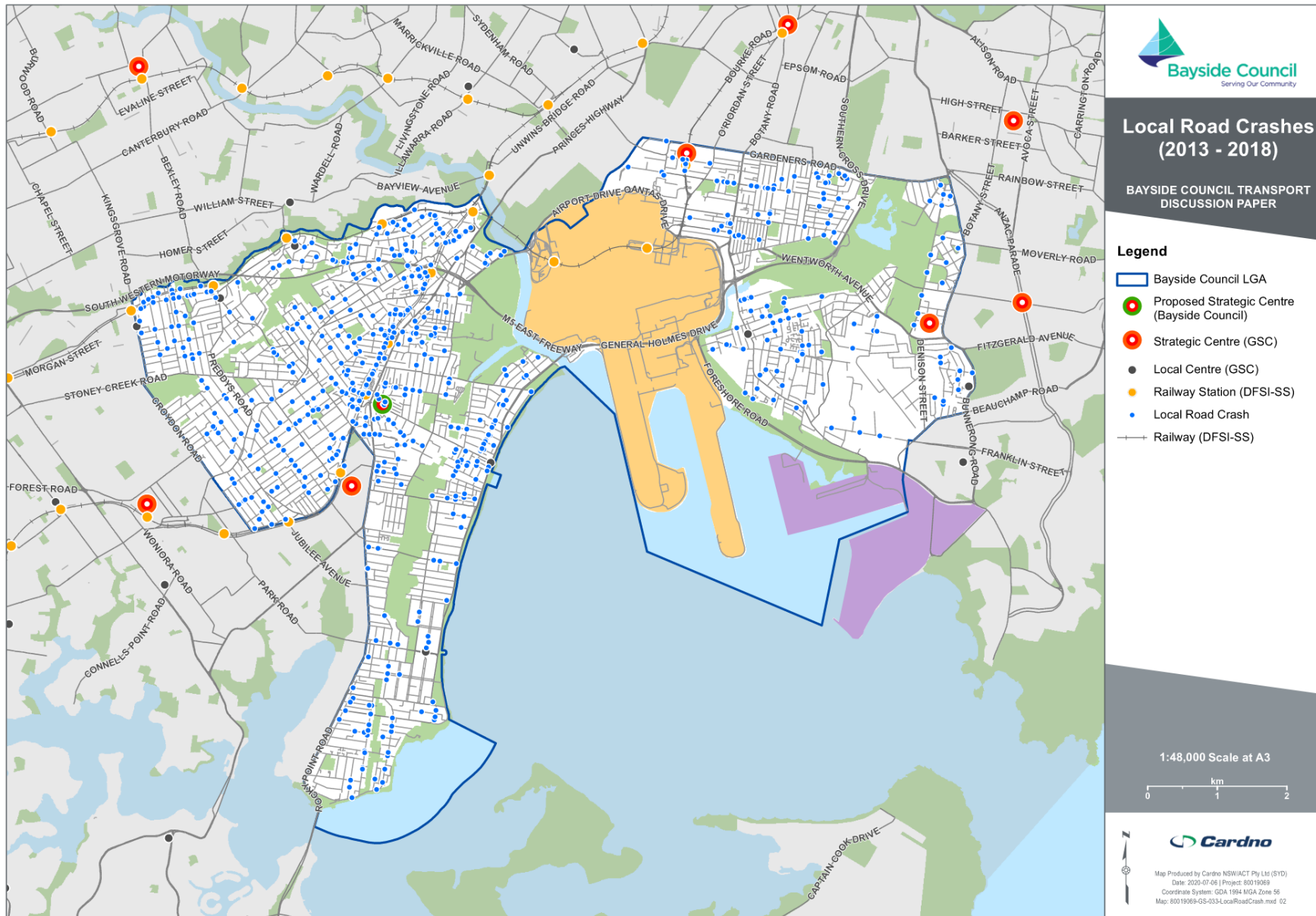
6.7.4   Time of day and weather conditions

Of the 4,047 crashes occurring in Bayside, 33 per cent occurred during dark periods of the day, including 911 occurring during darkness, and 419 occurring during dusk or dawn. During darkness hours, crash clusters occurred at the intersection of Bay Street and the Grand Parade, the intersection of General Holmes Drive, Foreshore Road and Butler Road, and the intersection of Marsh Street and West Botany Street. The period of the day that experienced the highest number of crashes over the five years was between 3:00pm and 6:00pm, as shown in **Figure 6-29**. The proportion of crashes occurring at either an intersection or at a midblock is also shown. It was found that slightly more crashes occurred at intersections despite these locations representing a far smaller proportion of the road network.

Figure 6-29   All crashes – time of day
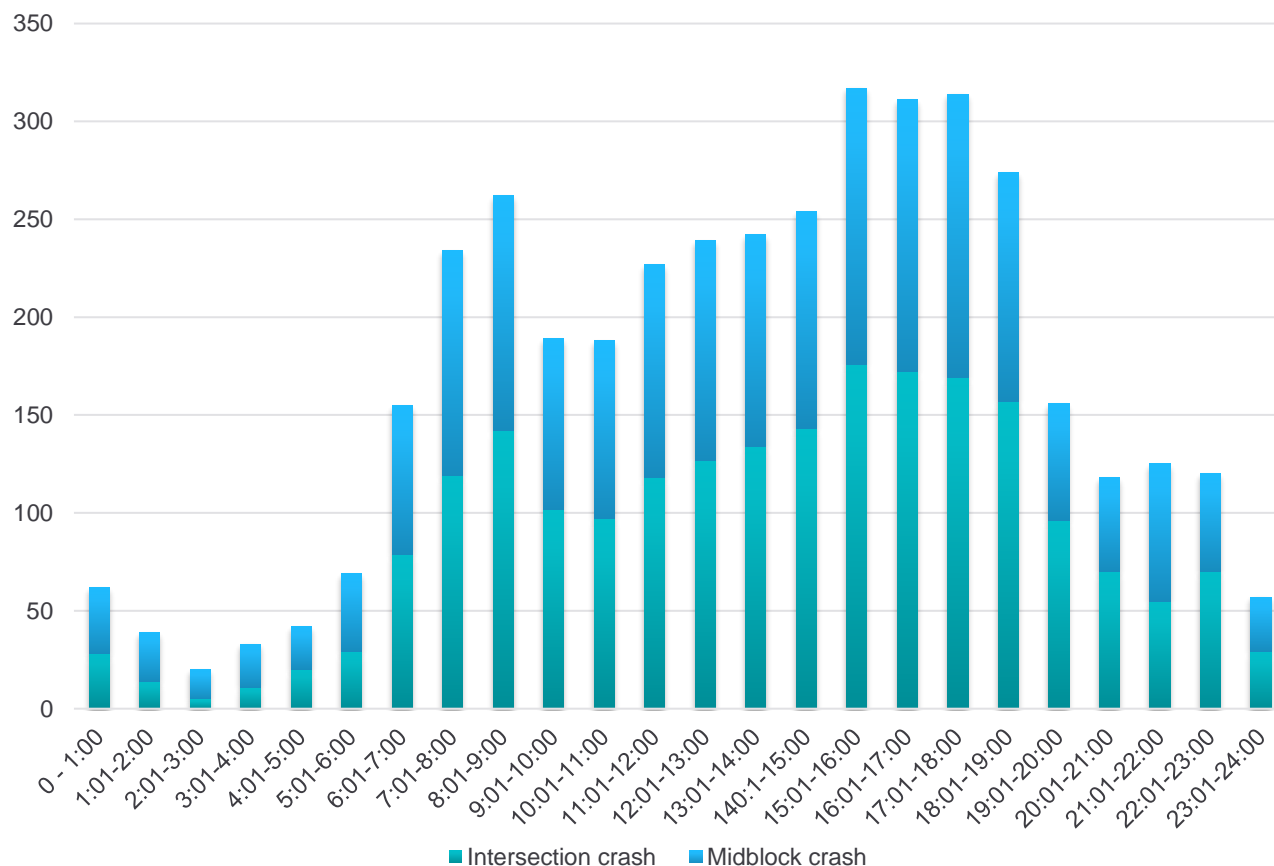
Source: Crash data, Transport for NSW, supplied 2019

568 crashes occurred during wet weather. These crashes were particularly concentrated on Princes Highway between Rockdale and Arncliffe, and on General Holmes Drive between the M5 Motorway and Southern Cross Drive.

6.7.5   Vulnerable road user crashes

In the five-year period, there were 321 cyclist and pedestrian crashes in the Bayside LGA which involved cyclists and pedestrians, of these 225 were pedestrian crashes and 96 were cyclist crashes as is shown in **Figure 6-30** Overall, 14 of these crashes resulted in a fatality, 13 of these deaths were pedestrians, and 1 was a cyclist. Ten of the 13 pedestrian deaths were pedestrian nearside (near the side the crossing movement commenced) or far side (closer to the intended crossing side) accidents with pedestrians moving across road.

The locations of pedestrian and cycling crashes in relation to pedestrian crossings are also shown in **Figure 6-2**, **Figure 6-3**, **Figure 6-4**. Locations where multiple pedestrian crashes are occurring in road sections with a distance between crossings are on:

> The Grand Parade;

> Bay Street;

> Gardeners Road;

> Bunnerong Road; and

> Rocky Point Road.

Table 6-12 Pedestrian and cycle crash types

RUM Code	Pedestrian						Cyclist						TOTAL
	2013 from 1 April	2014	2015	2016	2017	2018 up to 31 March	2013 from 1 April	2014	2015	2016	2017	2018 up to 31 March	
0 – Ped nearside	16	23	17	15	12	4	-	-	-	-	-	-	87
2 – Ped far side	15	12	10	13	21	1	-	-	-	-	-	-	72
3 – Ped on carriageway	2	4	2	5	3	2	-	-	-	-	-	-	18
1 – Ped emerging	3	4	0	5	2	0	-	-	-	-	-	-	14
10 – Cross traffic	-	-	-	-	-	-	2	1	2	4	5	0	14
21 – Right through	1	-	-	-	-	-	1	0	4	2	4	1	13
63 – Vehicle door	-	-	-	-	-	-	0	3	1	3	3	0	10
48 – From footpath	-	-	-	-	-	-	1	4	2	1	1	0	9
Top 8, total	37	43	29	38	38	7	4	8	9	10	13	1	237
						192						45	
All other types						33						51	84
Total						225						96	321

Source: Crash data, Transport for NSW, supplied 2019

Figure 6-30   Pedestrian and cycle crashes
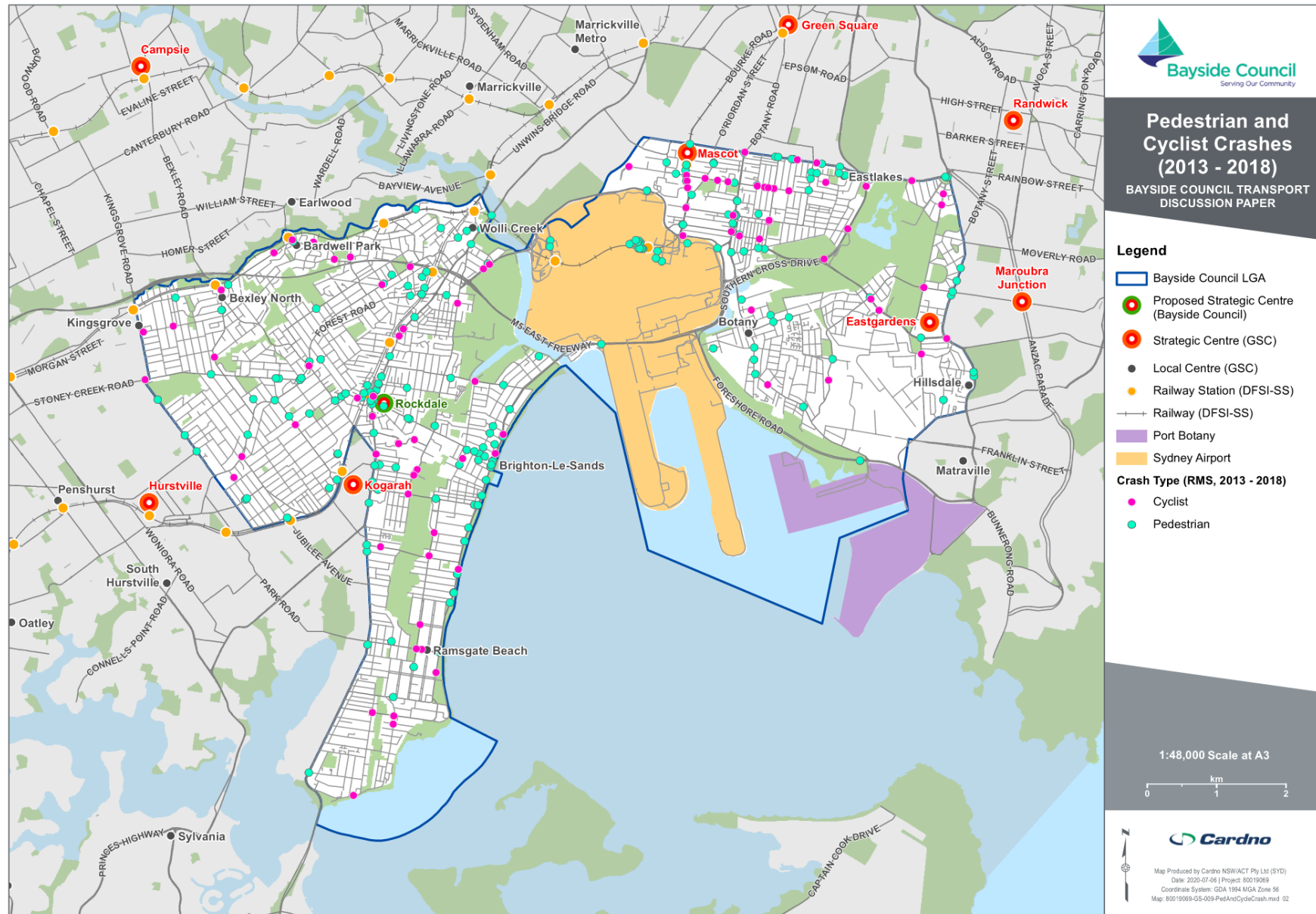
6.7.6   Heavy vehicle crashes

A total of 925 heavy vehicles crashes occurred in Bayside over the five year period. The most common type of heavy vehicle crash is a rear end crash, occurring 338 times, with 65 of these occurring on General Holmes Drive, 33 occurring on the Princes Highway, and 31 occurring on the M5 East Motorway. The next most common crash types were right through (77 crashes) and left off carriageway into an object or parked vehicle (77 crashes).

The top ten roads with the most heavy vehicle crashes occurring are described in **Table 6-13**.

Table 6-13   Top ten roads with heavy vehicle crashes (2013 – 2018)

Street name	Total number of heavy vehicle crashes
General Holmes Drive	125
Princes Highway	88
M5 East Motorway	60
Forest Road	54
Botany Road	51
West Botany Street	40
Southern Cross Drive	31
The Grand Parade	27
Wentworth Avenue	27
Bexley Road	22

Source: Crash data, Transport for NSW, supplied 2019

Heavy vehicle crash cluster locations include the intersection of Foreshore Road and General Holmes Drive, and the intersection of Marsh Street and the M5 East Motorway, as shown in **Figure 6-31**.

Figure 6-31   Heavy vehicle crashes
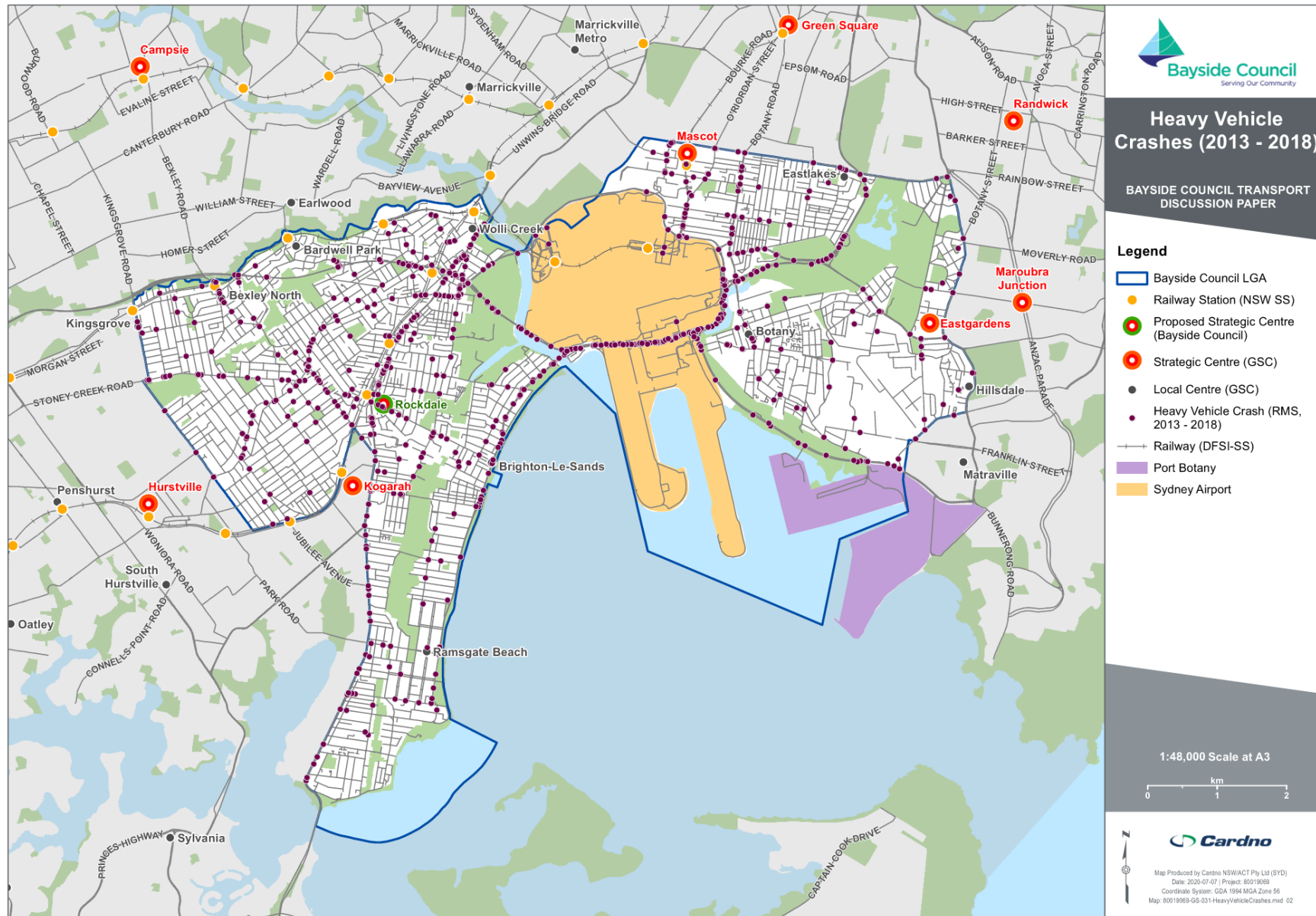
7 Travel behaviour and travel demand

Travel survey data is statistically significant and an indication of the volume, purpose, distance and transport modes for trips taken. The Household Travel Survey, conducted continuously by the NSW Government questions households on their travel behaviour and collates it for different geographical areas. Data is only available at the LGA level since 2016/ 2017, when Bayside Council was formed.

The Bayside LGA is covered by the following Household Travel Survey geographical areas:

> LGA – Bayside LGA (2017/ 2018 data), Botany LGA (2016/ 2017 data), Rockdale (2016/ 2017 data).

> Statistical Area 3 (SA3) – Botany (2007/ 2008 to 2017/18), Kogarah – Rockdale (2007/ 2008 to 2017/ 2018 data).

While the SA3 geographical regions of Botany and Kogarah–Rockdale, shown in **Figure 7-1**, cover a larger area than the Bayside LGA, this data provides a useful indication of travel trends over time as it extends back to 2007/ 2008. The geographical area used for each analysis in the following sections is referenced.

Figure 7-1   Household Travel Survey – SA3: Kogarah-Rockdale and Botany regions
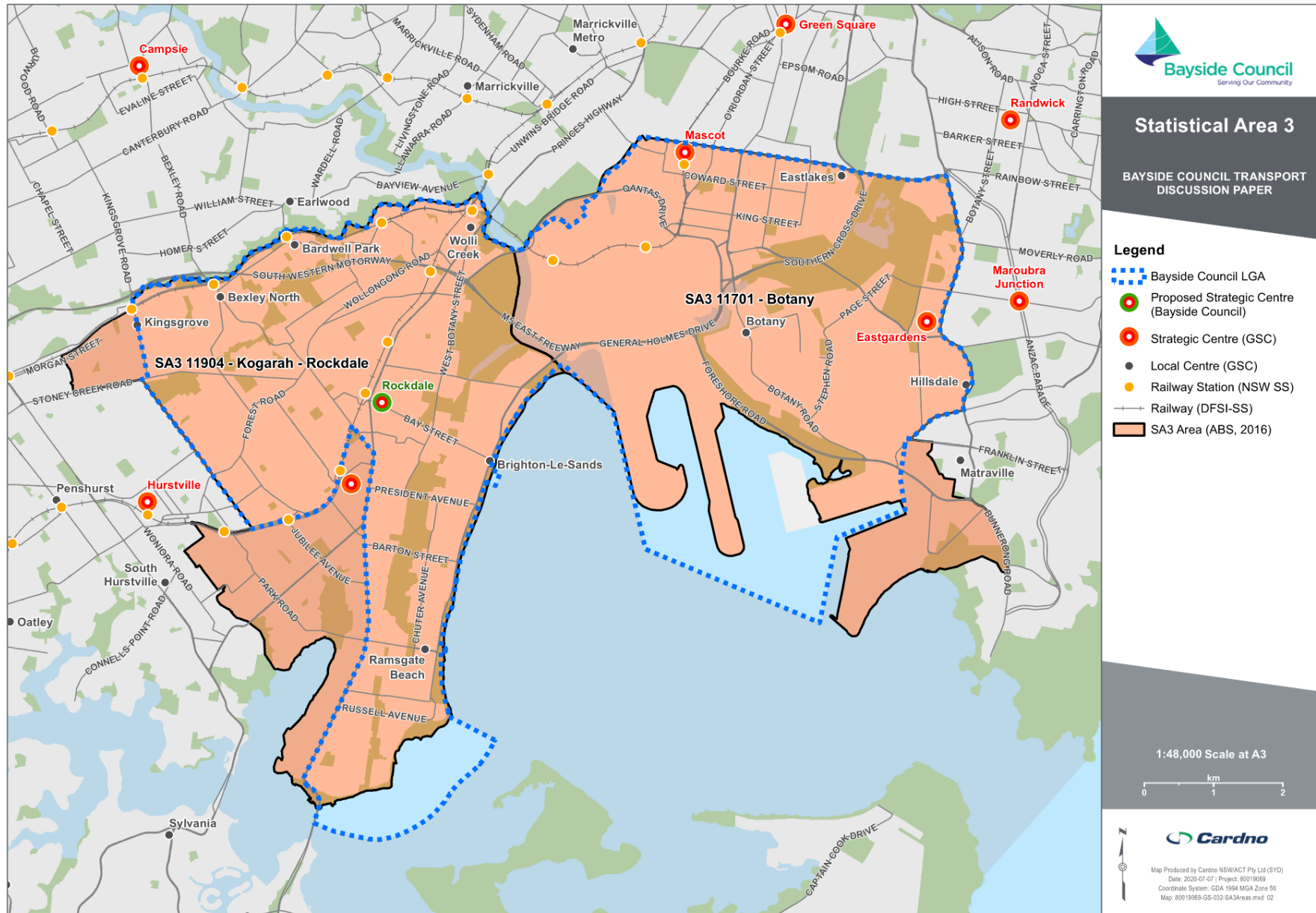
7.2 Historical travel trends

7.2.1 Total trips (Botany and Kogarah-Rockdale SA3)

The Household Travel Survey (HTS) collated by the Transport Performance and Analytics (TPA) division of Transport for NSW. HTS provides indicative travel behaviour information from dwellings across the Sydney Greater Metropolitan Area (GMA). Samples of residents provide detailed travel information over a typical weekday. The data is scaled up to provide a snapshot of travel patterns of LGAs.

Data does not exist for Bayside Council prior to 2016, as such Statistical Area 3 (SA3), data has been used for the Botany and Kogarah - Rockdale areas to show indicative historic trends.

The Household Travel Survey reports that the total number of trips by residents on an average weekday across the Botany and Kogarah-Rockdale SA3 areas increased by 24.7 per cent to almost 720,000 trips between 2007/ 2008 and 2017/ 2018. It is estimated the residential population grew in the order of 38,000 in the same period indicating the trip rate per person declined slightly.

The trend over the past decade for the combined SA3 regions, Botany, and Kogarah-Rockdale, is shown on **Figure 7-2**.

Figure 7-2   Historic population, households, vehicles and daily trips on an average weekday – Botany and Kogarah-Rockdale SA3 areas
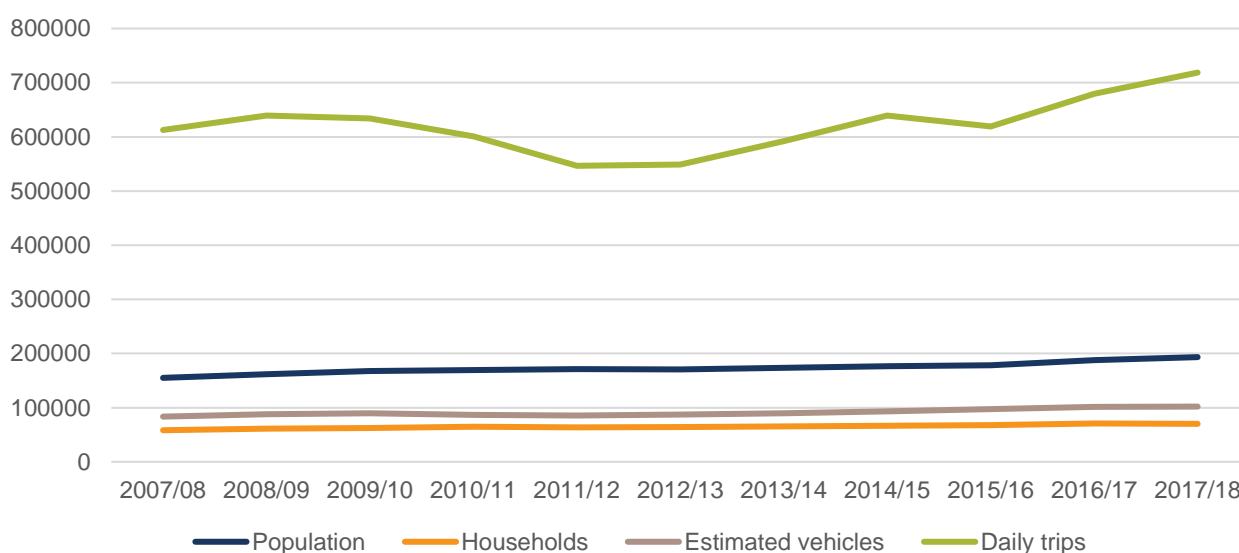
Source: Household Travel Survey, Transport Performance and Analytics, downloaded 2019

The data shows that daily trips is not strictly related to the population, number of households or estimated vehicles. It may be assumed that economic conditions can have an impact on travel patterns and trip generation.

For the Bayside LGA, which represents a smaller area than the combined SA3 regions of Botany and Kogarah-Rockdale, the total trips on an average weekday in the 2017/ 2018 period was 506,403, an increase of 1,101 trips from the 2016/ 2017 period which is reported for the former Botany Bay and Rockdale LGA's.

7.2.2   Trips per person (Bayside LGA)

The average number of trips per Bayside resident on an average weekday in the 2017/ 2018 period was 3.72 trips. This is lower than the Sydney average trips per resident on an average weekday of 3.78. It is also lower than the average trips per resident of neighbouring LGAs: Georges River LGA had 3.84 trips per resident, City of Sydney had 4.69 and Inner West LGA had 4.04. Only Canterbury-Bankstown LGA had a lower average trip rate of 3.27.

7.2.3   Average trip distance (Bayside and Kogarah-Rockdale SA3)

The average trip distance for Bayside residents on an average weekday was 7.17 kilometres. This is in line with average trip distances for the Georges River LGA (6.76 kilometres) and Canterbury-Bankstown LGA (7.01 kilometres), and higher than the neighbouring LGAs that sit closer to the Harbour CBD: City of Sydney residents had an average trip distance of 4.02 kilometres, Inner West had 5.05 kilometres and City of Randwick had 4.94 kilometres.

While representing a slightly different geographical area than Bayside LGA, historic daily average trips and average trip distance for the Botany and Kogarah-Rockdale SA3 areas is shown in **Figure 7-3.**

Figure 7-3   Historic daily average trips per person and average trip distance - Botany and Kogarah-Rockdale SA3 areas
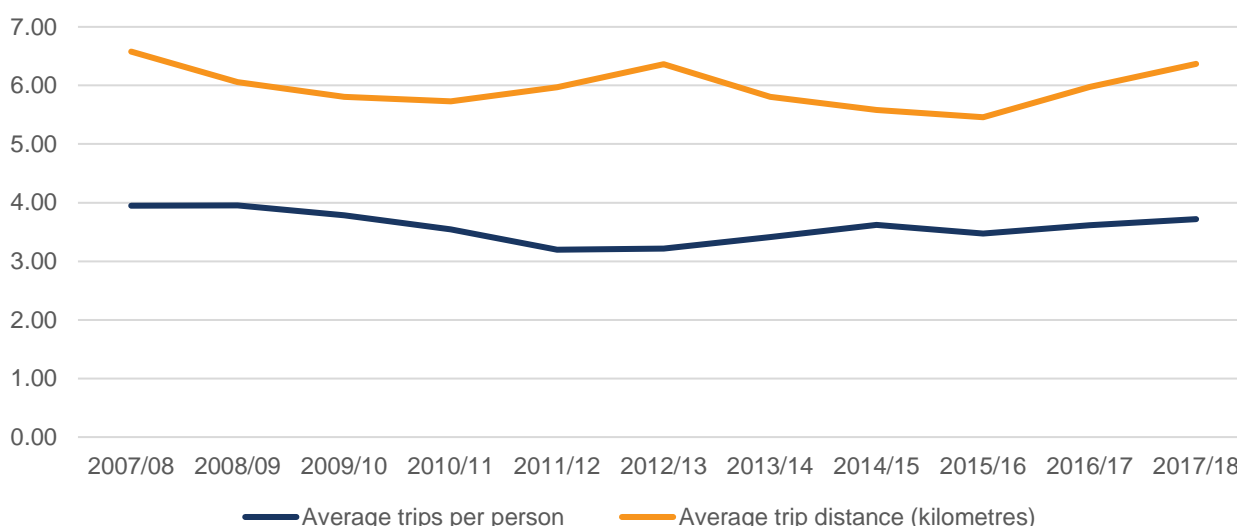
7.3   Mode share

7.3.1   Bayside LGA mode share

Across an average weekday in 2017/ 2018, Bayside LGA residents relied most on private vehicles for their travel, either as the vehicle driver or the passenger. Private vehicle trips accounted for 50.5 per cent of all trips, while walking accounted for 17 per cent of trips, and public transport accounted for 19 per cent (train 13 per cent and bus 6 per cent). Bayside residents relied less on private vehicles than the average resident in the Sydney Greater Metropolitan Area, where private vehicle trips accounted for 69 per cent. They were also more likely to use public transport than the Sydney Greater Metropolitan Area which had 12 per cent public transport mode share, but had similar rates of walking (17 per cent for the Sydney Greater Metropolitan Area). Bayside resident mode share differs in proportion of walking trips to the neighbouring LGAs of Inner West and City of Randwick, where walking accounts for 31 and 23 per cent of trips respectively. Walking mode share is similar with the George River LGA which has a walking mode share of 15.8 per cent, and is significantly higher than the Canterbury-Bankstown walking mode share of 11.4 per cent.

The Household Travel Survey mode share for the Bayside LGA in 2017/18 is shown in **Figure 7-4**.

Figure 7-4   Transport mode share summary 2017/ 2018 – Household Travel Survey
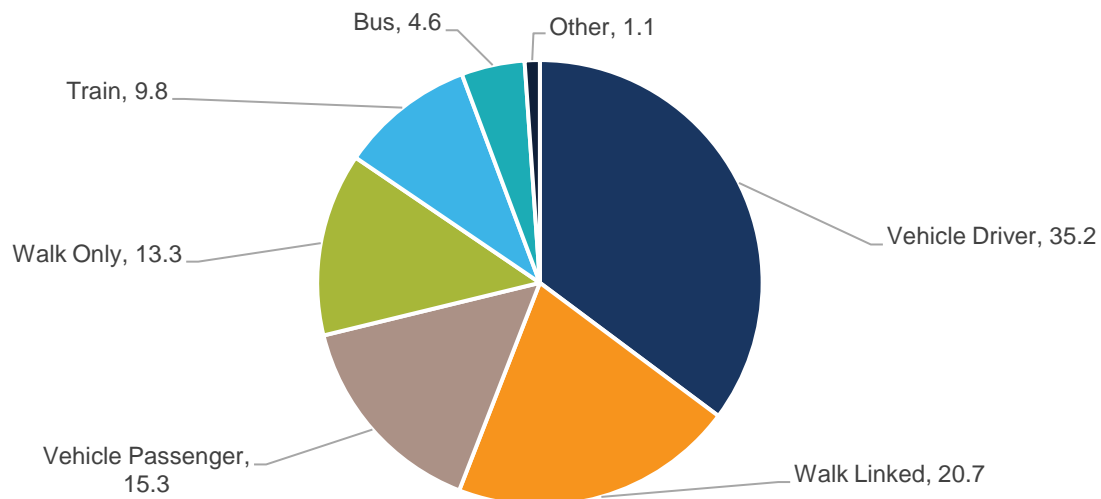
Source: Household Travel Survey, Transport Performance and Analytics, downloaded 2019

7.3.2   Mode share trends (Botany and Kogarah-Rockdale SA3)

The former Botany and Rockdale LGA areas differ to the Bayside LGA, as such there are discrepancies with the two datasets i.e. difference in train/ walking mode share. This analysis is intended as a general overview only.

Analysis of mode share over time indicates changes in transport choices. The Botany and Kogarah-Rockdale SA3 datasets demonstrate a decreasing reliance on private vehicles over the 10 years since 2007/ 2008. Bus mode share also dropped slightly, train mode share increased from 6.9 per cent to 9.8 per cent and walking mode share growth by 2.6 percentage points to 18 per cent.

The Botany and Kogarah-Rockdale SA3 region mode share trends of the past decade from the Household Travel Survey are presented in **Figure 7-5**.

Figure 7-5   Botany and Kogarah-Rockdale SA3 mode share trends – Household Travel Survey
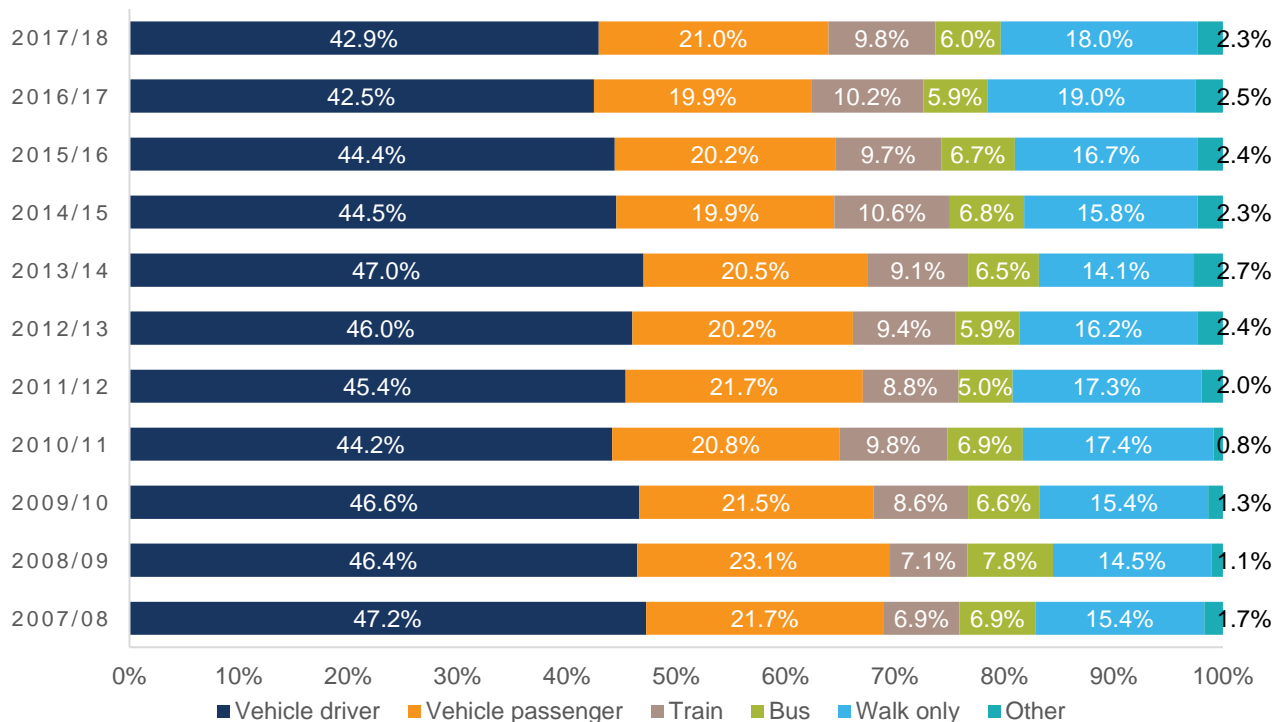
Source: Household Travel Survey, Transport Performance and Analytics, downloaded 2019

7.3.3 Commuting mode share (Botany and Kogarah-Rockdale SA3)

The Australian Bureau of Statistics collects Census survey data on how Australians travel to work on the Census date. In the 2016 Census, 58.2 per cent of Bayside LGA residents (combination of Botany Bay LGA and Rockdale LGA) travelled to work by car as the driver and 5.1 per cent as the passenger, with similar results for each former LGA. Public transport accounted for 29 per cent of commuting trips across the two former LGAs, 30.8 per cent in Rockdale and 24.9 per cent in Botany Bay. The different public transport networks in each former LGA are reflected in the commuting mode share; train accounted for 27.9 per cent in Rockdale but only 11.8 per cent in Botany Bay, which had a far higher bus mode share at 13.1 per cent. Walking had a higher commuting mode share in the former Botany Bay LGA at 6 per cent, whereas Rockdale only had 2.8 per cent.

The commuting mode share for the former Botany Bay and Rockdale LGAs in 2016, along with the combined mode share for the newly formed Bayside LGA is shown in **Figure 7-6**.

Figure 7-6   Commuting mode share in 2016
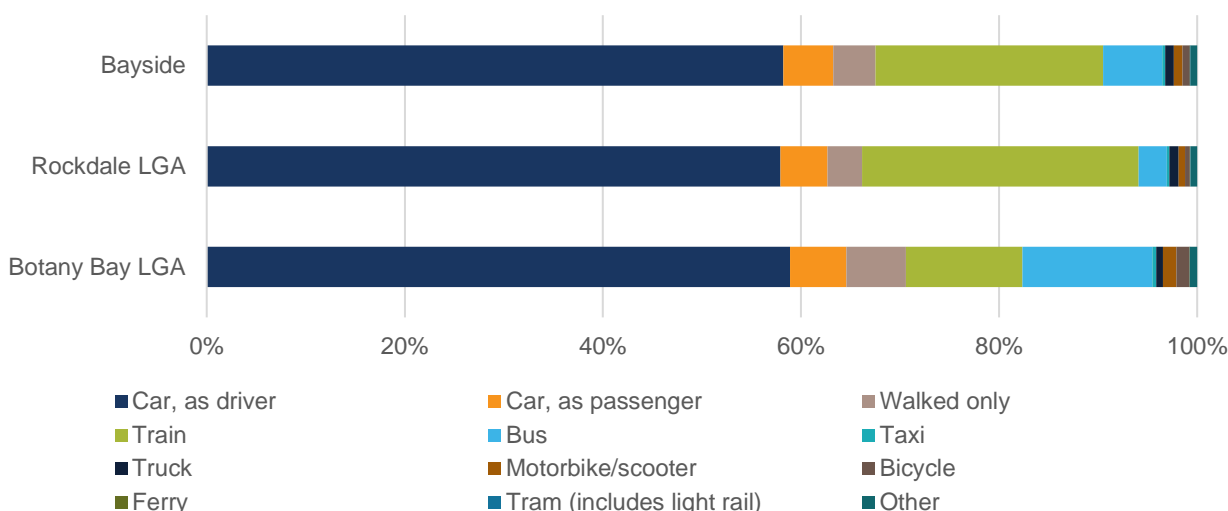
Source: Census, Australian Bureau of Statistics, 2016

7.4   Trip purposes

The Household Travel Survey records residents' trip purposes on an average weekday, covering a range of categories listed in **Table 7-1**.

Table 7-1   HTS trip purpose categorisation

Purpose	Description
Commute	The first trip to work of the day, usually from home, excluding trips to return to work. This also includes the first trip to a second job, if any.
Work-related business	Work related trips away from respondent's usual work address. Also, for respondents without a fixed work address e.g. a plumber, household interviewers, etc. who work at various locations.
Education/ Child-care	Trips by students to attend child care or educational institutions including primary and secondary school, technical college or universities.
Personal business	Transact personal business not involving "goods" e.g. bank, library, post office, hairdressers, etc.
Serve-passenger	The purpose is to drop-off, pick-up or accompany another person e.g. Dad drops his children to school on the way to work, a young child "comes along for the ride" on a parent's trip to the bank, a woman takes an elderly parent to a medical appointment.
Shopping	Trips to a shop, defined as premises that sell "goods".
Social/ Recreation	Includes social visits, entertainment, sporting activities, holidays, etc.
Other	Trips for purposes not identified in any other category.

Source https://www.transport.nsw.gov.au/data-and-research/passenger-travel/surveys/household-travel-survey-hts, viewed 22/05/2020

Across 2017/ 2018 Bayside residents' social/recreation trips accounted for 22.7 per cent of trips, commuting accounted for 21.3 per cent of all trips and serving passengers accounted for 18.1 per cent of trips. The Bayside resident trip purposes are shown proportionately in **Figure 7-7**.

Figure 7-7   Trip purpose 2017/ 2018
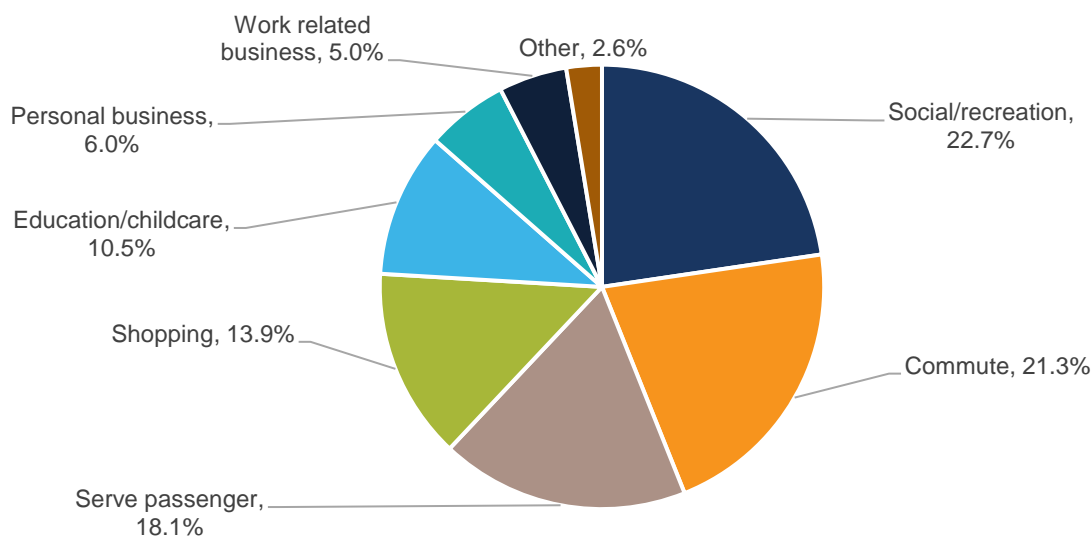
Source: Household Travel Survey, Transport Performance and Analytics, 2017/ 2018

7.5   Public transport trips

This section analyses Transport for NSW Opal data for both train and bus trips for 24 hours on the following days:

> Thursday 21 March 2019;

> Saturday 23 March 2019; and

> Sunday 24 March 2019.

This data was used to identify trips originating and finishing in Bayside, and interchanges between services occurring within Bayside.

It should be noted that Transport for NSW Opal data redacts trip information with 18 or fewer passengers for privacy reasons. This means that origin-destination pairs with patronage less than 18 in a day are aggregated together. These trips totalled 42,757 passengers during the three days.

7.5.1   Origins and destinations

Bayside is both a significant trip generator and trip attractor. The greatest number of trips occur along the Mascot to Central station corridor, as both areas function as major origins and destinations. This is driven by critical land uses at both locations, with the airport transport hub in Mascot and the central business district surrounding Central Station. The Town Hall station to Wolli Creek station corridor is another significant route within Bayside Council. Wolli Creek operates as an additional occupational centre in the LGA with steady growth forecasted in the coming years. Other notable routes include Town Hall to Rockdale, operating links between a local centre and metropolitan centre as well as Kogarah to Town Hall, a trip between a strategic centre and metropolitan centre.

The top 20 train trips originating or finishing in Bayside for a typical weekday and weekend day are shown in **Table 7-2** and **Table 7-3**.

Table 7-2   Top 20 train trips (total trips on Thursday 21 March 2019)

Origin train station		Destination train station	Number of trips
Mascot Station		Central Station	2,829
Central Station		Mascot Station	2,758
Town Hall Station		Rockdale Station	2,280

Origin train station		Destination train station	Number of trips
Town Hall Station		Wolli Creek Station	2,119
Rockdale Station		Town Hall Station	2,073
Town Hall Station		Kogarah Station	1,936
Kogarah Station		Town Hall Station	1,854
Wolli Creek Station		Town Hall Station	1,571
Central Station		Wolli Creek Station	1,536
Mascot Station		Wynyard Station	1,406
Central Station		Rockdale Station	1,402
Kogarah Station		Hurstville Station	1,390
Wolli Creek Station		Central Station	1,389
Mascot Station		Museum Station	1,377
Rockdale Station		Central Station	1,377
Kogarah Station		Central Station	1,375
Wynyard Station		Mascot Station	1,348
Town Hall Station		Mascot Station	1,288
Central Station		Kogarah Station	1,286
Hurstville Station		Kogarah Station	1,258

Source: Opal trip data, Transport Performance and Analytics, 2019

Table 7-3   Top 20 train trips (total trips on Saturday 23 March 2019)

Origin train station		Destination train station	Number of trips
Mascot Station		Central Station	1,999
Central Station		Mascot Station	1,838
Town Hall Station		Wolli Creek Station	1,539
Town Hall Station		Rockdale Station	1,426
Rockdale Station		Town Hall Station	1,341
Wolli Creek Station		Town Hall Station	1,339
Rockdale Station		Hurstville Station	1,198
Hurstville Station		Rockdale Station	1,179
Kogarah Station		Town Hall Station	1,118
Town Hall Station		Kogarah Station	1,114
Wolli Creek Station		Central Station	1,031
Central Station		Wolli Creek Station	1,021
Kogarah Station		Hurstville Station	1,001
Domestic Station		Central Station	990
Town Hall Station		Mascot Station	977
Hurstville Station		Kogarah Station	959
Mascot Station		Museum Station	906
Rockdale Cardion		Central Station	860
Central Station		Rockdale Station	829
Mascot Station		Circular Quay Station	828

Source: Opal trip data, Transport Performance and Analytics, 2019

Major transport links for buses include the short yet popular routes between Rockdale Station and Brighton-Le-Sands and Westfield Eastgardens to Anzac Parade, linking commercial land use with a transit corridor in the eastern suburbs of Sydney. Mascot station and Westfield Eastgardens also accommodate many connecting bus trips, connecting the airport driven commercial centre with the key shopping district within Bayside Council.

The top 20 bus trips for Thursday 21 March and Saturday 23 March 2019 are shown in **Table 7-4** and **Table 7-5**.

Table 7-4   Top 20 bus trips (total trips on Thursday 21 March 2019)

Origin bus stop		Destination bus stop	Number of trips
Rockdale Station, Geeves Avenue, Stand C		Bay Street before Moate Avenue, Brighton-Le-Sands	469
Westfield Eastgardens, Bunnerong Road		Anzac Parade near Boyce Road Maroubra Junction	423
Mascot Station, Coward Street, Stand A		Westfield Eastgardens, Bunnerong Road	378
Westfield Eastgardens, Bunnerong Road		Kingsford Nine Ways, Anzac Parade - Stand C	290
Westfield Eastgardens Lower Level		Mascot Station, Coward Street, Stand B	285
Botany Road at Hollingshed Street (Mascot)		Westfield Eastgardens, Bunnerong Road	284
Westfield Eastgardens, Bunnerong Road		UNSW Gate 14, Barker Street	278
UNSW, Anzac Parade, Stand D		Westfield Eastgardens Lower Level	277
Bay Street after The Grand Parade, Brighton-Le-Sands		Rockdale Station, Geeves Avenue, Stand D	240
Sydney Airport, Terminal 3 Domestic		Mascot Station, Coward Street, Stand A	238
Westfield Eastgardens Lower Level		Mascot Post Office, Botany Road	235
Bay Street after The Grand Parade, Brighton-Le-Sands		Rockdale Uniting Church, Bay Street	202
Mascot Post Office, Botany Road		Mascot Station, Coward Street, Stand B	202
Mascot Station, Coward Street, Stand B		Sydney Airport, Terminal 3 Domestic	199
Maroubra Road after Ferguson Street, Maroubra Junction		Westfield Eastgardens Lower Level	198
Rockdale Station, Railway Street, Stand F		Sydney Airport, Terminal 1 International	196
Sydney Airport, Terminal 1 International		Rockdale Station, Railway Street, Stand G	195
Mascot Station, Coward Street, Stand A		Botany Road at Hollingshed Street	195
Hurstville Station, Stand A		Bethany College, Forest Road	192
Regent Street after Redfern Street, Redfern		Botany Road at Excell Street	175

Source: Opal trip data, Transport Performance and Analytics, 2019

All bus trip origin and destination combinations as well as patronage for Thursday 21 March 2019 is shown in **Figure 7-8**. On this day, many bus services had low patronage (less than 30 people), including those connecting between Bayside and the Sydney CBD, Burwood, Bondi and Campsie.

Table 7-5　　Top 20 bus trips (total trips on Saturday 23 March 2019)

Origin bus stop		Destination bus stop	Number of trips
Westfield Eastgardens, Bunnerong Road		Anzac Parade near Boyce Road, Maroubra Junction	352
Westfield Eastgardens, Bunnerong Road		Kingsford Nine Ways, Anzac Parade - Stand C	330
Rockdale Station, Geeves Avenue, Stand C		Bay Street before Moate Avenue, Brighton-Le-Sands	328
Mascot Station, Coward Street, Stand A		Westfield Eastgardens, Bunnerong Road	286
Rockdale Station, Geeves Avenue, Stand C		Bay Street at West Botany Street, Brighton-Le-Sands/ Rockdale	276
Westfield Eastgardens Lower Level		Mascot Station, Coward Street, Stand B	243
Botany Road at Hollingshed Street, Mascot		Westfield Eastgardens, Bunnerong Road	237
Sydney Airport, Terminal 3 Domestic		Mascot Station, Coward Street, Stand A	228
Sydney Airport, Terminal 1 International		Rockdale Station, Railway Street, Stand G	218
Rockdale Station, Railway St, Stand F		Sydney Airport, Terminal 1 International	215
Sydney Airport, Terminal 1 International		Mascot Station, Coward Street, Stand A	214
Mascot Station, Coward St, Stand B		Sydney Airport, Terminal 3 Domestic	197
Westfield Eastgardens Lower Level		Mascot Post Office, Botany Road	186
Bay Street after The Grand Parade, Brighton-Le-Sands		Rockdale Uniting Church, Bay Street	185
Mascot Station, Coward Street, Stand B		Sydney Airport, Terminal 1 International	156
UNSW, Anzac Parade, Stand D, Kensington		Westfield Eastgardens Lower Level	149
Westfield Eastgardens, Bunnerong Road		UNSW Gate 14, Barker Street, Kensington	147
Maroubra Road after Ferguson Street, Maroubra Junction		Westfield Eastgardens Lower Level	146
Kingsford Nine Ways, Anzac Parade - Stand D		Westfield Eastgardens Lower Level	135
Bay Street after The Grand Parade, Brighton-Le-Sands		Rockdale Station, Geeves Avenue, Stand D	134

Source: Opal trip data, Transport Performance and Analytics, 2019

Figure 7-8   Bus trip origins and destinations Thursday 21 March 2019
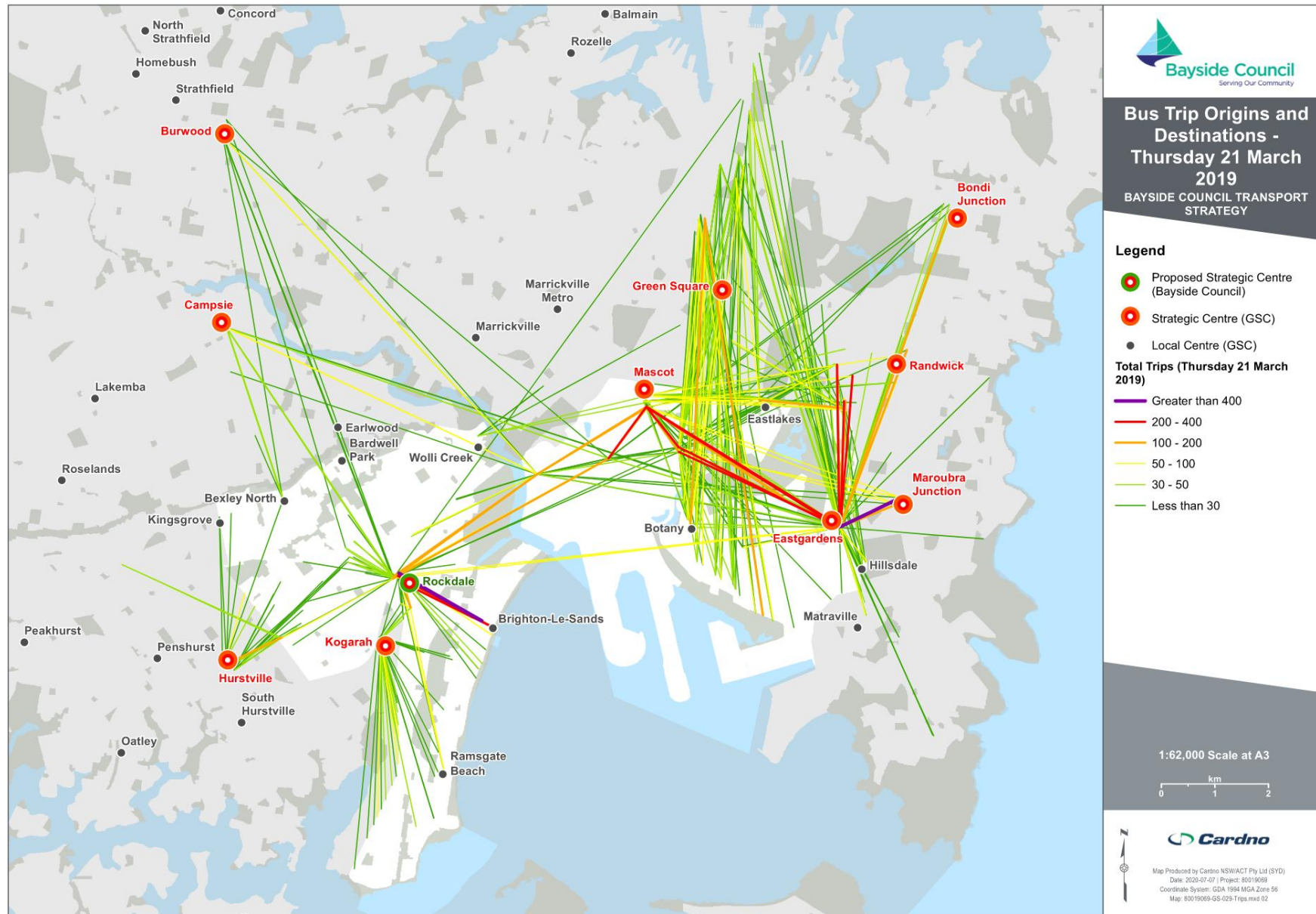
7.5.2 Interchanges within Bayside

Mascot suburb has the highest amount of interchange. As an interchange point, Rockdale Station is the most highly used within the Bayside Council. The interchange provides bus and train connections within Bayside, the Sydney CBD, and Sutherland. Mascot station is also a highly used interchange, connecting bus and train services to the Sydney CBD and Sydney's south west.

The interchanges between public transport services that took place on Thursday 21, Saturday 23 and Sunday 24 March 2019 are shown in **Figure 7-9**.

Figure 7-9   Public transport interchanges within Bayside
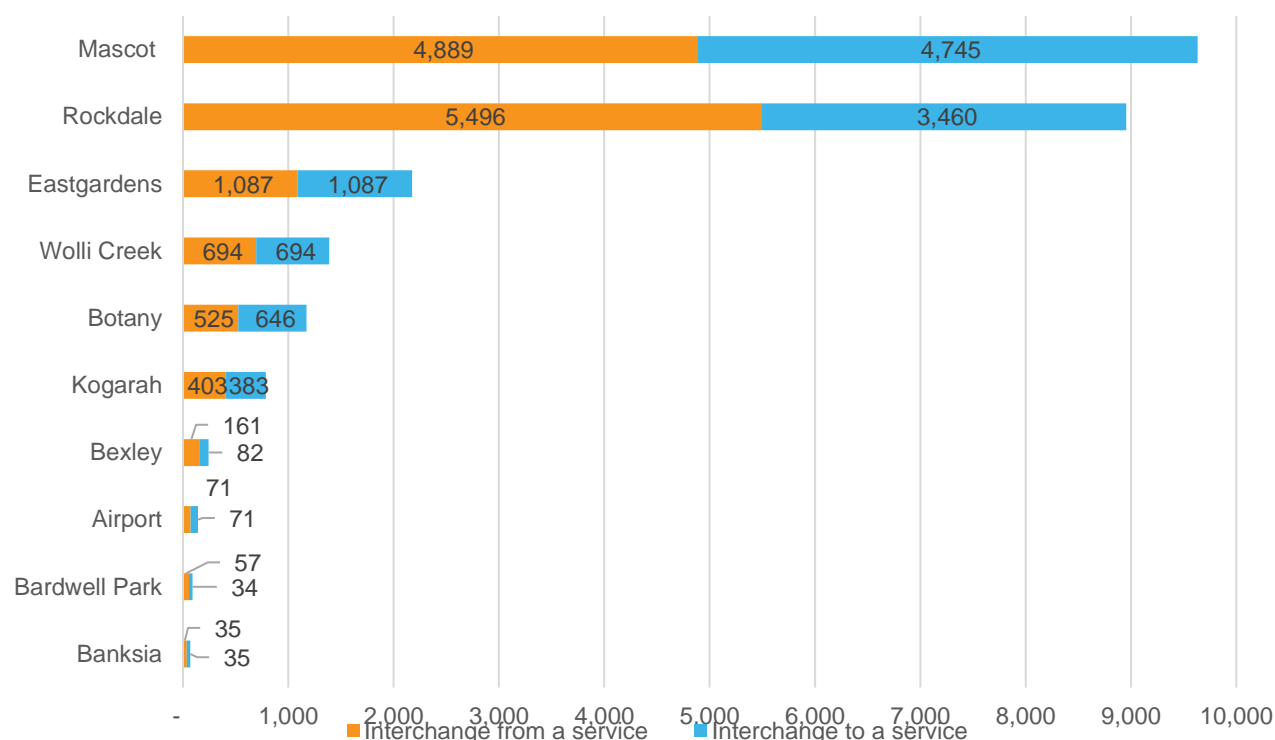
Source: Opal trip data, Transport Performance and Analytics, 2019

7.5.3 Transit stop usage

7.5.3.1 Bus stops

The most commonly used bus stops within Bayside are located at Rockdale Station, Mascot Station, Sydney Airport, Westfield Eastgardens, Botany Road and Bay Street. On Saturday 23 March 2019, 2,582 trips originated from the two bus stops at Westfield Eastgardens over the entire day, and on Thursday 21 March 2019, 2,282 bus trips originated from the seven bus stops at Rockdale Station.

The top 20 most commonly used bus stops within Bayside are listed in **Table 7-6**.

Table 7-6   Top 20 used bus stops to access a service in Bayside

Row Labels	Thursday 21/3/2019	Saturday 23/3/2019	Sunday 24/3/2019	Grand Total
		Number of trips per day		
Westfield Eastgardens, Bunnerong Road	2,144	1,613	1,640	5,397
Westfield Eastgardens Lower Level	1215	969	814	2,998
Sydney Airport, Terminal 1 International	753	880	889	2,522
Rockdale Station, Geeves Avenue, Stand C	990	935	413	2,338
Mascot Station, Coward Street, Stand A	886	522	494	1,902
Sydney Airport, Terminal 3 Domestic	560	575	612	1,747

Row Labels	Thursday 21/3/2019	Saturday 23/3/2019	Sunday 24/3/2019	Grand Total
	Number of trips per day			
Dacey Gardens, Gardeners Road, Kingsford	804	361	276	1,441
Mascot Post Office, Botany Road	685	300	305	1,290
Botany Road at Hollingshed Street, Mascot	606	364	247	1,217
Rockdale Station, Railway Street, Stand F	422	382	382	1,186
Bay Street after The Grand Parade, Brighton-Le-Sands	442	319	300	1,061
Mascot Station, Coward Street, Stand B	330	353	322	1,005
Rockdale Station, Railway Street, Stand G	387	221	165	773
Mascot Station, Bourke Street, Stand C	392	147	115	654
Bay Street opposite Francis Avenue, Brighton-Le-Sands	308	208	130	646
Botany Road opposite Hickson Street, Botany	388	169	76	633
Gardeners Road after Racecourse Place, Eastlakes	310	176	143	629
Rockdale Station, Geeves Avenue, Stand B	237	89	67	393
Rockdale Station, Princes Highway, Stand E	169	115	93	377
Bunnerong Road at Devitt Place, Hillsdale	180	114	52	346

Source: Opal trip data, Transport Performance and Analytics, 2019

7.5.3.2   Train stations

The land uses surrounding Mascot, Rockdale and Kogarah Stations produce the greatest number of trips in Bayside, including over 18,000 from Mascot Station on Thursday 21 March 2019. Bardwell Park Station and Bexley North Station experience the least amount of station entrances, with less than 350 entrances on Saturday 23 and Sunday 24 March 2019.

For all stations, patronage was highest on the weekday than the weekend days.

Table 7-7   Stations used to access a service in Bayside

Station name	Thursday 21/3/2019	Saturday 23/3/2019	Sunday 24/3/2019
	Number of trips per day		
Mascot Station	18,247	9,455	7,990
Rockdale Station	10,651	8,501	6,202
Kogarah Station	12,183	6,785	5,487
Wolli Creek Station	9,660	7,194	5,917
Domestic Airport Station	8,330	5,488	6,281
International Airport Station	3,805	3,136	3,419
Carlton Station	3,751	1,170	945
Arncliffe Station	2,655	1,329	1,119
Banksia Station	1,597	537	344
Turrella Station	1,017	627	499
Bexley North Station	1,116	425	361
Bardwell Park Station	1,064	344	305

Source: Opal trip data, Transport Performance and Analytics, 2019

7.6 Traffic demand

7.6.1 Key locations

7.6.1.1 Transport for NSW permanent traffic counters

Transport for NSW Road Network Planning collect and publish vehicle volumes from key locations across Sydney using permanent traffic counters. The 2017 – 2018, andprior to Covid-19, vehicle volumes for traffic counter locations within the Bayside LGA are listed in **Table 7-8**, also indicating if traffic volumes were recorded as increasing or decreasing over the time period, with green indicating a decrease and red indicating an increase.

Table 7-8   Traffic volumes – 2017 - 2018

Location of permanent counter	Direction	2017 weekday	2018 Weekday
General Holmes Drive (70 metres South of Rowley Street, Brighton-Le-Sands)	Northbound	32,732	33,284
	Southbound	34,929	35,228
	Combined	67,661	68,512
Princes Highway (30 metres South of Taylor Avenue, Banksia)	Northbound	17,796	-
	Southbound	19,423	19,386
	Combined	37,219	-
Wentworth Avenue (200 metres East of Southern Cross Drive, Pagewood)	Eastbound	28,483	28,483
	Westbound	25,004	25,805
	Combined	53,487	54,409

Source: Transport for NSW Road Network Planning Traffic Volume Viewer: https://www.rms.nsw.gov.au/about/corporate-publications/statistics/traffic-volumes/aadt-map/index.html#/?z=6

7.6.1.2 Other traffic counts

Traffic surveys were reported for a number of locations in the western part of the LGA to inform the traffic modelling for the M6 Extension Stage 1 Environmental Impact Statement. These average weekday traffic counts from 2015 - 2017, including the proportion of heavy vehicles, are replicated in **Table 7-9**. The Princes Highway, north of Rocky Point Road, carried the most vehicle traffic across the traffic survey locations, with almost 69,000 vehicles a day, with heavy vehicles accounting for five per cent of the traffic. The Grand Parade south of Bath Street carried a very high proportion of heavy vehicles, 12 to 13 per cent dependent on the direction of traffic.

Table 7-9   M6 Stage 1 EIS traffic counts

Location	Direction	2015-2017 weekday	Heavy vehicle percentage
President Avenue, west of Oakdale Avenue	Eastbound	17,580	8%
	Westbound	18,670	8%
	Combined	**36,250**	
President Avenue, east of Civic Avenue	Eastbound	16,500	7%
	Westbound	16,380	7%
	Combined	**32,880**	
The Grand Parade, south of Bath Street	Northbound	17,990	12%
	Southbound	22,380	13%
	Combined	**40,370**	
West Botany Street, north of Green Street	Northbound	10,300	7%
	Southbound	10,610	7%
	Combined	**20,910**	

Location	Direction	2015-2017 weekday	Heavy vehicle percentage
Princes Highway, north of Rocky Point Road	Northbound	35,660	5%
	Southbound	32,920	5%
	Combined	**68,580**	

Source: M6 Extension Stage 1 EIS, Chapter 8 – Traffic and Transport

7.6.2   Typical traffic congestion

Google collates data to estimate how fast people are traveling on the road network, aggregating from the across the day and week. The data is presented as colours on the Google Traffic Map, with green representing a normal speed of traffic, orange representing slower than normal traffic, and red and dark red representing congested traffic or a crash. While actual traffic speeds are not provided, comparing the typical traffic at different times of the day and week provides an indication of the locations and times which generally experience slower vehicle movements (a symptom of traffic congestion).

The typical traffic conditions from the Google Traffic Map for key roads across the Bayside LGA are shown on **Figure 7-10**, **Figure 7-11** and **Figure 7-12** for three times across the week: a typical weekday 8:00am, a typical weekday 5:30pm and a typical Saturday 12:00pm. The maps indicate that several roads through the LGA typically experience congested traffic on a typical weekday at 8am, including General Holmes Drive (CBD bound), M5 East (eastbound), Bestic Street (eastbound near General Holmes Drive), Rocky Point Road (northbound north of Ramsgate Road), Ricketty Road (eastbound), and Qantas Drive (eastbound).

Roads affected by slow moving traffic on a typical weekday at 5:30pm include Foreshore Road (northbound), Ricketty Road / Canal Road (westbound), General Holmes Drive near the airport (westbound), and the M5 East (westbound).

Figure 7-10   Typical traffic – weekday 8:00am
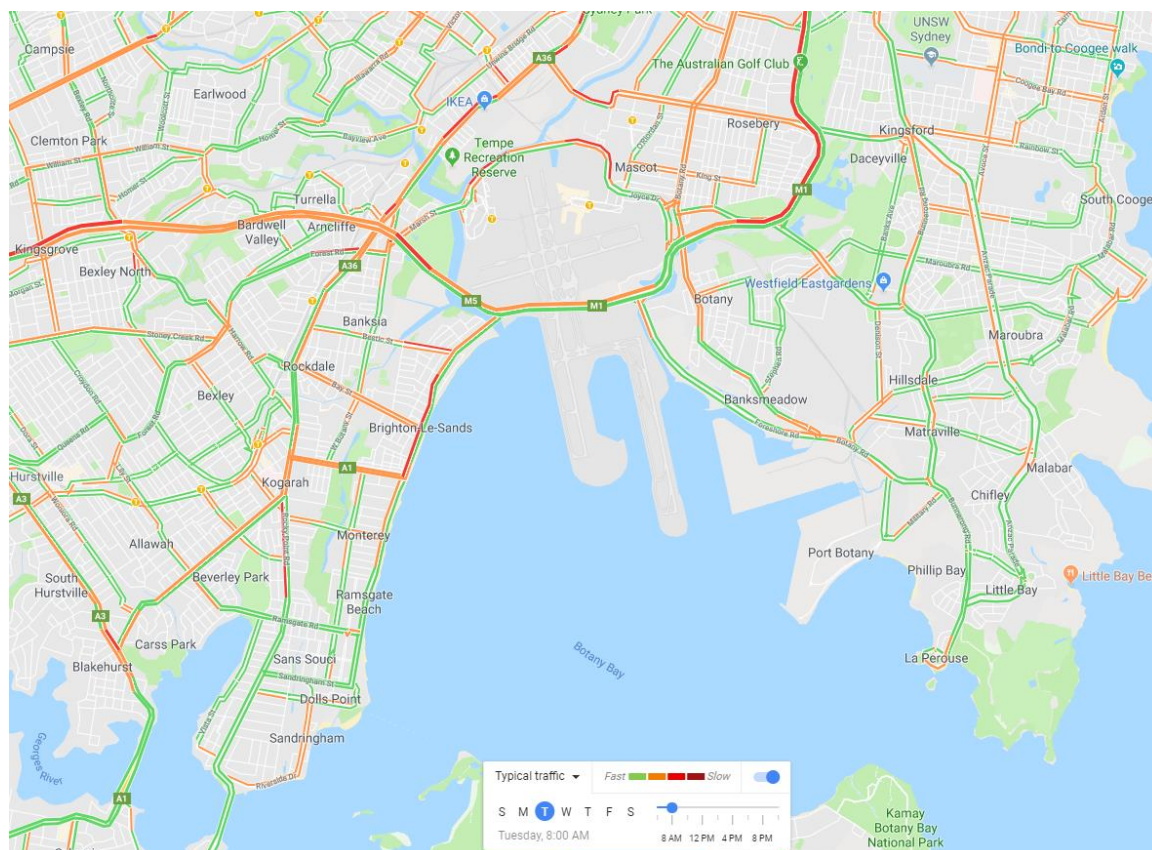
Source: Google Maps, viewed March 2019

Figure 7-11   Typical traffic – weekday 5:30pm
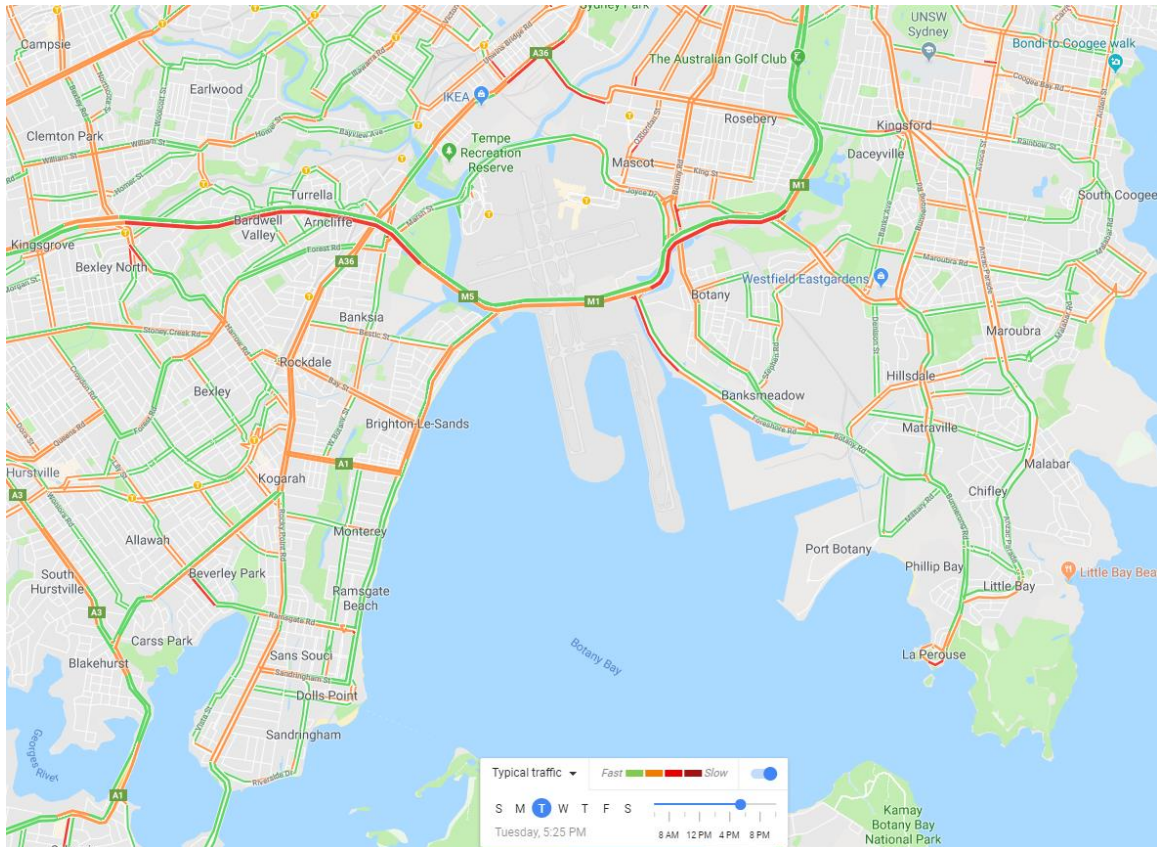
Source: Google Maps, viewed March 2019

Figure 7-12   Typical traffic – Saturday 12:00pm
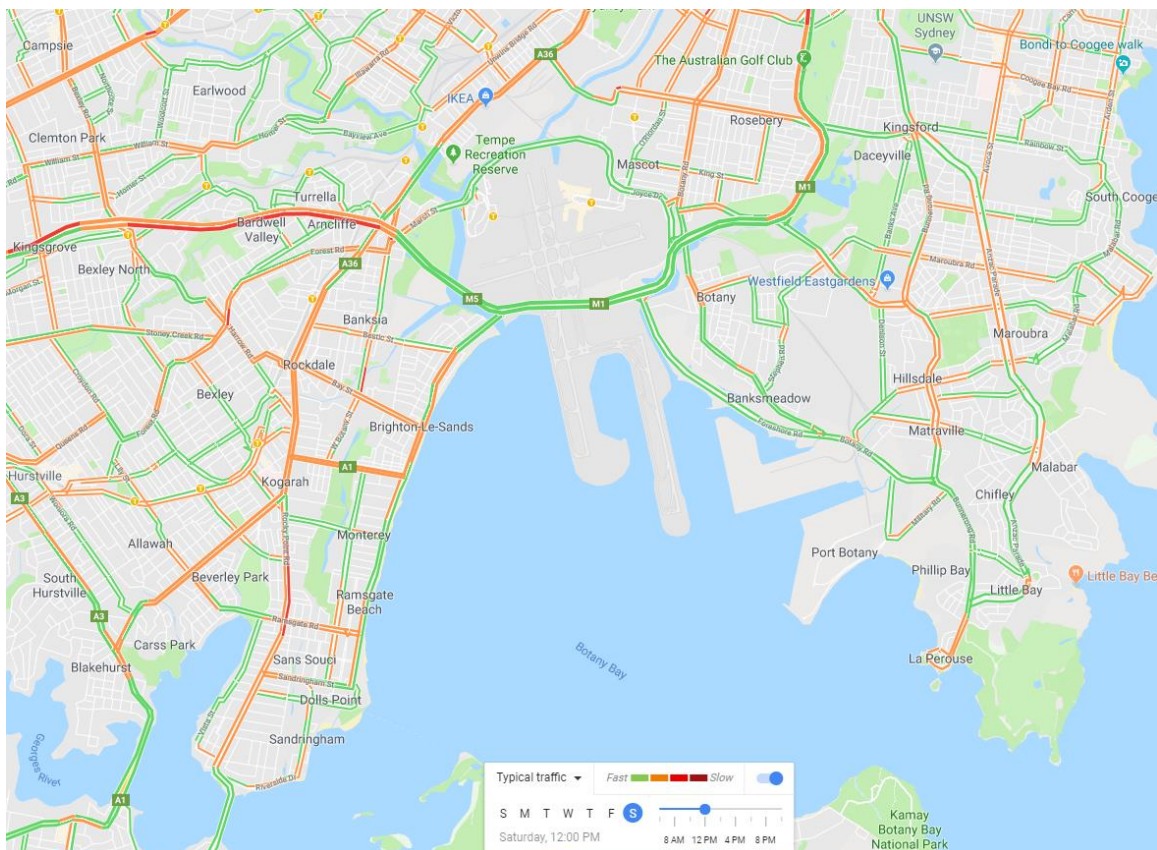
Source: Google Maps, viewed March 2019

7.7   Freight demand

The NSW Ports 30 Year Master Plan forecasts the growth in trucks accessing Port Botany each day. Providing an upper and lower forecast limit, the Master Plan predicts truck movements increasing between 62 per cent and 76 per cent between 2015 and 2045. The forecast trucks per day at Port Botany are depicted in **Figure 7-13**.

The Master Plan is aiming for 40 per cent of container freight to travel by rail, up from around 17 per cent in 2018.

Figure 7-13   Forecast trucks per day at Port Botany
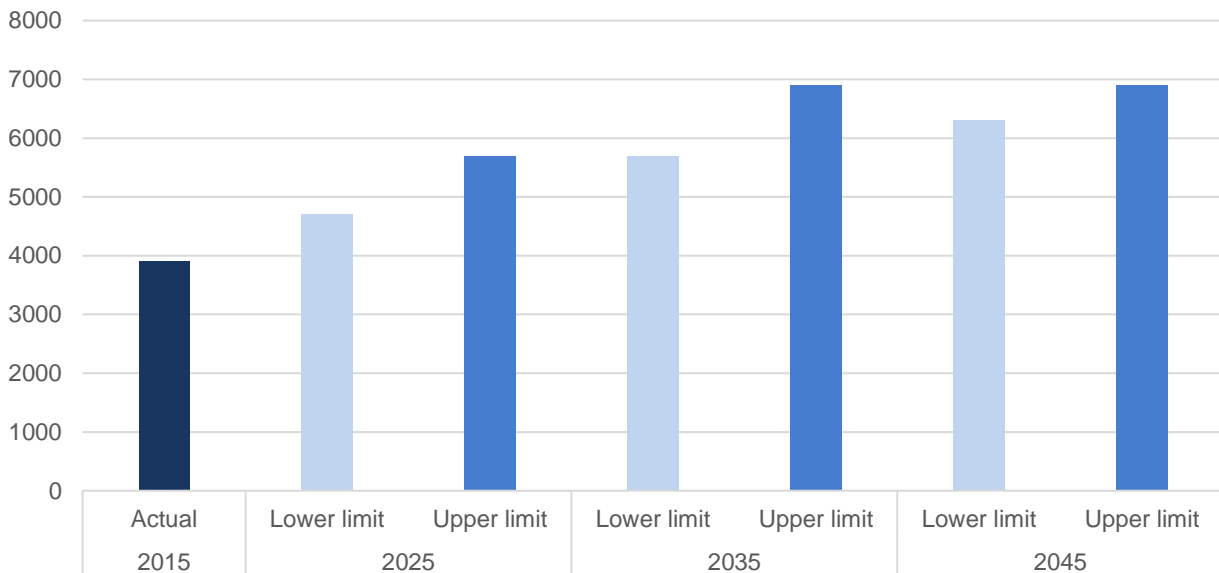
8   Consultation findings

The following summarises community and stakeholder input into transport matters. Not all consultation findings are necessarily factual. These represent perceptions and are important to investigate and understand.

8.1   Community views

Community workshops and online feedback forms gathered comments on transport issues, constraints and ideas for the future, from residents and businesses in March 2019.

The comments received are detailed in the Consultation Outcomes Summary, attached in **Appendix A**, with key areas of focus summarised below and reflected in the transport issues and opportunities (**Section 9**), transport vision, directions and guiding principles (**Section 10**).

Ideas for the future transport network inform the Bayside Transport Strategy.

PEDESTRIANS

Strong support for improvement to pedestrian infrastructure and a desire for safer facilities that includes more road crossings, and better lighting for personal security.

Higher priority at road crossings through shorter waiting times, and enough time to cross the road.

Some town centres, particularly in the east, feel more vehicle-focused than people-focused.

PUBLIC TRANSPORT

Trains can be overcrowded at peak times along with some bus services, including at Eastgardens. Services need to cater for an ageing population with more accessibility like step free access to buses, train stations and surrounding precincts.

Dissatisfaction with bus frequency and reliability could cause an unwillingness to use more public transport. There is a lack of direct buses to the Sydney CBD, night-time services, and Sunday services.

FREIGHT

Some people support separated truck facilities, recognising the needs of the economy and impacts of traffic, while others would prefer if freight was restricted during road network peak periods.

Where possible, people would like freight transferred from road to rail, or to other ports. There is concern about the interaction of residential development and dangerous goods routes through the LGA.

TRAFFIC

There are general concerns about traffic congestion, but recognition that if all residents were to rely on cars, traffic congestion would worsen and parking opportunities would reduce. People were receptive to improving non-car-based modes to offset this. There is support for lower speed limits in local streets. Some people indicated more car share opportunities are required.

ROAD WORKS

Accommodating active transport around works sites needs to be improved for the duration of the works, and across the day and night with safe (separated from traffic), legible routes and timely information.

CYCLING

A strong desire for improved and separated cycling facilities. Discussions indicated a fear of sharing lanes with trucks and concerns about the interaction of cyclists and pedestrians on shared paths. People noted that some cycling links end abruptly in traffic or at LGA borders. The airport creates a barrier to permeability, a more direct east-west link is desired.

Direct separated commuter paths were suggested to improve the attractiveness, reduce travel time and improve regional links.

TECHNOLOGY

Use technology to reduce traffic impacts and improve transport services.
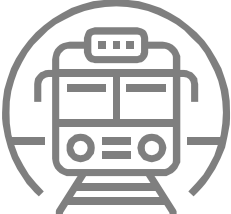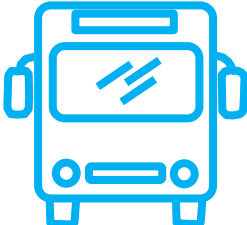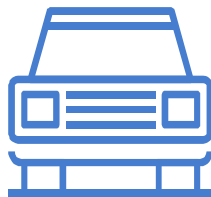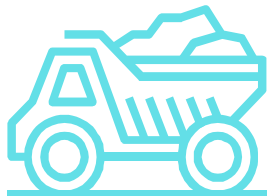
PARKING

Concern about the amount of available parking in town centres, and a lack of alternative travel options.

A recognition that parking should be prioritised for visitors in residential areas. There are issues with long term car parking on residential streets, suspected to be airport customers.

8.2 Stakeholder views

Stakeholder workshop sessions were held to discuss land use and transport issues and opportunities. Stakeholders included major land use holders, state government, neighbouring councils, bus operators and Bayside Council. The comments received are detailed in the Consultation Outcomes Summary, attached in **Appendix A**, with key areas of focus summarised below and reflected in the transport issues and opportunities (**Section 9**), transport vision, directions and guiding principles (**Section 10**).

Land use planning ▪ The Greater Sydney Commission has nominated a 20,000 dwelling growth target for Bayside, however the current transport network will not be able to manage additional demand. ▪ Passenger volumes and freight will increase at the Airport and Port Botany, creating higher demands on the Bayside transport network.	
Pedestrian ▪ Longer crossing times at signalised intersections are required for vulnerable users such as the elderly, children and people with disabilities.	
Cycling ▪ Dedicated cycling infrastructure needs to go around town centres for longer, regional trips. ▪ On-road cycling infrastructure is not suitable for all bicycle users. Older people have difficulty riding bicycles, and their needs should be considered in the network development. ▪ Separated cycling paths on bus routes are not preferred because they can create bus stop islands. There is a perceived conflict issue between buses and cyclists.	
Public Transport ▪ There are perceived limitations to public transport in the south-east of Bayside Council. ▪ There are limited east-west links throughout Bayside, including to and from Sutherland Shire and Georges River Council. ▪ There are accessibility issues for older people at public transport stops. ▪ More trains, more services program will achieve its title on the T4 and T8 lines from 2022 to 2025	

Bus
 	
▪ Transport for NSW are investigating plans in Future Transport 2056, with the goal to improve bus services, frequencies and reliability.
 	
▪ Road network conditions impact some bus services and restrict the ability to provide improved services. These locations include:
  – Marsh Street/ West Botany Street intersection;
  – Canal Road, St Peters, approaching Princes Highway;
  – Botany Road, Botany; and
  – Bourke Street, Mascot.
 	
▪ Bus services on Bunnerong Road and Botany Road are approaching capacity, as well as at the Eastgardens bus interchange.
 	
▪ DDA compliant bus stops with shelters cost Council approximately $30,000 - $40,000. This is difficult for Council to fund and Council are considering	

commissioning advertisers to provide new bus stops. Most bus stops along Botany Road require upgrade for DDA compliance.

Road network

- Road Network Plans have been developed for state roads in Bayside Council LGA. There are plans to deprioritise the movement function on Botany Road.
- Railway lines impede road network permeability in Tempe, St Peters and Banksmeadow.
- The M6 Extension exit will distribute traffic to Gardeners Road and Campbell Road. This is likely to add higher traffic volumes in the Mascot centre.

Parking

- Parking is important for many land uses at local centres. Parking could be prioritised in distinct, well signposted areas behind shops and on side streets or away from the main street frontage.
- There is a lower incentive to use sustainable transport modes when car parking is readily available.
- Parking provision reductions would need to be offset by other access means.
- On-street car parking is hazardous for bicycle riders.

Deliveries

- Waste collection generally occurs during daytime hours to reduce night time noise impacts.
- Preservation of loading zones should be more maintained with a higher priority than general kerb side parking.
- Online shopping is increasing deliveries. Council receive complaints about driveways being blocked by delivery functions

Freight

- NSW Ports indicated to improve freight network efficiency, motorway access will need to be prioritised to keep freight vehicles away from residential areas.
- As part of the NSW Gateway project, it is NSW Ports preference that on-ramps are provided for container vehicles from Canal Road at St Peters. This would allow trucks to traverse between Port Botany and Cooks River freight terminal without using local roads.
- The Port Botany rail duplication will offset freight impacts on the road network. Overall road freight volumes are forecast to increase.

Future considerations

- Kogarah is planned to become a major interchange with a mass transit link to Parramatta. There is also potential to extend this from Kogarah to Miranda.
- It is critical to consider projects/ issues outside of the LGA that can assist or is adding to current issues.
- The proposed cruise port in Port Botany has a number of benefits and issues.

9 Summary of transport issues and opportunities

The transport issues and opportunities identified in through the strategic context review, community and stakeholder consultation, and data assessment, are summarised in this section.

9.1 Issues

Category	#	Issue
Active transport	I1	Lack of walking and cycling amenity on freight routes and in low density industrial areas results in low participation rates. Freight travels through the Mascot Station Town Centre, a place with high and growing levels of pedestrian activity.
	I2	Major land uses, like the airport, port, and private golf courses, and arterial roads, act as barriers to walking and cycling and prevent direct routes.
	I3	Many town centres feel road-focused instead of people-focused, particularly on the eastern side of the LGA. Pedestrian infrastructure is inadequate and freight travels through the Mascot Station Town Centre, a place with high and growing levels of pedestrian activity. Centres based on shopping malls like Eastgardens have a lack of street front activation, vibrancy, and amenity for pedestrians.
	I4	Lack of consistent, continuous, separated, direct, and high quality cycleways (including to cross the LGA, to neighbouring Council areas, link to the foreshore, and around the airport and the port), and lack of bicycle parking at train stations.
	I5	Concern about on road safety when cycling, particularly in proximity to heavy vehicles, around the airport and port, and at roundabouts, is a barrier to higher participation.
	I6	Need for retention of a direct cycling link along Qantas Drive with implementation of Sydney Gateway.
	I7	Some residential areas don't have a nearby centre within walking distance.
	I8	Lack of priority for pedestrians on key roads e.g. long wait times, and lack of crossing legs, distances between crossings.
	I9	Conflict between cyclists and pedestrians on shared paths, but on-road cycling is suitable for select cyclists only.
	I10	Some personal security issues at night, including a lack of lighting, and dark stretches along pathways and cycleways.
	I11	Footpath pavement width and quality (causing trip hazards and cracks), which can be affected by tree roots and utility authority works.
	I12	Separated cycling paths on bus routes are not preferred because they create bus stop islands. There is a perceived conflict issue between buses and cyclists. It is suggested wide traffic lanes that can accommodate cyclists and buses be provided on shared links.
	I13	The Bourke Street, Mascot, zebra crossing has high demands for pedestrians and vehicles resulting in road network congestion.
	I14	On street parking is dangerous for cyclist who may be hurt by opening doors
Community transport	I15	Growth in proportion of older residents will increase demand for community transport services.
Freight	I17	Freight traffic is affected by the relatively high proportions of private small vehicles on Foreshore Road, and by congestion at the intersection with General Holmes Drive.
	I18	High and growing proportion of through traffic on roads adjacent to Sydney Airport and Port Botany affects access and freight efficiency.
	I19	Industrial and employment lands, and freight routes, present challenges like safety and traffic noise where they are located close to sensitive land uses like residential and town centres; and some roads categorised as the 'dangerous goods routes' have residential land uses along them, including Forest Road. Bexley Village Centre is affected by heavy vehicle traffic volumes and noise.
	I20	Lack of enforcement for heavy vehicle ban on Botany Road.

Category	#	Issue
Funding	I21	Section 7.12 non-residential funding does not meet infrastructure upgrade costs. It is legislated at 1% of development costs
General connectivity	I16	Limited connections to and from destinations in Sutherland Shire and Georges River LGAs.
	I22	Significant through traffic (road and rail) due to adjacent location of the Harbour CBD.
	I23	Separation of east and west sides of LGA by natural and built barriers like the Cooks River, Sydney Airport and Port Botany results in limited connections for all modes.
	I24	Limited north-south connectivity to Canterbury-Bankstown LGA due to the T8 train line and the Wolli Creek and Bardwell Valley parklands.
	I25	Some centres are made up of two focal points, e.g. Eastgardens and Maroubra Junction, without clear connectivity for all modes.
Growth in demand	I26	The Greater Sydney Commission has nominated a 20,000 dwelling growth target for Bayside.
	I27	Passenger volumes and freight will increase at the Airport and Port Botany, creating higher demands on the Bayside transport network.
Parking	I28	High on-street parking demand on the Sandringham Peninsula, around Brighton-Le-Sands and in centres.
	I29	Airport passengers and workers park in surrounding residential streets all day or longer, to avoid high parking fees.
	I30	Proposals for parking schemes applying to the unrestricted on-street parking within one kilometre of Rockdale Station must be referred to Transport for NSW.
	I31	There is limited parking provided in some high-density developments.
	I32	There is lower incentive to use sustainable transport modes when free, on-street parking is readily available.
	I33	Residential parking schemes create an administration effort for Council and requires additional monitoring
	I34	Trains stations are thought to induce car parking demand from Sutherland Shire residents around Carlton and Kogarah Stations.
	I35	On street parking is critical for local centres' economies.
Public transport	I36	Some parts of the LGA don't have 30-minute access to the Harbour CBD.
	I37	Rail station access fee (Airport Stations) reduces attractiveness of travelling by train to access the airport.
	I38	Growth in passenger numbers has led to crowded conditions on the T4 and T8 train lines, and on bus services at Eastgardens.
	I39	Bus services are affected by traffic congestion.
	I40	The 400 and 420 are the only services that currently enter the airport precinct.
	I41	Lack of direct public transport connections to local centres and train stations on the western side of the LGA, including to/from Brighton-Le-Sands, Ramsgate, and Sans Souci.
	I42	Lack of mass transit to the eastern side of the LGA, in particular Eastgardens and Botany, with significant residential development underway (and potentially more to come).
	I43	Reduced number of trains stop at Kogarah and Rockdale since 2014.
	I44	Lack of public transport connections between eastern and western sides of the LGA, and direct buses to the CBD.
	I45	Lack of bus services at night time and on Sundays, and personal security issues from waiting a long time at bus stops.
	I46	Some train stations don't have step free access and bus services aren't accessible, an issue for an aging population and people with prams, shopping, luggage.
	I47	Bus stops in Bayside, especially on Botany Road require updates for DDA compliance and consistency.
	I48	Rail lines (passenger and freight) impede road network permeability in Wolli Creek, Banksia Rockdale Botany/ Pagewood and Banksmeadow.

Category	#	Issue
	I49	At some locations during peak periods, public transport is at capacity.
	I50	Perceived limitations to public transport in the south-east of Bayside LGA.
	I51	Road network conditions impact some services and restrict the ability to provide more services. This includes: Marsh Street/ West Botany Street (Arncliffe intersection), West Botany Street congestion, Canal Road, St Peters (approaching Princes Highway), Botany Road, Botany, Bourke Street, Mascot, Kogarah: Gray Avenue between Rocky Point Road and Princes Highway.
	I52	Industrial areas are not well suited to public transport access for employees who work in shifts
	I53	DDA compliant bus stops with shelters are difficult to fund.
	I54	Bunnerong Road and Botany Road bus services are approaching capacity.
	I55	Eastgardens bus interchange is approaching capacity.
Road network	I56	High volumes of road traffic causes air pollution which has health impacts.
	I57	Some traffic congestion is associated with recent increases in development e.g. around Mascot.
	I58	No link to the south from Port Botany, and the M6 Extension proposal does not directly link with the Sydney Gateway project.
	I59	Gardeners Road, a key east-west corridor on the eastern side, is congested in peak times and has competing movement and place functions.
	I60	M5 tunnel maintenance diverts traffic to surface roads at night, increasing night-time noise, this affects Forest Road residents.
	I61	Railway lines impede road network permeability in Tempe/St Peters, and Banksmeadow.
	I62	WestConnex is likely to have major impacts on the Mascot Station town centre.
	I63	Toll avoidance is an issue for the M5 and is expected to continue after WestConnex is operational.
	I64	There is concern after M6 Extension Stage 1 delivery about congestion, delays and the effect on surface roads. The EIS for the M6 Stage 1 indicates that there will be no large reductions in traffic volumes on Princes Highway. The M6 Extension exit is expected to distribute traffic to Gardeners Road/ Campbell Road, and the Mascot Station Town Centre is likely to accommodate high volumes under this arrangement.
Safety	I65	Heavy vehicles are involved in a high proportion (23 per cent) of crashes.
Services and delivery	I66	Smaller developments generally provide minimal on-site servicing facilities. Council waste collection trucks cannot fit on smaller sites.
	I67	Online shopping is increasing deliveries. Council receive complaints about driveways being blocked by delivery vehicles.
Sharing economy	I68	A lack of available car share in the LGA, including in Rockdale around high-density apartment buildings.

9.2 Opportunities

Category	#	Opportunity
Active transport	O1	Land reservation from M6 corridor available for construction of north-south green active transport link.
	O2	Collaborative approach to linking regional cycle routes with neighbouring Councils (e.g. Southwest Greenway and the Doncaster Avenue cycleway and Transport for NSW funded Principal Bike Network links).
	O3	Grid street network and flat terrain on the western side of the LGA will support east-west cycle corridors to local centres and train stations.
	O4	Wolli Creek is a potential interchange between key regional cycling routes that could converge there.
	O5	Significant green space that aligns with desirable cycling routes within the LGA and regionally.
	O6	Aligning street tree planting with pedestrian and cycling routes.
	O7	Four of the Green Grid priority routes travel through or to Bayside LGA.
	O8	Shared paths beyond commuter corridors will service and promote higher quality pedestrian and cycling amenity throughout the LGA. There may be opportunities to increase the number of crossing points on Princes Highway and General Holmes Drive/ The Grand Parade at a point in time when the M6 changes traffic patterns.
	O9	The Principal Bicycle Network, as identified by Transport for NSW can help to fund (when made available) key trunk routes linking key employment centres as per Future Transport 2056.
Centres	O10	Potential for reduced through traffic on Princes Highway and The Grand Parade from M6 could enable revitalisation in some local centres.
	O11	Working closely with Georges River Council to improve accessibility to Kogarah from surrounding areas.
	O12	The Mascot Station Town Centre's place function will improve with the opening of the Sydney Gateway (as the link will provide direct connection from WestConnex to Sydney Airport).
Economic gateways	O13	The NSW Government is committed to reinforcing the role of Sydney Airport and Port Botany as Sydney's economic gateways, both are located within the Bayside LGA and will facilitate growth in international and domestic passenger travel and freight movements.
Environment	O13	Bayside could host trials of electric buses/ trackless trams or other innovative mass transport solutions.
	O14	Support organisations to provide electric mobility device and vehicle charging infrastructure in convenient locations.
	O15	Green Travel Plans requirements as part of significant developments with controls/ incentives to encourage continuous implementation, monitoring and improvement.
Freight	O16	Port activities operate 24 hours a day and truck movements in off peak are less affected by general traffic.
	O17	Duplication of rail corridor will slow the growth of road freight, increasing capacity and reliability.
	O18	The M6 extension project is expected to reduce the number of surface freight vehicles.
	O19	Improving freight network efficiency by prioritising motorway access will keep freight vehicles away from residential areas.
	O20	Any measures to reduce private vehicle travel benefits freight movements.
General connectivity	O21	A growing range of options for first and last mile transport, including bicycle couriers and on-demand services, to connect to transport interchanges.
	O22	Many Sydney Airport workers reside in Bayside LGA, within a walking or cycling catchment.
Public transport	O23	Sydney Airport's new Ground Transport Interchange development will accommodate additional bus services for T2/ T3 (domestic terminals).
	O24	Increasing mode share in public transport across the average weekday.

Category	#	Opportunity
	O23	City and Southwest Metro in 2024 will increase capacity of the rail network and provide opportunities on the T8 heavy rail's City Circle services. (More trains, more services)
	O24	The next stage of More trains, More Services (2022) will increase peak services on the T8 line from 10 to 16 services per hour. The T4 line planned upgrades are for 6 - 8 peak hour services and 4 – 6 services during interpeak by 2023. Future stages will add 2 more peak hour services on the T4 and T8 lines.
	O25	Potential mass transit link between Bankstown and Kogarah would provide better connections between Bayside LGA and Greater Parramatta.
	O26	Mass transit planned for the South East could support growing densities and connect eastern and western parts the LGA.
	O27	The 400 and 420 services are highly utilised 24 hour services, and the only limited stop services during the day in Bayside.
	O28	N bus services (Night buses) use are becoming more popular.
Road network	O29	Sydney Gateway will reduce traffic and heavy vehicles on the road network and provide efficient access to the airport and port.
	O30	Road network plans have been developed for state roads in Bayside, including plans to deprioritise the movement function on Botany Road.
	O31	As part of Gateway, on-ramps are provided for container vehicles from Canal Road at St Peters. The ramps would allow trucks to traverse between Port Botany and Cooks River freight terminal without using local roads.
	O32	M6 motorway should be leveraged to reduce the movement function of existing parallel surface roads including Princes Highway and General Holmes Drive/ The Grade Parade.
Safety	O33	Lower speed limits in centres and on local roads to improve safety for vulnerable road users.
	O34	Ongoing development of autonomous vehicles can be expected to improve road safety.
Sharing economy	O35	Growing availability of on-demand public and community transport across NSW is improving transport options and flexibility for customers.
	O36	Growing customer demand for car and ride sharing. Opportunity to reallocate parking spaces to increase the priority of these uses over long term private car parking.

10   Transport strategy

10.1   Transport vision

A just, reliable and resilient transport system which supports active, healthy lifestyles and provides 30 minute access to economic, social, recreational and cultural opportunities for everyone.

Bayside's transport system integrates the east and west with direct and convenient connections. It supports the local economy, helps to revitalise centres and villages, and drives the vital and growing freight task.

Places for people are walkable; with pedestrian priority in and around centres, accessibility for all, attractive streetscapes, and engaging active land uses, across the day and night.

People choose to walk and cycle to centres and use public transport for longer trips, because these transport modes are direct, safe and enjoyable, via routes that encompass the area's inviting green spaces and foreshores.

Owning and using a car is less important because of a range of accessible, affordable, and attractive options. Parking is prioritised for people with mobility needs, and for higher efficiency vehicles like carshare.

Heavy vehicle routes are delineated and protected, supporting efficient and prioritised freight movements on dedicated routes, with convenient access to industrial areas, the airport and port.

10.2   Transport directions

The key transport directions are presented as follows to initiate discussion and determine priorities.

Connected & Integrated	Efficient	Active & Vibrant	Inclusive & Safe	Sustainable & Innovative
East to west	Access to Sydney Airport and Port Botany	Walkable centres, schools and stations	Supports community participation	Leaders in emerging transport technology
Within centres	Priority for freight on key routes	Cycling is safe and supported	Accessibility for all	Green Grid and waterways connections
To regional destinations	First and last mile transport options	Revitalised centres with high pedestrian activity and priority	Lower vehicle speeds around people and in centres	Clean transport solutions
Interchange between modes	Encourage the sharing economy	Walking and cycling encouraged for short trips	Design transport networks and interchanges to enhance safety and personal security	Alternatives to car ownership
Cycleways and walkways	Flexible parking options		Technology that improves safety	Support electric vehicles
Between trade gateways, the CBD and industrial and urban services lands	Smart deliveries			Parking prioritises people in need and shared vehicles
Integrated land use and transport planning				Better travel information and payment choices

10.3   Guiding principles

A set of transport principles to achieve the vision and directions will guide the development of transport strategies and actions for the Bayside LGA, delivering on the transport vision.

Table 10-1   Principals

#	Principle	Detail
P1	Improved road safety.	Safer roads, and actual and perceived personal security for everyone through lower vehicle speeds, better construction traffic management, and more lighting.
P2	Resilient infrastructure.	Infrastructure that minimises the contribution to, and mitigates the impacts of, climate change.
P3	Vibrant, activity-filled centres.	With pedestrian priority and space, less through traffic, lower parking demand and better transport integration for all modes.
P4	Equitable access to jobs, services, education, social, recreational, rest/ open space and cultural opportunities, and support for social inclusion and community participation.	Regardless of age, ability, income, family situation, or location. Integrated community transport services and DDA compliant footpaths, crossings, bus stops and train stations mean equitable participation in community life and reduced social exclusion.
P5	Mode shift to sustainable travel	People increasingly choose to walk, cycle and use public transport.
P6	Encourage active transport for short trips.	First mode choice for short trips, available to all ages and cycling abilities because of a connected and legible network, more priority, attractive streets, safe crossings, separation where needed, active and passive surveillance and end-of-trip facilities.
P7	Less need to own or use privately owned vehicles.	Because of the sharing economy, Mobility as a Service (MaaS), delivery options, high quality walking and cycling networks, efficient and reliable public transport.
P8	Collaboration for regional connectivity.	With state government, local land holders, stakeholders such as TfNSW, Sydney Water, Sydney Airport, NSW Ports, and neighbouring Council areas on cycling, including access to local centres and integration of strategic centres.
P9	Frequent, direct, and prioritised public transport.	With integrated and legible services to the Harbour CBD, strategic centres and within the LGA and comfortable and accessible stations and stops.
P10	Efficient freight movements, separated where possible.	With priority on key routes.
P11	Connected industrial and urban services lands, with good links to trade gateways and freight routes.	Building on the competitive advantage of links to the airport, port and Harbour CBD.
P12	Capitalise on green space and access to the foreshore.	Encouraging healthy lifestyles and providing an attractive way to travel.
P13	Preparedness for emerging transport technologies.	To ensure it aligns with Council priorities and values.
P14	Parking supports social equity and supports the economy.	With priority for people with additional accessibility needs, car share and electric vehicles.
P15	Land use development is integrated with transport improvements.	Higher density housing and high person generating land uses needs to be supported by frequent and direct public transport.

10.4   Transport targets and performance measures

10.4.1   Performance measures and targets

To assess progress towards achieving the Transport Strategy's vision, guiding principles / objectives a series performance measures are set out in **Table 10-2**. At least one transport performance measure is provided for each guiding principle / objective. It will be important to track achievement against these measures through regular data collection, and action should be taken if improvement does not occur over time.

Table 10-2   Performance measures and targets

#	Principle	Performance measure	Data source	Timeframe	Review Responsibility	Target 2036	Action groups identified in alignment with principle
P1	Improved safety.	▪ Number of road traffic crashes per year (by mode).	Crash data	Annual	Transport for NSW/ Council partnership.	Trending to zero	Safety
		▪ Number of fatal and serious injuries (by mode).	Crash data	Annual	Transport for NSW/ Council partnership.	Trending to zero	
		▪ Number of casualty crashes (by mode)	Crash data	Annual	Transport for NSW/ Council partnership.	Trending to zero	
		▪ Proportion of residents who feel safe when walking day and night.	Community survey	Bi-annual	Council	Determine after benchmark survey	
		▪ Proportion of residents and workers who feel safe when cycling.	Community survey	Bi-annual	Council		
		▪ Proportion of residents and workers who feel safe using public transport.	Community survey	Bi-annual	Council		
P2	Resilient infrastructure.	▪ Estimate of greenhouse gas emission associated with travel.	Resilient Sydney Platform	5 years	Council	Determine after benchmark assessment	Active Transport/ Pedestrian/ Bicycle and micro mobility. Public transport/ Bus stops/ Bus/ Train.
P3	Vibrant, activity-filled centres.	▪ Proportion of residents that can access a centre within a ten-minute walk.	PAMP	5 years	Council	Determine after benchmark assessment	Land use and integration and funding. Roads. Active Transport/ Pedestrian/ Bicycle and micro mobility.
		▪ Proportion of the walking networks to access centres that are DDA compliant.	PAMP	5 years	Council		
		▪ Amount and type of bicycle parking at train stations.	Bike Plan	5 years	Transport for NSW/ Council partnership.		

#	Principle	Performance measure	Data source	Timeframe	Review Responsibility	Target 2036	Action groups identified in alignment with principle
P4	Equitable access to jobs, services, education, social, recreational, rest/ open space and cultural opportunities, and support for social inclusion and community participation.	▪ Proportion of walking network that is DDA compliant.	PAMP	5 years	Council	Determine after benchmark assessment	Active transport Pedestrian Bus Stop Train station
		▪ Proportion of bus services and bus stops that are DDA compliant.	PAMP	5 years	Transport for NSW/ Council partnership.	100%	
		▪ Proportion of train stations that are DDA compliant.	GIS analysis	Annual	Transport for NSW	100%	
		▪ Cost of transport relative to average income.	ABS Census	5 years	Transport for NSW/ Council partnership.	In line with Greater Sydney	
P5	Mode shift to sustainable travel	▪ Number of vehicle trips.	Household Travel Survey	Annual	Transport for NSW	Maintain or reduce	Land use integration and funding. Active Transport/ Pedestrian/ Bicycle and micro mobility. Public transport/ Bus stops/ Bus/ Train.
		▪ Mode share of walking.	Household Travel Survey	Annual	Transport for NSW	Current 16% Trending up	
		▪ Mode share of cycling.	Household Travel Survey	Annual	Transport for NSW	Current <1% Trending up	
		▪ Mode share of public transport.	Household Travel Survey	Annual	Transport for NSW	Current 19% Trend increasing from reduction in private vehicle use.	
P6	Encourage active transport for short trips.	▪ The proportion and number of DDA compliant kerb ramps increases.	PAMP	5 years	Council	100%	Active Transport/ Pedestrian/ Bicycle and micro mobility.
		▪ The percentage of footpaths 1.8 metres wide or wider increases.	PAMP	5 years	Council	Determine after benchmark assessment	
		▪ Distance between pedestrian crossings.	GIS analysis	5 years	Council	Maximum 100 metres in centres Maximum 400 metres (ideally 250 metres) outside of centres	

#	Principle	Performance measure	Data source	Timeframe	Review Responsibility	Target 2036	Action groups identified in alignment with principle
		▪ Amount green time for pedestrians at traffic signals.	Road network survey	5 years	Transport for NSW/ Council partnership.	Liaise with Transport for NSW Road Network Planning Services	
		▪ Amount of active street frontages.	Urban design survey	5 years	Council	Liaise with Urban Design team	
		▪ Proportion of residents who live within 10 minutes' walk of the nearest retail	Road network survey	5 years	Council	100%	
		▪ Proportion of the cycling network to access centres that is separated from motor vehicles.	Bike Plan	5 years	Council	Determine after benchmark assessment	
		▪ Community satisfaction with access to cycleways, footpaths and walking tracks.	Community survey Super Tuesday counts	Annual	Council	Determine after benchmark survey	
P7	Less need to own or use privately owned vehicles.	▪ Average number of cars per household.	ABS Census	5 years	Council	Trending lower	Travel demand management Public transport/ Bus stops/ Bus/ Train.
		▪ Private vehicle kilometres travelled.	Household Travel Survey	Annual	Transport for NSW	Trending lower	
		▪ Number people using car share.	Car share company data	Annual	Council	Trending upwards	
P8	Collaboration for regional connectivity.	▪ Number of transport working groups / committee meetings.	Council reporting	Annual	Neighbouring Councils and Transport for NSW partnership	No target	Active Transport/ Pedestrian/ Bicycle and micro mobility. Public Transport
		▪ Number of joint transport projects / plans.	Council reporting	Annual	Council	No target	
P9	Frequent, direct, and prioritised public transport.	▪ Number of higher frequency (frequencies of 15 minutes or less off-peak) bus routes in the LGA.	Transport for NSW, General Transit Feed Specification. (GTFS)	Annual	Transport for NSW/ Council partnership.	Determine after benchmark assessment	Public transport/ Bus stops/ Bus/ Train.

#	Principle	Performance measure	Data source	Timeframe	Review Responsibility	Target 2036	Action groups identified in alignment with principle
		▪ Length of bus route as a proportion of distance a car would take to travel between the start and end locations	Bus route survey	Annual	Transport for NSW/ Council partnership.	Determine after benchmark assessment	
		▪ Length of dedicated / priority bus infrastructure as a proportion of bus route distances.	Road network survey	Annual	Transport for NSW	Determine after benchmark assessment	
		▪ Number of services running along a given corridor.	Transport for NSW	Annual	Transport for NSW	Maximum 3	
		▪ Average patronage by bus stop	OPAL data	Annual	Transport for NSW	No target	
		▪ Proportion of walking networks to access public transport stops and stations that are DDA compliant.	PAMP	5 years	Transport for NSW/ Council partnership.	Determine after benchmark assessment	
P10	Efficient freight movements, separated where possible.	▪ Travel times by freight vehicle.	Traffic survey	Annual	Transport for NSW/ NSW Ports partnership.	Determine after benchmark assessment	Roads Freight, servicing and deliveries
		▪ Freight vehicle journey speeds.	Traffic survey	Annual	Transport for NSW		
		▪ Satisfaction with road network by freight operators.	Stakeholder survey	Annual	Transport for NSW		
P11	Connected industrial and urban services lands, with good links to trade gateways and freight routes.	▪ Satisfaction with road network by freight operators.	Stakeholder survey	Annual	Industry	Determine after benchmark assessment	Roads Freight, servicing and deliveries

#	Principle	Performance measure	Data source	Timeframe	Review Responsibility	Target 2036	Action groups identified in alignment with principle
P12	Capitalise on green space and access to the foreshore.	▪ Proportion of tree coverage along active transport networks.	Landscape survey/ aerial photography i.e. Nearmap.	Annual	Council.	Liaise with Urban Design team	Active Transport/ Pedestrian/ Bicycle and micro mobility.
		▪ Walking and cycling travel time to access open space and recreational facilities.	PAMP / Bike Plan	5 years	Council	90% of population can access within 10 minute walk	
		▪ Proportion of walking networks to access surrounding open space that are DDA compliant.	Path audits.	5 years	Council	90%	
		▪ Community satisfaction with access to recreational places.	Community survey/ CSP updates.	Annual	Council	Determine after benchmark survey, high or trending up.	
P13	Preparedness for emerging transport technologies.	▪ Number of technology trials.	Council reporting	Annual		No target	Pedestrian Micro mobility Roads Car parking
		▪ Number of publicly accessible electric vehicle/ mobility device charging spaces.	Inventory.	Annual	Council.	No target	
		▪ Proportion of charging stations that use renewable energy.	Energy provider data.	Annual	Council	No target	
P14	Parking supports social equity and supports the economy.	▪ Number of short term parking zones to support ride-share and deliveries.	Parking survey/ Inventory	Annual	Council	Reduction in complaints regarding lack of parking.	Travel Demand Management Car parking
		▪ Number of dedicated, highly utilised car share spaces.	Car share operators	Annual	Council	No target.	
P15	Land use development is integrated with transport improvements.	▪ Number of actions that address land use and transport together.	Council reporting	Annual	Council	No target	Land use integration and funding.
		▪ Number of planning officers with awareness of, or responsibility for,	Integrated mapping portal	Continuous	Council	No target	

#	Principle	Performance measure	Data source	Timeframe	Review Responsibility	Target 2036	Action groups identified in alignment with principle
		integrating land use and transport planning.					
		▪ Density of residential and employment land uses around public transport stations and interchanges	ABS Census	5 years	Council	Trending towards limits of land use controls.	

11 Transport actions

A range of transport actions were developed with the project working group based on the findings of the research and consultation. These have been assigned coding described in **Table 11-1** and action summaries are in **Table 11-2**, with the transport strategies explained in **Section 12**.

Table 11-1   Action coding

Code	Action Category	Description.
LU#	Land Use and Integration and Funding.	Actions that relate to land use and apply across the LGA.
TDM#	Travel Demand Management	Managing the time of use on the transport network to more efficiently use the existing capacity.
AT#	Active Transport	Active transport generally applies to modes that require human effort for propulsion.
PT#	Public Transport	Transport services governed by Transport for NSW and contractors and accessible on the Opal card network.
Rd#	Roads	Carriageways and road related areas, the space between property boundaries.
Ped#	Pedestrian	Infrastructure for walkers or people with mobility aids such as scooters.
Bk#	Bike	Bicycles and
MM#	Micro-mobility	Micro-mobility devices refer to small, lightweight electrically propelled or assisted devices. They typically operate at speeds of less than 25 kilometres per hour and for trips less than 10 kilometres. They include electrically assisted scooters, skate boards and bikes.
BuSt#	Bus stops	All the elements of a bus stop including hard stand, pole and sign, shelter, seating, tactile ground surface indicators (TGSIs).
Bus#	Buses	Buses used by Transport for NSW services.
Train#	Train	Sydney Trains services
Safe#	Safety	Safety related initiatives.
Fr#	Freight	Freight movement and land use servicing related initiatives.
CP#	Car Parking	Vehicle parking, general that managed by Council.

Table 11-2   Bayside transport actions

	Land use integration and funding
LU1	Plans for redeveloped large sites should have through links, publicly accessible at all times provided for more direct walking and cycling travel.
LU2	Review transport infrastructure funding opportunities for non-residential development.
LU3	Develop contribution plan work items to address transport infrastructure resulting from growth in industrial employment lands
LU4	Develop a 'Movement' and'Place' strategy and the revitalisation of Princes Highway and The Grand Parade after the M6 Stage 1 Extension opens
LU5	Prioritise new residential and commercial development away from existing and any proposed freight corridors and industrial land uses, protecting existing freight corridors.
LU6	Develop an internal map-based portal for all Council staff to provide oversight of integrated planning and capital works, infrastructure and asset management systems so that all staff can identify all existing, imminent and strategically planned works.

	Travel demand management
TDM1	Develop a Travel Plan for all Council employment sites, to identify and communicate sustainable travel choices for staff.
TDM2	Encourage development of Travel Plans for major employers in the LGA such as Sydney Airport, hospitals, education campuses etc., to identify and communicate sustainable travel choices for staff.
TDM3	Develop a Car Share Policy.
TDM4	Develop an Electric Vehicle Charging Policy

	Active transport		Public transport		Roads
AT1	Plan for the active transport infrastructure linking Wolli Creek train station more directly to the Inner West Council and Canterbury Bankstown LGAs.	PT1	Consider alignment of future mass transit services across the LGA planning for high density and diverse land uses in these areas.	Rd1	Apply new 'Movement and Place' Framework for planning road corridor use in Bayside.
AT2	Review street trees and canopy prioritising the strategic pedestrian and cycling networks to reduce urban heat island effect.	PT2	Advocate for better public transport coverage and frequencies in areas that don't have 30-minute access to a strategic centre across the week.	Rd2	Leverage opportunities identified in the NSW Government's Road Network Plans to achieve the future movement and place categories.
AT3	Endorse the strategic pedestrian and cycling network to connect centres, schools, open space and to integrate with the Green Grid Corridors and neighbouring LGAs.	PT3	Advocate for first and last mile on-demand and micromobility transport services to connect to key transport interchanges.	Rd3	Work with TFNSW to develop a plan to manage local traffic and limiting unnecessary through traffic arising from major road projects.
AT4	Develop masterplans for the Millstream and Botany Wetlands Corridor, Rockdale Wetlands Corridor and Wolli Creek Regional Park and Bardwell Valley Open Space Corridors to support walking and cycling and to connect communities to green infrastructure.	PT4	Review community transport needs and advocate for on-demand service opportunities for lower demand areas away from high frequency public transport.	Rd4	Investigate the feasibility and funding opportunities for an LGA-wide traffic model to cumulatively assess the impacts of developments and population growth.
AT5	Collaborate with NSW Government on developing a green active transport link along the M6 corridor, reflecting the Green Grid aims, and providing connections to centres and other destinations surrounding the route.	PT5	Investigate new connections from Randwick health precinct to Bayside, reducing the need to route via Sydney CBD.	Rd5	Support opportunities to trial technology that meets transport objectives in the LGA i.e. autonomous vehicles.
		PT6	Advocate for improved mass transit links to Eastgardens.		

	Pedestrian		Bicycle and micro mobility.		Bus stops		Bus		Train		Safety		Freight, servicing and deliveries		Car parking
Ped1	Identify consistent footpath standards for the LGA, specifically adopting wider footpaths along higher demand areas/ routes (i.e. strategic footpath network) to support DDA accessibility,cycling and micromobility for more user groups, i.e. children.	Bk1	Identify cycling corridors to be prioritised to connect local and strategic centres aligning with the state government proposed regional bike network.	BuSt1	Prioritise upgrades of bus stops based on patronage, community consultation and access to nearby destinations. Include DDA compliance audit of all stops,	Bus1	Advocate and provide input for the NSW Governments proposed strategic bus network including dedicated bus lanes for improved reliability.	Train1	Advocate for accessibility upgrades at Bexley North, train stations.	Safe1	Undertake road safety audits for crash cluster locations on local roads. Advocate for TfNSW to undertake audits for state roads.	Fr1	Lobby TfNSW to monitor and enforce heavy vehicle ban on through local centres such as Botany Road. I.e. vehicle recognition technology.	CP1	Revise DCP car parking rates to be reflective of sustainability targets and demand based on overall transport connectivity. This should be supported by detailed analytics.
Ped2	Investigate the feasibility and implement the strategic pedestrian network, a larger block/ mesh network that covers the entire LGA.	Bk2	Identify cycling corridors to be prioritised in the 5 to 10 kilometre catchment of Eastgardens, Kogarah and Mascot strategic centres, aligning with the state government proposed regional bike network.	BuSt2	Investigate funding opportunities for new bus shelters, including tendering to outdoor advertising companies, while retaining functionality for buses, safety, and customer experience.	Bus2	Maintain engagement with TfNSW on their planned changes to bus routes and services.	Train2	Support TfNSW's efforts to implement More Trains, More Services.	Safe2	Review and align speed limits to the movement and place function of a road and the surrounding land uses, including lowering speed limits in areas of high pedestrian demand. Consideration be given to piloting 30km/h roads where appropriate.	Fr2	Advocate for dedicated road freight access from Cooks River Intermodal Terminal as part of WestConnex.	CP2	Review taxi ranks near bus stops and identify which should be removed to improve safety and avoid conflict.
Ped3	Prioritise footpath/ shared path upgrades in the 800metre catchment of schools.	Bk3	Identify and promote cycling access routes to public recreation green space, particularly Botany Bay's foreshore	BuSt3	Advocate for real time information displays at key bus stops.	Bus3	Advocate for bus performance studies on key routes to identify priority measures in areas of congestion.	Train3	Advocate for reduction/ removal of Sydney Airport station access fees.	Safe3	Identify High Pedestrian Activity Areas with consideration given to introducing 30km/h zones.	SD1	Identify locations for short-term parking / loading zones in areas of high residential density, to cater for increase in deliveries and ride sharing vehicles.	CP3	Existing car parking in centres is managed to accommodate future increased demands through prioritisation of space through the parking hierarchy.
Ped4	Investigate footpath upgrades connecting to bus stops and program priority works.	Bk4	Host a bi-annual meeting to plan and review regional bicycle network development with Inner West Council, Georges River Council, City of Sydney, Randwick and Sutherland Shire Council (e.g. Southwest Greenway and the Doncaster Avenue cycleway).	BuSt4	Occupation certificates should require relocation/reinstatement of bus stops and other infrastructure that is relocated during construction activities.	Bus4	Advocate for high frequency and direct bus service connecting centres in the eastern and western sides of the LGA e.g. Rockdale to Mascot / Botany.			Safe4	Ensure provisions for pedestrians and bicycles are provided as part of construction activities impacting the transport network in addition to the requirements of TfNSW Traffic control at work sites Technical Manual.	SD2	Review servicing requirements for proposed small developments, to minimise their impact on roads and footpaths.	CP4	Council to consider Council owned/ managed off-street car parking areas to provide public EV charging facilities.
Ped5	Identify locations and investigate for potential pedestrian priority treatments (High Pedestrian Activity Areas, Shared Zones, 40 kilometre or lower speed limit zones). Investigate the feasibility of trials with temporary changes if funding opportunities arise. Consult with community stakeholders on locations and benefits.	Bk5	Work with Transport for NSW to develop the Principle Bicycle Network and the Sydney Airport 'Orbital' in order to provide direct active transport connections to nearby local centres	BuSt5	Advocate for bus stop capacity upgrade at Eastgardens interchange.	Bus5	Advocate for a business case to be developed and trials for direct and frequent bus connections between from train stations to centres away from the railway network. I.e. Rockdale to Brighton-le-Sands, San Souci to Kogarah and Ramsgate Beach to Allawah/ Hurstville.			Safe5	Consider designated pick up – drop off zones and Taxi ranks in town centres to improve safety and avoid conflict.	SD3	Support initiatives and technology advances that achieve objectives for first and last mile deliveries in strategic and local centres.	CP5	Introduce an integrated residential permit scheme and price permits at a rate consistent with the opportunity cost of parking infrastructure, with a transition period to support behaviour change by residents.
Ped6	Provide wider paths as part of a 10 minute walkable retail catchments	Bk6	Advocate/ identify opportunities for a train station cycling interchange facilities, to integrate and interchange with the rail network. The facility should include a range of bicycle parking options. i.e. Bike Sheds.			Bus6	Advocate for greater span of bus services on Sundays and late at night.								

Ped7	Identify opportunities to provide through site links and adequate pedestrian space on footpaths and for waiting at intersections. These benefits should be available at all times and part of occupation certification.	Bk7	Continue development of the dedicated bicycle route along the rail corridor between Wolli Creek and Rockdale (T4 line), and between Wolli Creek and Tempe (T8 line)	Bus7	Advocate for increased public transport capacity on routes and in periods of high demand, e.g. Bunnerong Road and Botany Road.
Ped8	Provide separation/ space between footpaths and vehicle travel lanes along freight routes using on-street parking or landscaping and/ or investigate opportunities for speed limit reductions.	Bk8	Continue to advocate for the provision of a cycleway adjacent to Botany freight rail line to connect Sydney Airport to Botany Bay	Bus8	Advocate for trials of electric buses/ trackless tram in the LGA.
Ped9	Identify intersections where additional pedestrian crossing legs could be provided subject to the location having a pedestrian desire line. Advocate TfNSW for upgrades.	Bk9	Develop an off-road bicycle link between Eastgardens and Port Botany with appropriate separation from dangerous vehicles and land uses.	Bus9	Advocate for trials of on-demand buses in low demand areas to improve public transport accessibility.
Ped10	Investigate the feasibility of pedestrian crossings at a minimum of 200 metres in residential / industrial areas, and every 100 metres in centres (off state roads) where desire line exist.	MM1	Advocate for the state government to support the safe use of micro-mobility (e-scooter) technology on bicycle infrastructure to reduce transport energy consumption and space.		
Ped11	Advocate for longer crossing times at signalised intersections used by vulnerable community members (young, older, parents and disabled people).				
Ped12	Advocate for pedestrian priority at intersections where demand exists. This may involve removal of double green at signalised intersections to allow pedestrians to cross before cars turn.				
Ped13	Implement a program in line with the strategic pedestrian network and any intersection changes/ LATM works to prioritise pedestrian movement across minor roads through pedestrian priority treatments that are built for smooth pedestrian passage.				

12 Transport key supporting strategies

12.1 Future transport network

Bayside's future transport network will need to support an increasing number of journeys across all transport modes; journeys to and from the LGA, short journeys that start and finish within the LGA, and journeys that pass through it.

12.1.1 Achieving the 30-minute city

Long commutes and traffic congestion affect quality of life. People need to be able to reach jobs, schools, shops, social activities, government services and health facilities conveniently and quickly. Sydney's strategic and metropolitan centres provide their surrounding areas with economic, education, retail and recreational opportunities, and essential health and civic services.

Future Transport 2056's 30-minute city concept aims for every resident to reach their closest strategic and metropolitan centre within 30-minutes by public transport, walking or cycling, seven days a week. Bayside residents are generally able to reach one or more strategic centres within 30 minutes in the AM peak, but some areas of the LGA don't achieve this in off peak periods and on weekends, due to lower frequency of bus or train services.

Increasing public transport service frequencies and directness will help to achieve the 30-minute city for Bayside residents. It also improves the attractiveness and therefore patronage of public transport. Where interchange is required, services should be coordinated to minimise transfer waiting times, and limit walking distances between stops and stations.

12.1.2 Achieving regional connectivity

The Bayside LGA supports major through movements to and from the Sydney CBD, Sydney Airport, and Port Botany. While the road and public transport networks cater for these north and south movements, east-west movements, between the east and the west of the LGA, and to Kogarah, other Georges River destinations, and to the inner west, are less direct.

The South East Sydney Transport Strategy identifies the long-term planning for mass transit link connecting from Randwick, Eastlakes, and Mascot, to Sydney Airport and through to Kogarah and further south. In the near term, identifying direct and frequent bus routes that link the local centres in the eastern and western sides of the LGA via General Holmes Drive will support better integration and provide a public transport alternative to private vehicle travel. Walking and cycling connectivity between the eastern and western sides of the LGA will be supported by the Principal Bicycle Network around Sydney Airport.

The actions that will help to deliver the future transport network strategy are set out in **Table 12-1**.

Table 12-1   Future transport network strategy actions

#	Action
Bk1	Prepare a Bike Plan to identify a safe, connected network throughout the LGA integrating with neighbouring LGA's and regional links.
Bk2	Identify cycling corridors to be prioritised to connect local and strategic centres aligning with the state government proposed regional bike network.
Bk4	Host a bi-annual meeting to plan and review regional bicycle network development with Inner West Council, Georges River Council, City of Sydney, Randwick and Sutherland Shire Council (e.g. Southwest Greenway and the Doncaster Avenue cycleway).
Bus4	Advocate for high frequency and direct bus service connecting centres in the eastern and western sides of the LGA e.g. Rockdale to Mascot / Botany.
Bus5	Advocate for a business case to be developed and trials for direct and frequent bus connections between from train stations to centres away from the railway network. I.e. Rockdale to Brighton-Le-Sand, San Souci to Kogarah and Ramsgate Beach to Allawah/ Hurstville.
Bus6	Advocate for greater span of bus services on Sundays and late at night.
Bus7	Advocate for increased public transport capacity on routes and in periods of high demand, e.g. Bunnerong Road and Botany Road.

#	Action
Ped2	Investigate the feasibility and implement the strategic pedestrian network, a larger block/ mesh network that covers the entire LGA.
Ped6	Provide wider paths as part of a 10 minute walkable retail catchments.
PT1	Consider alignment of future mass transit services across the LGA and start discussions with NSW Government on potential station locations, planning for high density and diverse land uses in these areas.
PT2	Advocate for better public transport coverage and frequencies in areas that don't have 30 minute access to a strategic centre across the week.
PT5	Investigate new connections from Randwick health precinct to Bayside, reducing the need to route via Sydney CBD.
PT6	Advocate for improved mass transit links to Eastgardens.
Rd2	Leverage opportunities identified in the NSW Government's Road Network Plans to achieve the future movement and place categories.
Train2	Support Transport for NSW's efforts to implement More Trains, More Services.

12.2   Modal hierarchy

Bayside's transport modal hierarchy (**Figure 12-1**) reflects the priorities from the transport vision; supporting active, healthy lifestyles and aiming for 30-minute access to economic, social, recreational and cultural opportunities for everyone. The hierarchy indicates an aspiration to prioritise walking and cycling over other transport modes in more locations. It does not apply in all locations separated for specific purposes, i.e. railway or motorway corridors. The modal hierarchy needs to be considered against the movement and place priorities (**Figure 3-2**) of any given location.

It acknowledges that while all transport modes need access and movement, people on foot, bike or in a wheelchair, and people who travel in sustainable and efficient transport vehicles, should be considered first.

Given the road network's complex range of functions, historical development context, and existing travel behaviours, the hierarchy will not necessarily apply in every situation related to street and site planning. Instead, it can be used as a reference and reminder to consider the modes at the top of the hierarchy first, and to focus on providing the safety, space, and connectivity for their needs.

Figure 12-1   Bayside modal hierarchy

BAYSIDE MODAL HIEARCHY

A **Active transport and mobility parking**
Walking, including people of all mobility levels, cycling, including bikeshare and other personal mobility devices, mobility parking

B **Public transport**
Rail, time-tabled and on-demand buses, community buses

C **Freight, services, deliveries**
Heavy vehicles, garbage collection, maintenance crews, delivery vehicles

D **Private vehicles***
Rideshare, taxis, carpool, carshare, motorbikes, private vehicles

Within private vehicles, a hierarchy of shared transport, followed by no or low emission vehicles (electric vehicles and motorbikes), and then private vehicles with internal combustion engines.

The actions that will help to deliver the modal hierarchy strategy are set out in **Table 12-2**.

Table 12-2   Modal hierarchy strategy actions

#	Action
AT1	Plan for the active transport infrastructure linking Wolli Creek train station more directly to the Inner West Council and Canterbury Bankstown LGAs.
Bk1	Prepare a Bike Plan to identify a safe, connected network throughout the LGA integrating with neighbouring LGA's and regional links.
Bk6	Advocate/ identify opportunities for a train station cycling interchange facilities, to integrate routes, and interchange with the rail network. The facility should include a range of bicycle parking options. i.e. Bike Sheds.
Bk7	Continue development of the dedicated bicycle route along the rail corridor between Wolli Creek and Rockdale (T4 line), and between Wolli Creek and Tempe (T8 line).
Bus1	Advocate and provide input for the NSW Governments proposed strategic bus network including dedicated bus lanes for improved reliability.
Bus3	Advocate for bus performance studies on key routes to identify priority measures in areas of congestion.
Bus5	Advocate for a business case to be developed and trials for direct and frequent bus connections between from train stations to centres away from the railway network. I.e. Rockdale to Brighton-Le-Sands, San Souci to Kogarah and Ramsgate Beach to Allawah/ Hurstville.
MM1	Advocate for the state government to support the safe use of micro-mobility technology (e.g. e-scooter) on bicycle infrastructure to reduce transport energy consumption and space.
Ped1	Identify consistent footpath standards for the LGA, specifically adopting wider footpaths along higher demand areas/ routes (i.e. strategic footpath network) to support DDA accessibility, micromobility and cycling for more user groups, i.e. children.
Ped2	Investigate the feasibility and implement the strategic pedestrian network, a larger block/ mesh network that covers the entire LGA.
Ped3	Prioritise footpath/ shared path upgrades within 800 metres walking catchment of schools.
Ped5	Identify locations and investigate for potential pedestrian priority treatments (High Pedestrian Activity Areas, Shared Zones, 40 kilometre or lower speed limit zones) and trial them with temporary (and reversible) changes to test the viability. Consult with community stakeholders on locations and benefits.
Ped9	Identify signalised intersections where additional pedestrian crossing legs could be provided.
Ped10	Investigate provision of pedestrian crossings at a minimum of 200 metres in residential / industrial areas, and every 100 metres in centres.
Ped11	Advocate for longer crossing times at signalised intersections used by significant number of vulnerable community members (young, older, parents and disabled people).
Ped12	Advocate for pedestrian priority at intersections where demand exists. This may involve removal of double green at signalised intersections to allow pedestrians to cross before cars turn.
Ped13	Prioritise pedestrian movement across minor roads through pedestrian priority treatments that are built for smooth pedestrian passage.
Safe5	Review Taxi ranks near bus stops and identify which should be relocated/removed to improve safety and avoid conflict.
TDM2	Encourage development of Travel Plans for major employers in the LGA such as Sydney Airport, hospitals, education campuses etc., to identify and communicate sustainable travel choices for staff.
TDM3	Develop a Car Share Policy.
TDM4	Develop an Electric Vehicle Charging policy

12.3 Integration with land use

12.3.1 Planning for growth

Areas of growth and major development sites across the Bayside LGA need coordinated planning to ensure the transport network is ready to accommodate new trips. Transport networks and land use must be planned together, in particular with a focus on the public transport network and walking and cycling connections. Coordination and integration considerations include:

> Timing – new public transport investment should occur just before the population growth does.

> Density – public transport nodes are the right places for increasing land use density.

> Diversity – co-locating different land uses reduces the need to travel long distances for the range of trips that people make every day. Short trips can be made by walking and cycling.

> Streetscape design – access to trip generating land uses and public transport stops and stations must be direct, safe, and legible for people on foot.

> Funding – Ensuring development contributions are sufficient to fund supporting infrastructure and value capture is identified and utilised for public benefit.

An effective public transport system works best when coordinated with high density residential and employment land uses. Transit orientated development seeks to align population (both residential and employment) with the public transport system. Higher population densities around key public transport nodes, along with a mix of land uses, and easy access from the surrounding sites to stations, will encourage public transport patronage, and reduce reliance on private vehicles.

12.3.2 Supporting vibrant centres

Bayside's diverse centres will be vibrant, and activity-filled across the day and night. Within the centres, pedestrians have priority at crossings, space to spend time outdoors, and easy access to the places people want to go.

There is less traffic congestion and parking problems in centres because walking, cycling or using public transport is often the easier option than driving. People want to walk to centres, because it's easy and safe; both the walk to the centre, and the pedestrian experience within it, are enjoyable.

Local centre economies are enhanced by the increased footfall, and as increasingly pleasant places to spend time, people visit more often and spend longer, as they are able to meet a range of shopping, services and socialising needs.

The actions that will help to deliver the integration with land use strategy are set out in **Table 12-3**.

Table 12-3   Integration with land use strategy actions

#	Action
LU1	Plans for redeveloped large sites should have through links, publicly accessible at all times provided for more direct walking and cycling travel.
LU2	Review transport infrastructure funding opportunities for non-residential development.
LU3	Develop an industrial Section 7.11 plan to acknowledge that while industrial employment is low-density, traffic generation is generally high and heavy vehicle transport infrastructure is required.
LU4	Engage with NSW Government in a working group to develop a 'Place' strategy for the revitalisation of Princes Highway and The Grand Parade after the M6 Stage 1 Extension opens.
LU5	Prioritise new residential and commercial development away from existing and any proposed freight corridors and industrial land uses, protecting existing freight corridors.
LU6	Develop an internal map based portal for all Council staff to provide oversight of integrate planning and capital works, infrastructure and asset management systems so that all staff can identify all existing, imminent and strategically planned works.

12.4   Accessibility and equity

Changing life circumstances don't need to mean reduced mobility. Regardless of age, ability, income, family situation, or location, everyone in Bayside has equitable access to jobs, services, social, recreational and cultural opportunities, and support for social inclusiveness and community participation.

Residents have access to bus stops with regular services close to their home, effective community transport services that provide transport for people who need extra support, and on-demand services increasingly play a role where a regular bus service may not be feasible. The community is aware of the range of transport choices available to them, making trip planning simple.

DDA compliant footpaths, crossings, bus stops and train stations mean equitable access and opportunities for participation in community life and economic opportunities, and reduced social exclusion. Increased street activity across the day and night encourages community interaction and cohesion. Access to civic and support services, social activities, and community groups is possible for everyone.

The actions that will help to deliver the accessibility and equity strategy are set out in **Table 12-4**.

Table 12-4   Accessibility and equity strategy actions

#	Action
BuSt1	Prioritise upgrades of all bus stops based on patronage, community consultation and access to nearby destinations. Include DDA compliance audit
BuSt2	Investigate funding opportunities for new DDA compliant bus shelters, including tendering to outdoor advertising companies, while retaining functionality for buses, safety, and customer experience.
BuSt5	Advocate for bus stop capacity upgrade at Eastgardens interchange.
MM1	Advocate for the state government to support the safe use of micro-mobility (e-scooter) technology on bicycle infrastructure to reduce transport energy consumption and space.
Ped1	Identify consistent footpath standards for the LGA, specifically adopting wider footpaths along higher demand areas/ routes (i.e. strategic footpath network) to support DDA accessibility, micromobility and cycling for more user groups, i.e. children.
Ped10	Investigate provision of pedestrian crossings at a minimum of 200 metres in residential / industrial areas, and every 100 metres in centres.
Ped11	Advocate for longer crossing times at signalised intersections used by vulnerable community members (young, older, parents and disabled people).
Ped12	Advocate for pedestrian priority at intersections where demand exists. This may involve removal of double green at signalised intersections to allow pedestrians to cross before cars turn.
Ped13	Prioritise pedestrian movement across minor roads through pedestrian priority treatments that are built for smooth pedestrian passage.
Ped4	Investigate footpath upgrades connecting to bus stops and program priority works.
Ped9	Identify signalised intersections where additional pedestrian crossing legs could be provided.
PT2	Advocate for better public transport coverage and frequencies in areas that don't have 30 minute access to a strategic centre across the week.
PT3	Advocate for first and last mile on-demand and micromobility transport services to connect to key transport interchanges.
PT4	Review community transport needs and advocate for on-demand service opportunities for lower demand areas away from high frequency public transport.
Train1	Advocate for accessibility upgrades at Bardwell Park train station.

12.5 Emerging technologies

Advances in transport technology, mobility service models, and data sources, will affect the characteristics of the future transport network, resulting in changes to travel choices, vehicle types, payment options, and data sources. Emerging trends and increasingly intelligent transport system applications include: the sharing economy, Mobility as a Service (MaaS), innovation goods delivery, more efficient fleet management and operations systems, smart infrastructure, asset management and maintenance, automated and connected vehicles, big data, open data, and electric vehicles.

12.5.1.1 Policy context

Infrastructure will need to be designed to adapt to these changes, and services need to be responsive as opportunities arise. The Australian Government acknowledges the importance of preparing for major technological change in the transport sector. It released the Transport and Infrastructure Council's National Policy Framework for Land Transport Technology and Action Plan in August 2019, to provide guidance for governments as they consider the disruptive future changes. The policy framework suggests a role for Australian Governments in supporting transport technology through policy leadership, enabling change, providing a supportive regulatory environment, and investment.

Any new transport technology, service models, mobility concepts, or data innovation, should be considered against how it helps to deliver on Bayside's guiding principles / objectives. With an outcome focused, rather than specific technology focused, approach to future transport system planning, Bayside's transport system will be able to adapt, adopt, and evolve as opportunities in innovation arise.

12.5.1.2 Transport technology framework

Future transport technologies and new mobility concepts will emerge at unknown timings, paces and geographical extents. They will continue to evolve and respond to changing environments and expectations, available data, innovation break-throughs, and policies. A flexible and adaptable approach to policing and adopting new technology should be at the core of enabling future mobility through a transport technology framework. Review, trial and testing will provide guidance in how to respond in the context of increasingly intelligent systems, and more digitalisation.

Use of a transport technology framework will provide a method for Council to review, and respond to, new technologies as they arise. A suggested framework for transport technologies is presented in **Figure 12-2**. It proposes a review of transport technologies and innovations, with appropriate ones proceeding to trial. Collaboration across jurisdictions and with stakeholders will be beneficial in this process; to share learnings, evaluate outcomes, and enhance integration.

Actions that will support the emerging technologies and mobility concepts strategy are set out in **Table 12-5**.

Table 12-5   Emerging technology and mobility concepts strategy actions

#	Action
Bus9	Support any trials of electric buses/ trackless tram in the LGA.
CP8	Council consider to consider Council owned/ managed off-street car parking areas to provide public EV charging facilities.
MM1	Advocate for the state government to support the safe use of micro-mobility technology on bicycle infrastructure to reduce transport energy consumption and space.
PT3	Advocate for first and last mile on-demand and micromobility transport services to connect to key transport interchanges.
PT4	Review community transport needs and advocate for on-demand service opportunities for lower demand areas away from high frequency public transport.
Rd5	Support opportunities to trial technology that meets transport objectives in the LGA i.e. autonomous vehicles.
SD3	Support initiatives and technology advances that achieve objectives for first and last mile deliveries in strategic and local centres.

Figure 12-2   Bayside transport technology framework

Transport technology framework
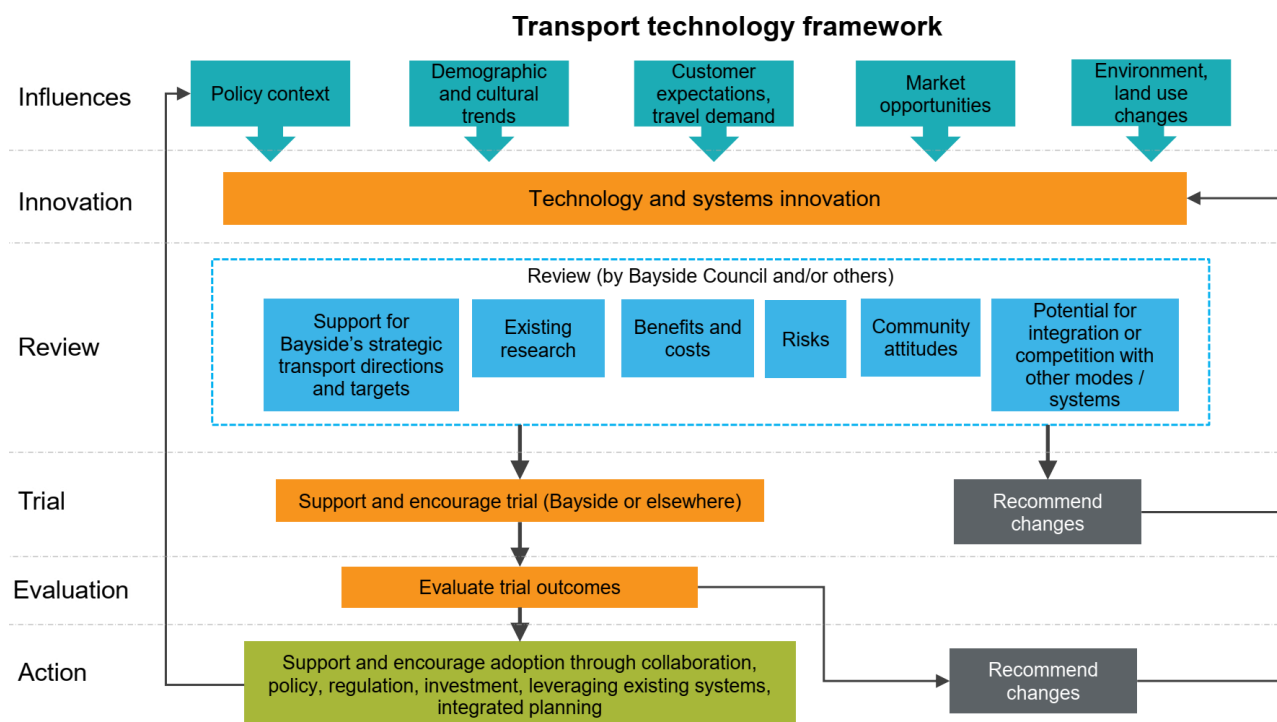
12.6   Transport mode strategies

12.6.1   Active transport

Strategy

Active transport modes are considered first by everyone to access nearby land uses and opportunities. The active transport strategy is the combination of the walking and cycling. Micro-mobility is included as it is generally better suited to use cycling infrastructure.

Actions that benefit the walking and cycling network are listed in **Table 12-6**.

Table 12-6   Active transport actions

#	Action
AT1	Plan for active transport infrastructure linking Wolli Creek train station more directly to the Inner West Council and Canterbury Bankstown LGAs.
AT2	Review street trees and canopy prioritising the strategic pedestrian and cycling networks to reduce urban heat island effect.
AT3	Endorse the strategic pedestrian and cycling network to connect centres, schools, open space and to integrate with the Green Grid Corridors and neighbouring LGAs.
AT4	Develop masterplans for the Millstream and Botany Wetlands Corridor, Rockdale Wetlands Corridor and Wolli Creek Regional Park and Bardwell Valley Open Space Corridors to support walking and cycling and to connect communities to green infrastructure.
AT5	Collaborate with NSW Government on developing a green active transport link along the M6 corridor, reflecting the Green Grid aims, and providing connections to centres and other destinations surrounding the route.

12.6.1.1   Walking

Strategy

Bayside's pedestrian network and open spaces encourage healthy lifestyles and make walking an attractive way to travel for local trips, and to access public transport. Travelling by foot is the first mode choice for short trips, available to all people of all ages and levels of mobility.

Walking is safe, easy, direct, enjoyable and comfortable, because of a connected and legible network, more priority at intersections, comfortable footpath widths, high quality pavement, attractive streetscapes, safe and

accessible crossings, separation from cyclists where needed, and active and passive surveillance from engaging places, mixed land uses and street frontages.

Local and strategic centres provide a high quality and enjoyable walking environment, along with space for people to be outside enjoying the city streets. Centres have permeable blocks through pedestrian-only links, attractive laneways, and engaging facades and shopfronts. Mixed use redevelopment which increases residential densities in centres supports pedestrian activity throughout the day and night, as centres increasingly become places that people both live and work. Clear and consistent wayfinding signage means that the walking routes to and between key destinations are clearly indicated and effectively communicated.

As residents, workers and visitors include walking trips in their daily activities, they contribute to their health, well-being and sense of community. All residents have 'walkable retail' within a 10-minute walk of their home. Growth in walking trips contributes to an overall increase in mode share for travel by sustainable modes, along with cycling and public transport.

Vehicle speeds are low in centres and local streets to reduce the likelihood and severity of pedestrian crashes. People on footpaths have some separation from fast moving vehicles on arterial roads, to increase levels of comfort and reduce crashes.

The actions that will help to deliver the walking strategy are set out in **Table 12-7**.

Table 12-7   Walking strategy actions

#	Action
Ped1	Identify consistent footpath standards for the LGA, specifically adopting wider footpaths along higher demand areas/ routes (i.e. state road network network) to support DDA accessibility, micromobility and cycling for more user groups, i.e. children.
Ped2	Investigate the feasibility and implement the strategic pedestrian network, a larger block/ mesh network that covers the entire LGA.
Ped3	Prioritise footpath/ shared path upgrades in the 800 metre catchment of schools.
Ped4	Investigate footpath upgrades connecting to bus stops and program priority works.
Ped5	Identify locations and investigate for potential pedestrian priority treatments (High Pedestrian Activity Areas, Shared Zones, 40 kilometre or lower speed limit zones). Investigate the feasibility of trials with temporary changes if funding opportunities arise. Consult with community stakeholders on locations and benefits.
Ped6	Provide wider paths as part of 10 minute walkable retail catchments
Ped7	Identify opportunities for redevelopment sites to provide through site links and adequate pedestrian space on footpaths and for waiting at intersections. These benefits should be available at all times and part of occupation certification.
Ped8	Provide separation/ space between footpaths and vehicle travel lanes along freight routes using on-street parking or landscaping and/ or investigate opportunities for speed limit reductions.
Ped9	Identify intersections where additional pedestrian crossing legs could be provided subject to the location having a pedestrian desireline. Advocate TfNSW for upgrades.
Ped10	Investigate the feasibility of pedestrian crossings at a minimum of 200 metres in residential / industrial areas, and every 100 metres in centres (off state roads) where desire lines exist.
Ped11	Advocate for longer crossing times at signalised intersections used by vulnerable community members (young, older, parents and disabled people).
Ped12	Advocate for pedestrian priority at intersections where demand exists. This may involve removal of double green at signalised intersections to allow pedestrians to cross before cars turn.
Ped13	Implement a program in line with the strategic pedestrian network and any intersection changes/ LATM works to prioritise pedestrian movement across minor roads through pedestrian priority treatments that are built for smooth pedestrian passage.

Strategic pedestrian network

High quality pedestrian infrastructure is needed in all locations that would accommodate notable demands. To provide focus and balance resources, a strategic pedestrian network plan is identified in **Figure 12-3**.

The strategic network rationale is to link all significant pedestrian generating land uses (health, education, recreation and centres) and key transport hubs across the LGA. Most residents are within 200 metres of the network.

The network covers the whole LGA as a larger block/ mesh network and would integrate with and be supported by lower level precinct studies, such as school precinct, High Pedestrian Activity Areas, Centre PAMP's, LATM studies or other opportunities to improve pedestrian safety and connectivity.

Key features should include:

> Paths equal to or greater than 1.8 metres (ideally 2.5 metres on arterial road paths) wide clear path of travel, free from utilities, bus shelters/ advertising or other barriers;

> Pedestrian priority at minor roads;

> A smooth surface that receives regular maintenance, including vegetation trimming;

> Constructed with environmentally friendly materials;

> Step free access including DDA compliant kerb-ramps or tactile ground surface indicators (where there is no level change) at all road crossings;

> Prioritise links that are less steep;

> A clear and straight (where possible) shoreline (property boundary) for vision impaired people;

> Wayfinding signage;

> Shared zones, raised thresholds or pedestrian priority at minor road crossings;

> Crossing opportunities targeted for every 200 metres or less;

> Incremental arrow markings to encourage users on shared paths to keep left;

> Signalised or raised crossings at major roads with ample waiting area;

> Energy efficient lighting;

> Tree canopy cover and addition cover facilitated with sub-surface root separation;

> Separated from high volume/ speed traffic with vegetation, parking lanes; and

> Amenity provisions in centres and recreational areas, including drinking fountains, seating, toilets and weather shelter refuges.

Figure 12-3   Strategic pedestrian network
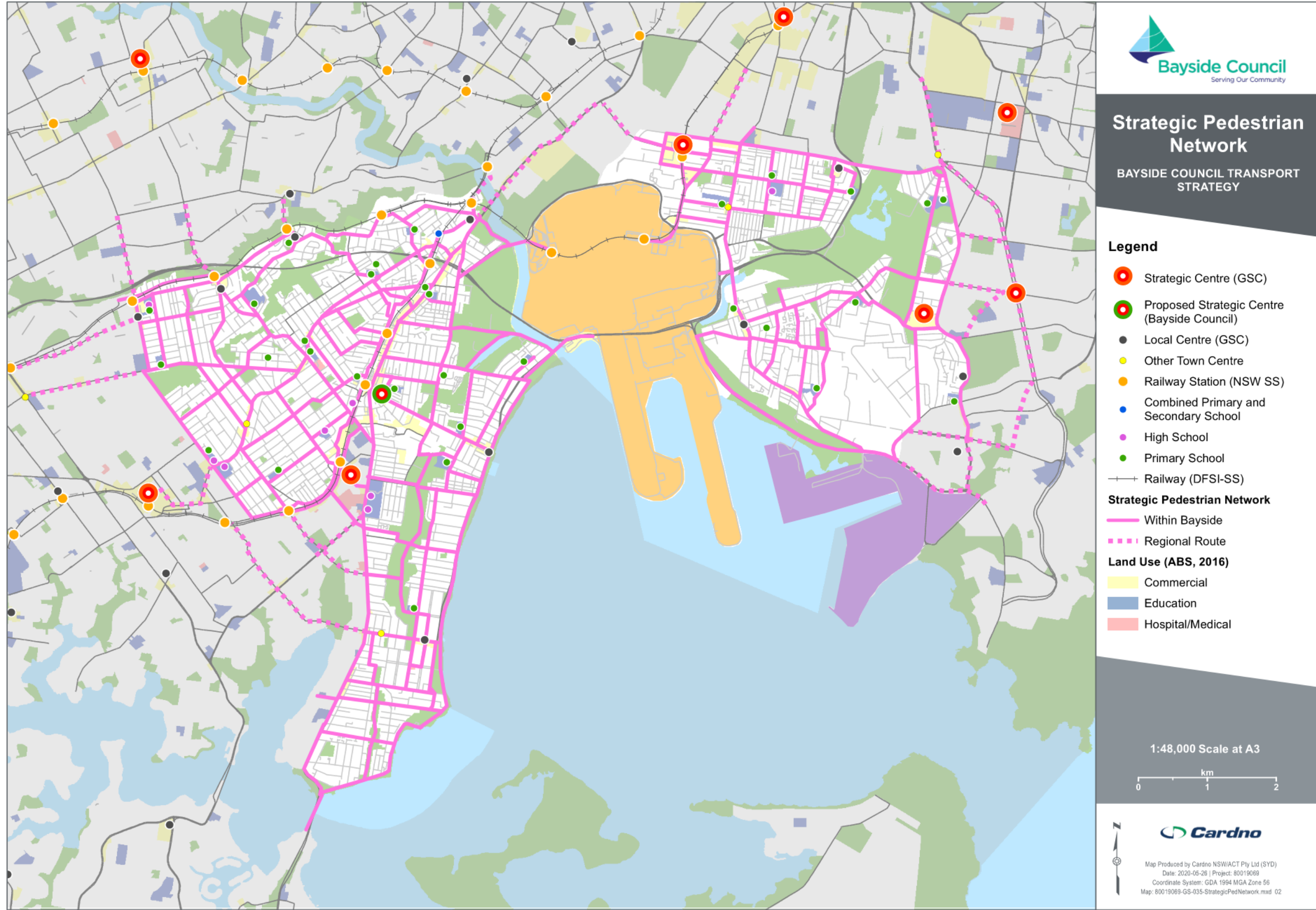
12.6.1.2   *Cycling and micro mobility*

Strategy

Cycling in Bayside is a popular choice for shorter trips as it is safe, convenient and quick. Riding a bike is not limited to those who are avid cyclists; people of all ages and abilities feel confident and safe enough to ride to work, retail or for recreation.

Routes connect to where people want to travel, whether it is to their job in a strategic centre, to the shops in a local centre, or to a train station where they can continue their journey. Quiet laneways and local streets are used by cyclists to avoid high traffic volumes on main roads, and allow cyclists to avoid busy local centres for longer, regional trips. Cycle routes connect to local parks, open green spaces and waterways that provide amenity, short cuts and scenic views. There is no discrepancy in quality or connectivity of infrastructure across the different suburbs of Bayside.

Cycling infrastructure reflects the type of road or path environment on which it is located. Higher speed environments like main roads have separated links that keep cyclists safe from fast moving vehicles. Mixed on-road routes with stencilled line markings are located in low-speed environments where vehicle and cyclist interaction is minimal. Shared path links provide off road space for both pedestrians and cyclists.

Bicycle parking in centres and at train stations allows residents to feel secure about leaving their bike unattended while they continue their day. Businesses and major employers are encouraged to prepare green travel plans and provide end of trip facilities for riders. Visiting riders can easily find their way within Bayside through integrated wayfinding signage that identifies the safest and quickest routes to key destinations and places of interest.

Bayside residents enjoy a range of health benefits by participating in cycling either as a mode of transport or as a recreational sport. The use of share bikes is popular and facilitated for short trips in Bayside.

The actions that will help to deliver the cycling strategy are set out in **Table 12-8**.

Table 12-8   Cycling strategy actions

#	Action
Bk1	Prepare a Bike Plan to identify a safe, connected network throughout the LGA integrating with neighbouring LGA's and regional links.
Bk2	Identify cycling corridors to connect local and strategic centres aligning with state government proposed regional bike network.
Bk3	Identify and promote cycling access routes to public recreation green space, particularly Botany Bay's foreshore and waterways.
Bk4	Host an annual meeting to plan and review regional bicycle network development with Inner West Council, Georges River Council, City of Sydney, Randwick and Sutherland Shire Council (e.g. Southwest Greenway and the Doncaster Avenue cycleway).
Bk5	Work with Transport for NSW to develop the Principle Bicycle Network and the Sydney Airport 'Orbital' in order to provide direct active transport connections to nearby local centres.
Bk6	Advocate/ identify opportunities for train station cycling interchange facilities, to integrate and interchange with the rail network. The facility should include a range of bicycle parking options. i.e. Bike Sheds.
Bk7	Continue development of the dedicated bicycle route along the rail corridor between Wolli Creek and Rockdale (T4 line), and between Wolli Creek and Tempe (T8 line).
Bk8	Continue to advocate for the provision of a cycleway adjacent to Botany freight rail line to connect Sydney Airport to Botany Bay.
Bk9	Develop an off-road bicycle link between Eastgardens and Port Botany with appropriate separation from dangerous vehicles and land uses.
MM1	Advocate for the state government to support the safe use of micro-mobility (e-scooter) technology on bicycle infrastructure to reduce transport energy consumption and space.

Strategic bicycle network

Bayside Council is constantly reviewing the bicycle network and working with Transport for NSW to identify and develop the states priority bicycle network for Sydney. Sydney's key regional network includes several regional links through the LGA linking to the local network.

A network has been developed considering feedback from the community and the general need to separate cycling from busy roads.

The bicycle network connects all centres and provides route options across the LGA. It includes the integration of the "Airport Orbital", a bicycle route around the east, north and west boundary.

A visionary concept of a southern Airport link is included which would improve east-west connections and form part of a Botany Bay recreational route.

Key features should include:

> Shared paths be between 2.5 and3.5 metres wide. Narrow points and lengths should be considered on a case by case basis. It is often not feasible to relocate utilities or favourable to cut down trees to achieve desired widths.

> Mixed cycle and vehicular traffic routes with vehicular speed limits of 30 kilometres per hour or less. This requires advocacy for the state government/ Transport for NSW to facilitate this.

> Delineated on-road cycle lanes to utlise areas of low parking demand to provide wide facilities where possible, and otherwise not located in parked vehicles door opening zone.

> On-road bicycle network clearly line-marked, legible and signposted to Austroads standards.

> A path and road surface that receives regular maintenance, including vegetation trimming, filling of potholesand removal of storm debris;

> Remediation of exiting hazards such as bollards, incorrect signage, uneven path surfaces or any other identified safety hazard.

> Have an equal or high priority at intersections;

> Separated facilities and lanterns at signalised intersections;

> Lit with energy efficient lighting; and

> Wayfinding signage at key decision points.

The strategic bicycle network is shown in **Figure 12-4** and an overlay of the strategic pedestrian and bicycle network shown in **Figure 12-5**. Where appropriate and possible, the networks follow each other, in some instances it is appropriate to separate the networks to serve different functions.

The Bayside Bike Plan was developed in parallel to the Bayside Transport Strategy by Cardno, and is guided by the Transport Strategy's vision and key directions. The Bike Plan sits under the Bayside Transport Strategy and provides more detail, analysis and recommendations in relation to cycling within the Bayside LGA. The Plan includes a high-level desktop audit of the existing and proposed cycling infrastructure in Bayside and provides a strategic cost estimate for implementation.

Figure 12-4   Strategic cycling network
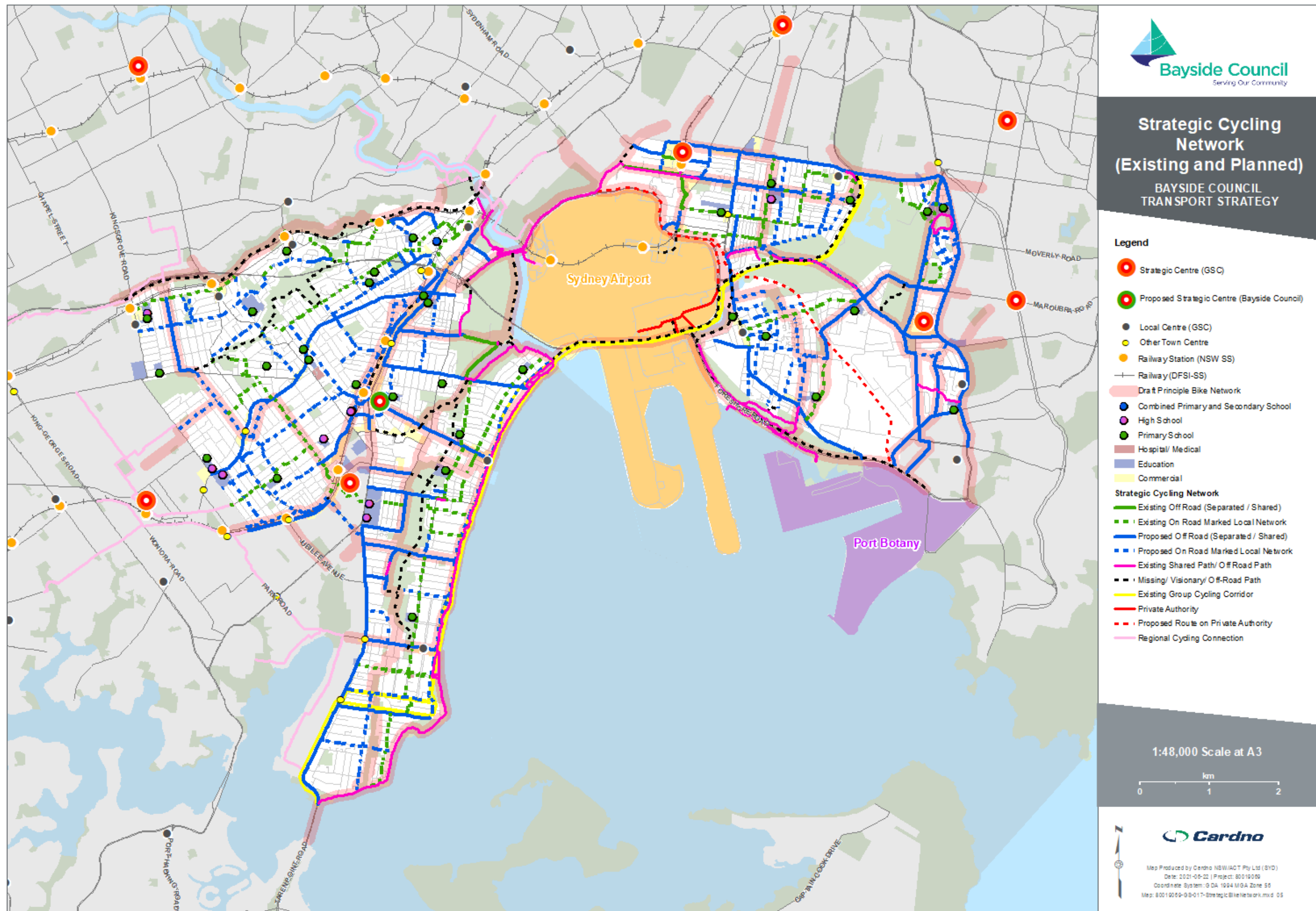
Figure 12-5   Strategic pedestrian and strategic bicycle network

Strategic Pedestrian and Cycling Networks

BAYSIDE COUNCIL TRANSPORT STRATEGY

Legend

- ⦿ Strategic Centre (GSC)
- ⦿ Proposed Strategic Centre (Bayside Council)
- ● Local Centre (GSC)
- ● Other Town Centre
- ● Railway Station (NSW SS)
- ● Combined Primary and Secondary School
- ● High School
- ● Primary School
- Railway (DFSI-SS)
- Strategic Pedestrian Network

Strategic Cycling Network

- Existing Off Road (Separated /
- Existing On Road Marked Local
- Proposed Off Road (Separated /
- Proposed On Road Marked Local Network
- Existing Shared Path/ Off Road Path
- Missing/ Visionary/ Off Road Path
- Existing Group Cycling Corridor
- Private
- Proposed Route on Private
- Regional Cycling Connections

1:48,000 Scale at A3

km
0   1   2

N

Cardno

Map Produced by Cardno NSW/ACT Pty Ltd (SYD)
Date: 2021-07-01 | Project: 80019069
Coordinate System: GDA 1994 MGA Zone 56
Map: 80019069-GS-066-StrategicPed+Cyc.mxd_02

12.6.2 Public transport

The public transport system is frequent and convenient for all Bayside residents, with direct routes and quick interchanges between services or modes. It supports the 30-minute city concept, for people to reach their nearest strategic centre within 30 minutes, but it also facilitates the range of short and long trips that people make to, from, and through the Bayside LGA. The public transport network supports travel between the east and the west, generally with a maximum of one transfer required.

In parts of the LGA not serviced by the train network, buses are reliable, frequent direct. Buses and bus stops consider customer comfort. Buses are prioritised where needed to reduce the impacts of traffic congestion on their travel times. From a customer's point of view, the public transport system is not limited by bus region contracts, but instead provides access to key destinations and integrated services when interchange is needed.

Some interchange between public transport services is needed, but this occurs smoothly and quickly, and passengers have the information and direction to reassure them of a reliable transfer. Where waiting occurs, people feel safe and comfortable due to good lighting, seating, street activity, and active and passive surveillance.

A suggested strategic bus network, highlighting key corridors is shown on **Figure 12-6**. The actions that will help to deliver the public transport strategy are set out in **Table 12-9.**

Table 12-9   Public transport actions

#	Action
PT1	Consider alignment of future mass transit services across the LGA planning for high density and diverse land uses in these areas.
PT2	Advocate for better public transport coverage and frequencies in areas that don't have 30 minute access to a strategic centre across the week.
PT3	Advocate for first and last mile on-demand transport services to connect to key transport interchanges.
PT4	Review community transport needs and advocate for on-demand service opportunities for lower demand areas away from high frequency public transport.
PT5	Investigate new connections from Randwick health precinct to Bayside, reducing the need to route via Sydney CBD.
PT6	Advocate for improved mass transit links to Eastgardens.

12.6.2.1   Bus

Community consultation activities indicated a general lack of satisfaction with the bus network. Common complaints include low frequency, poor integration with train timetables and lack of late-night services.

Service improvement

Travel demand for public transport is associated with a number of factors, including price, service levels, and travel times.

Higher frequency, reliable, direct services generally have an effect of increasing patronage where there is potential demand as the catchment of bus stop is increased due to the attractiveness and trust of the service.

The key trade-offs for faster travel times and higher frequencies are generally longer walking distances to stops, and the potential requirement for interchange.

Interstate and New Zealand bus networks

In the Australian context, other authorities have revised their bus networks to provide benefits to more people. The SMART bus network provides more direct services through Melbourne suburbs. The routes are simple to understand and many services are orbital to Melbourne and generally perpendicular to the suburban rail network, interchanging with key stations.

Canberra is designing and implementing a new bus network, including a rapid network. The ACT Government identified that the three top priorities of users are:

> More direct routes;

> More frequent and reliable services; and

> Increased services for on and off-peak times.

Auckland Transport is implementing a new bus network to better accommodate population growth and changes to other public transport modes. The previous network was described as having many different routes that join many destinations, but at a low frequency. The new network reduces route crossover and connects to key interchange points at a higher frequency. It means that people can get to more places with a transfer, reduced wait time and an overall shorter trip time. The new network and schedule use the same amount of buses and drivers and is considered a more beneficial way to use these resources.

Sydney context

In recent years, Transport for NSW has implemented a number of new and more direct and frequent bus routes: (note: these routes do not include the bus network changes made by TfNSW in 2021)

B-Line This service for the Northern Beaches begins and ends at Wynyard and Mona Vale. The project included building new bus stops with real time displays, road infrastructure upgrades, a new fleet of yellow double deck buses capable of accommodating 100 people and providing high service frequency and daily operational service spans from early morning to late night. It is understood the service is highly patronised and it offers some time savings along the route due to priority measures and limited stops.

333 North Bondi to City: These are generally articulated buses, light blue in colour, that provide a high frequency link. They link Oxford Street to Sydney CBD and Bondi Junction, and fill the gap from heavy rail between Bondi Junction and Bondi Beach for many visitors.

420 Burwood to Eastgardens: The 420 and the 400 are the only high frequency services in Bayside that operate throughout the day. The 420, which has limited stops. It is understood to be a well patronised service linking key places along its route including: Campsie Station, Bexley North Station, Rockdale Station, Banksia Station, International and Domestic Airport and Mascot Station.

Strategic routes

It is evident that where dense population and employment catchments exist, more frequent and direct bus services with less stops will generally have a higher attraction to people. These services reflect desired elements of the rail network; encouraging patronage through a more attractive service and reliability.

The Bayside strategic bus network has been designed with the following rationale:

> Addressing community concerns and complaints about the existing network;

> Consideration of Future Transport 2056;

> More legible and direct routes.

> Improving the high frequency catchment, particularly away from rail corridors

> Providing cross links (particularly east -west) to centres, railways stations and destinations between to complement and feed into and out of the heavy rail network to reduce commuter car parking demand.

> Minimising duplication of routes along the same corridor. The Airport has limited through routes and there may be more sharing in this location.

The strategic bus routes require consideration and integration with the broader Sydney bus network. They are presented for consideration in **Figure 12-6** and discussed as follows.

It is not intended to have ten different strategic routes, but for links to be combined to form a lesser number of routes i.e. Hurstville to Bondi Junction could form one route using the Hurstville to Brighton-Le-Sands, Airport South Link, part of Botany to Kingsford and Bondi Junction to Eastgardens routes.

Key links proposed in the strategic bus network include:

Airport South link: A section common to all connecting east side and west side routes, route pairing to be determined. It may be appropriate to only have one route travelling on this section.

Bondi Junction to Eastgardens: This could be paired with the Botany to Kingsford and Airport South Link to a selected west side route. This is intended to be more direct than the existing 400 Bondi Junction to Sydney Airport route.

Botany to Kingsford: This would provide a link to the light rail via Eastgardens.

Dulwich Hill to Brighton-Le-Sands: This route could extend further into the Inner West to Petersham, Ashfield, Abbotsford It links Dulwich Hill Station and light rail stop, Bardwell Park Station, Bexley North Station, Bexley, Rockdale Station to Brighton-Le-Sands and to an east side route.

Hurstville to Brighton-Le-Sands: This route gives Ramsgate and Ramsgate Beach an alternative link to the heavy rail network and would connect to an east side route via the Airport South Link.

Miranda to Kogarah: This follow a visionary concept of Future Transport 2056 providing a direct connection between two health centres. This could be extended to link to an east side route via President Avenue or form a single route with the Strathfield to Kogarah link.

Rockdale to West link: This route would traverse via Stoney Creek Road into Georges River Council.

Strathfield to Kogarah: This would link Bexley, Kingsgrove Station, Belmore Station and Strathfield. This would aim to provide a time competitive link between Strathfield and Kogarah in comparison to a train trip interchanging at Redfern. It would also expand the catchment of the stations it stops at. An alternative to this could be Strathfield to Miranda via Kogarah serving as an interim cross city route.

Sydenham to Coogee: A link intended to connect to Mascot Station, Eastlakes, Kingsford light rail and Randwick hospital.

Table 12-10   Bus strategy actions

#	Action
Bus1	Advocate and provide input for the NSW Governments proposed strategic bus network including dedicated bus lanes for improved reliability.
Bus2	Maintain engagement with Transport for NSW on their planned changes to bus routes and services.
Bus3	Advocate for bus performance studies on key routes to identify priority measures in areas of congestion.
Bus4	Advocate for high frequency and direct bus service connecting centres in the eastern and western sides of the LGA e.g. Rockdale to Mascot / Botany.
Bus5	Advocate a business case and trials for direct and frequent bus connections between from train stations to centres away from the railway network. I.e. Rockdale to Brighton-Le-Sands, San Souci to Kogarah and Ramsgate Beach to Allawah/ Hurstville.
Bus6	Advocate for greater span of bus services on Sundays and late at night.
Bus7	Advocate for increased public transport capacity on routes and in periods of high demand, e.g. Bunnerong Road and Botany Road.
Bus8	Support any trials of electric buses/ trackless tram in the LGA.
Bus9	Advocate for trials of on-demand buses in low demand areas to improve public transport accessibility.
BuSt1	Undertake a DDA compliance audit of all bus stops, and prioritise upgrades based on patronage, community consultation and access to nearby destinations.
BuSt2	Investigate funding opportunities (Transport for NSW and third party providers) for new DDA compliant bus shelters, including tendering to outdoor advertising companies while retaining functionality for buses, safety, and customer experience.
BuSt3	Advocate for real time information displays at key bus stops.
BuSt4	Occupation certificates should require reinstatement of bus stops and other infrastructure that is temporarily moved during construction activities.
BuSt5	Advocate for bus stop capacity upgrade at Eastgardens interchange.

Figure 12-6   Strategic bus network concept
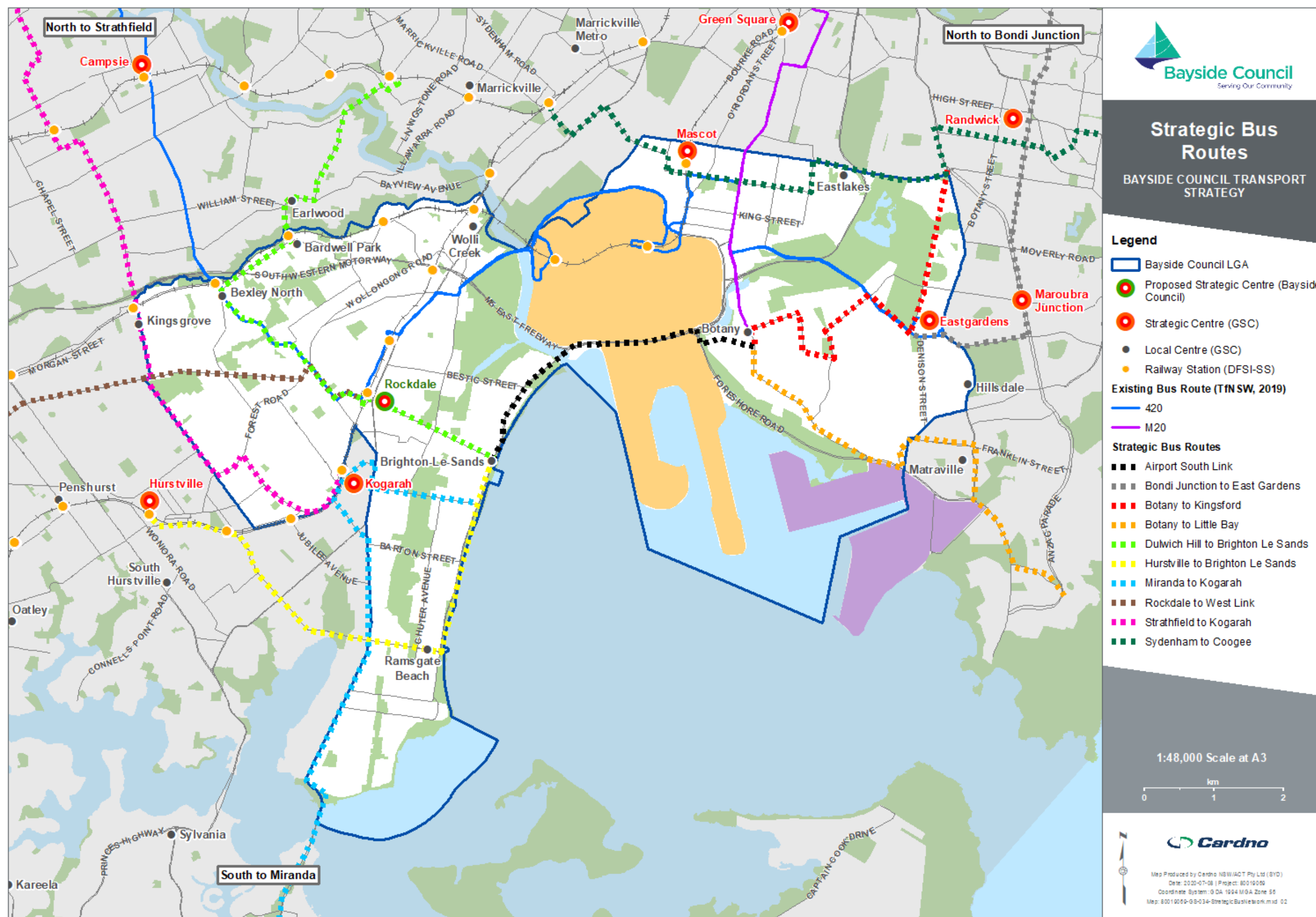
12.6.2.2 Train

The state government is responsible for planning, operating and maintaining the train network. The train network provides the highest capacity transport network in Bayside. Already planned state government initiatives will improve services in Bayside. Bayside Council should work with Transport for NSW to ensure improvements are planned to minimise disruption to the community, improve accessibility and sustainability. Train actions are in **Table 12-11**.

Table 12-11   Train strategy actions

#	Action
Train1	Advocate for accessibility upgrades at Banksia, Bardwell Park, Bexley North, and Turrella train stations.
Train2	Support Transport for NSW's efforts to implement More Trains, More Services.
Train3	Advocate for reduction/ removal of Sydney Airport station access fees.

12.6.3   Road network

Streets support a range of functions. They are public places for people to meet, shop, wait, spend time outdoors, and connect, and they also support movement, access to buildings and spaces, parking and provide space for utilities, drainage, signage and street lighting.

Movement and Place functions do not exist in isolation of each other. Movement is a key enabler of places and contributes to their success. Places need access, for example to connect people to economic, social and recreational activities. Places are also travelled through by movement.

The NSW Government has developed the Movement and Place framework, shown in **Figure 3-2** and categorise streets into five broad categories:

> Motorways;

> Vibrant streets;

> Local streets.

> Movement corridors;

> Places for people; and

Transport for NSW and the Government Architect's Office have developed a new road network planning framework for better consideration of, and support for,Place when developing transport systems. Aligning Movement and Place provides an outline of the framework, that will bring together Better Placed (Government Architect's Office), and the Draft Road Network Planning Framework, and include support from an Advisory Board, a Practitioner's Guide and a number of tools.

Other key roads throughout the LGA could be assessed for their movement and place categories under the new Movement and Place Framework.

Table 12-12   Road network strategy actions

#	Action
Rd1	Apply new Movement and Place Framework for planning road corridor use in Bayside.
Rd2	Leverage opportunities identified in the NSW Government's Road Network Plans to achieve the future movement and place categories.
Rd3	Work with TFNSW to develop a plan to manage local traffic and limiting unnecessary through traffic arising from major road projects.
Rd4	Investigate the feasibility and funding opportunities for an LGA-wide traffic model to cumulatively assess the impacts of developments and population growth.
Rd5	Support opportunities to trial technology that meets transport objectives in the LGA i.e. autonomous vehicles.

12.6.3.2 Road safety

The number of crashes in the Bayside LGA needs to reduce, in particular crashes that result in a fatality or serious injury. As projects including WestConnex, Sydney Gateway and M6 Extension open, they will provide an attractive alternative route for fast moving through traffic, and heavy vehicles, with the potential to reduce the proportion of through movements on Bayside's local roads.

Through road design and operations, drivers perceive safety cues, and slow down appropriately in streets where there are likely to be more pedestrians and cyclists, and vehicles parking, and entering and exiting land uses. Lowering speeds through activity-filled centres doesn't add much to overall journey time, but it

makes a big difference in consequence if a pedestrian is hit by a vehicle. As an example, reducing the speed limit on Princes Highway through Rockdale for 700 metres would result in an additional travel time of 42 seconds, assuming a vehicle could pass through at 60 kilometres per hour. The difference is likely to be lower than this with consideration of signalised intersections and speed reductions due to surrounding traffic and parking movements.

Good street lighting and active facades along key routes make walking to and from centres and public transport nodes feel safe.

Key freight movements avoid passing through residential areas or local centres with movements encouraged along arterials and motorways.

With the significant site developments and transport projects planned for the LGA, construction traffic management needs to be planned carefully to focus on safety, retaining connectivity for all transport modes, minimal additional travel distances, and providing clear and intuitive wayfinding for alternative routes.

The actions that will help to deliver the road network strategy are set out in **Table 12-13**.

Table 12-13   Road safety strategy actions

#	Action
Safe1	Undertake road safety audits for crash cluster locations on local roads. Advocate for TfNSW to undertake audits for state roads.
Safe2	Review speed limits in centres with a view to reducing to 30 kilometres per hour where feasible, 40 kilometres per hour on state roads. This requires advocacy by Council and support from Transport for NSW.
Safe3	Reduce speed limits in local streets to 30 kilometres per hour. This requires advocacy by Council and support from Transport for NSW.
Safe4	Ensure provisions for pedestrians and bicycles are provided as part of construction activities impacting the transport network in addition to the requirements of Transport for NSW Traffic control at work sites Technical Manual.
Safe5	Review Taxi ranks near bus stops and identify which should be relocated/removed to improve safety and avoid conflict.

12.6.3.3   Freight

Bayside's industrial lands and freight operations are supported by the transport network. With the upgrades to the motorway network, freight can move efficiently to and from the Port Botany, Sydney Airport, the Botany Industrial lands and the Cooks River Intermodal Terminal, with minimal reliance on the local road network. Areas of residential growth are planned away from industrial land uses and heavy vehicle movements, to reduce impacts on new resident's quality of life.

The freight line duplication means rail can support a larger share of the freight task efficiently, slowing the growth of heavy vehicle volumes on Bayside's roads. On key routes and intersections, freight might need priority for safety and efficiency, with light vehicles encouraged to use alternative routes.

The actions that will help to deliver the freight strategy are set out in **Table 12-14**.

Table 12-14   Freight strategy actions

#	Action
Fr1	Lobby Transport for NSW to monitor and enforce heavy vehicle ban on Botany Road. I.e. vehicle recognition technology.
Fr2	Advocate for dedicated road freight access from Cooks River Intermodal Terminal as part of WestConnex.

12.6.3.4   Services and delivery

Services and delivery in Bayside are efficient, safe, and use the right-sized vehicles. A number of opportunities are realised to support agile couriers, these include courier centres, support for bicycle couriers, and providing loading zones in key locations to prioritise these short term delivery parking needs.

A review of service vehicle needs across the LGA should consider vehicle size, on-site versus off-site servicing opportunities, and on-street parking changes on servicing days.

The actions that will help to deliver the services and delivery strategy are set out in **Table 12-15**.

Table 12-15   Services and delivery actions

#	Action
SD1	Identify locations for short-term parking / loading zones in areas of high residential density, to cater for increase in deliveries and ride sharing vehicles.
SD2	Review servicing requirements for proposed small developments, to minimise their impact on roads and footpaths.
SD3	Support initiatives and technology advances that achieve objectives for first and last mile deliveries in strategic and local centres.

12.6.4   Parking

On- street parking hierarchy

Consideration is required regarding the prioritisation of investment for transport options and the beneficiaries. The general kerb side prioritisation outlined in **Table 12-16** considers environmental, economic and social benefits in descending order:

Table 12-16   General kerbside priority

Priority	Kerb side space allocation	Rationale
1	Public transport stops	Potential to serve large numbers of people and support sustainable transport.
2	Service vehicles zones: ▪ Loading and delivery zones ▪ Trades and services. ▪ Mail zones ▪ Truck zones	Supporting economic efficiency and productiveness of Bayside. Space needs to be provided in high density areas to safely support resident moving activity and deliveries.
3	Taxi/ rideshare/ short term/ no parking	Supporting safe pick up and drop off movement. Potential to serve more people than standard parking. These should be placed adjacent to no stopping zones, bus zones to facilitate easier access. Care is required to ensure movements do not utilise bus zones.
4	Car share	Support of shared resources.
5	Motorbike	Support of more space efficient transport.
6	Accessible vehicle parking	Social equity and parking for those that need it most.
7	Private vehicle – restricted.	Prioritise kerbside space for people visiting the area, supporting economic and social activity. Prioritise on-street parking for residents that have no provisions on-site.
8	Private vehicle – unrestricted.	Generally, the least efficient but most popular use of space.

The parking hierarchy assumes bicycle parking is provided beside the carriageway, above the kerb in convenient and conspicuous locations. There may be opportunities in the future to reallocate car parking to bicycle parking, subject to appropriate controls.

No parking or 5-minute zones near intersections adjacent to no-standing zones make these spaces quicker to access for quick deliveries and pick-up movements reducing illegal parking activity.

Consideration should be given to providing no-parking restrictions/ parking for motorised vehicles/ a limit of days vehicles can be parking for in currently unrestricted locations. This will avoid long term parking problems occur due to airport users or people using street space as personal storage areas for vehicles/ trailers/ boats. Parking restrictions should be put in place to assist with waste collection periods, where difficulties have been identified.

Parking demand and management

More car parking is desired by many people in the community because it is tied with private vehicle travel, which is a very convenient mode of transport. This is in conflict with a desired to trend away from private vehicle as a primary mode choice due to space, environmental and infrastructure costs. In a dense urban context, car parking has a number of trade-offs:

> The space required and the effect of separating land uses reducing walkability;

> The cost to construct and maintain;

> The cost of compliance review against restrictions;

> The contribution to traffic generation and congestion

Car parking is an expensive resource to provide in the Sydney context. It is understood that each space in a multi-storey structure costs approximately $50,000 with a recent government commitment of 800 spaces in Emu Plains costing $71 million equating to $88,750 per space[11]. Similar costs apply to private developments, with the cost of car parking being funding by residents or businesses.

While generally maintaining existing parking quantum, Council should seek to limit any additional provision of car parking in high trip generation locations and support travel through investment in other active transport networks, lobbying state government for public transport improvements, particularly to key transport hubs, management of existing provisions to discourage long stay users in strategic centres.

The demand for parking is related to the type, location, and density of development, as follows:

> **Employee parking**: demand is related to the provision of alternative transport modes.

Employee behaviour is often very elastic: constraining parking can have a big impact on private vehicle mode shares.

> **Residential parking:** demand is equivalent to vehicle ownership and related to the provision of alternative transport modes, and to the density and quality of retail, employment, and entertainment destinations within walking distance.

Due to self-selection, reducing on-site parking rates has a direct impact on residential vehicle ownership and private vehicle trip generation, when supported by on-street parking restrictions.

> **Restaurant/ Entertainment Visitor parking**: demand is related to the density and mix of development, and particularly the proximity of residents and employment, not so much on transport provision.

Parking pricing can impact the location and distribution of demand, but mode shift due to parking constraint is likely to be modest.

Also required is an understanding of the land use and transport environment, which is summarised as follows:

> **Activity Corridors** areas benefit from dense land uses and integration with the surrounding residential community to reduce parking requirements for retail and entertainment uses.

> **Transit Corridors** benefit from high-frequency public transport to reduce the need for residents and employees to drive to work.

> **Activity Centres** usually combine the benefits of both of these types of locations to significantly reduce the need for private vehicles, as well as creating excellent opportunities for shared parking facilities.

Outside of these areas, alternatives to private vehicle modes are less viable, and destinations are much more likely to rely on private vehicles and parking to support access. These needs should also be understood, and incorporated into zoning regulations and statutory parking requirements.

Bayside Council's control over the supply of parking (through statutory policy and public parking) can be used to constrain certain types of parking to influence travel behaviour.

There is a strong relationship between parking supply and vehicle trip generation, and there is an opportunity to affect the traffic impact by the Centre through restraining parking supply.

By selecting the parameters for parking provision and allocation, Council can maintain a sustainable road network. These parameters amount to a cap on parking supply within a Centre, based on the individual characteristics of land use.

Figure 12-7 gives an example of trip generation during each of the critical peak periods: Weekday AM Peak, Weekday PM Peak and the Saturday Peak.

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[11] *https://www.bluemountainsgazette.com.au/story/5918099/800-more-parking-options-at-emu-plains/*

Figure 12-7   Example Trip Generation for Weekday AM Peak, Weekday PM Peak, and Saturday Peak
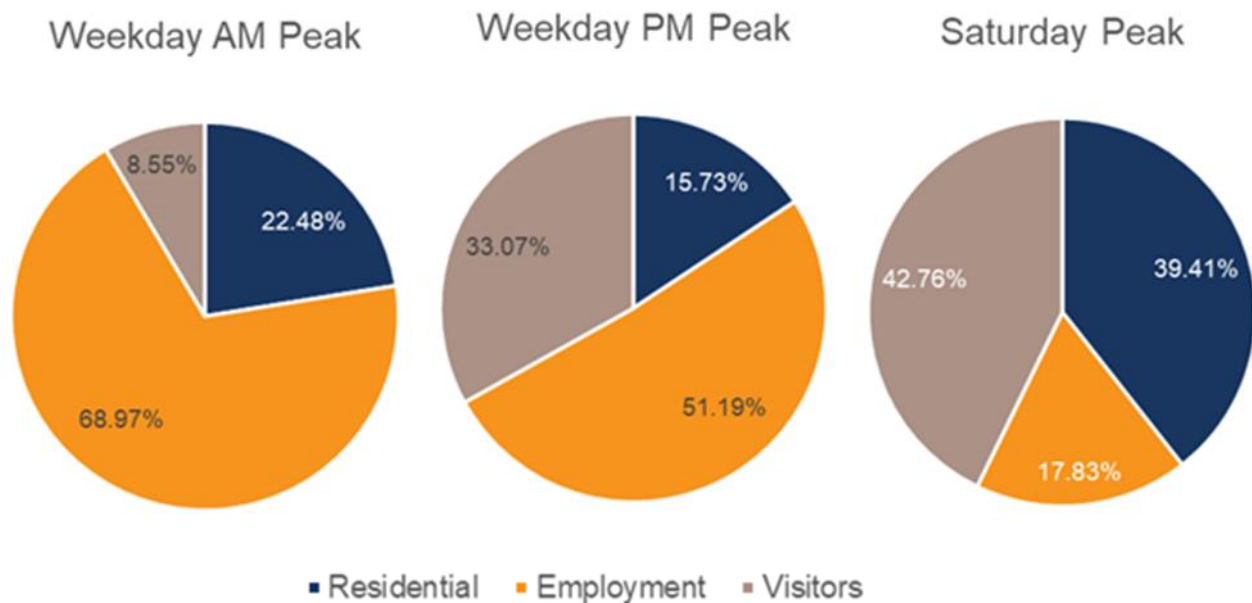
Data source: Cardno, previous study in another location.

Figure 12-7 reflects a general understanding of peak period trip generation:

> The **AM peak** is dominated by journeys to work, both to the Centre [Employment], and as a sizeable proportion of [Residential] trips.

> The **PM peak** includes a large proportion of trips still made as [Employment] trips from the Centre, but a much higher proportion of retail, entertainment and restaurant [Visitor] trips to the area.

> The **Saturday peak** is more diverse, characterised by visitation trips to the Centre, and a myriad of residential trips from the Centre, to destinations across the greater Metro area.

Due to the complexity of these systems, there is no one correct solution for parking supply – decisions must be made in the context of the density and mix of development, and the opportunities for alternative travel modes.

If parking is to be used as a lever for travel behaviour, it must be managed consistently across both the public and private supply. Limiting on-site parking while allowing free, unrestrained on-street parking will only shift the problem into the public realm. As such, a transitional arrangement is necessary:

1.   Manage all public parking using timing/ duration restrictions.

2.   Institute paid parking using a 'demand responsive pricing' model.

Pricing parking

Parking prices can be a very effective tool for traffic demand management, with the parking fee structure set to preferentially benefit certain target groups, based on the ideal function for a particular car parking location.

Parking pricing levels should ideally be set such that demand peaks at approximately 85-90% occupancy. Best-practice implementation involves 'demand-responsive' pricing, which increases or reduces fees based on occupancy. This can involve different fees at different times of day, or different days of the week, and include a mechanism to modify prices on a periodical basis to maximise the utility of the parking.

Based on this methodology, it is understood that the 'correct' price for parking in a location may be zero, if supply exceeds peak-period demand.

Demand responsive pricing relies on a high degree of good quality occupancy and duration of stay data.

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3.   Establish a parking cap for each area/Centre based on a detailed analysis of road network capacity and parking demand (considering land use density/mix).

4.   Introduce a residential permit system with price set at a fraction of the opportunity cost (see previous), but at least equivalent to the administration requirements.

5.   Increase permit cost on a set schedule over time until the fee matches the opportunity cost of parking provision.

6.   Continue to monitor and adjust public parking management and fee basis using the 'demand responsive pricing' model.

If a flat supply rate is to be used in Bayside, experience suggests that a rate of approximately 1 space per 40sq.m reflects the average parking demand for a Centre. The inefficiencies in allocation of private parking means that additional policies should be put in place to allow for sharing of facilities, or private funding of publicly accessible parking (via cash-in-lieu, reciprocal parking agreement etc.)

Residential parking planning controls

Bayside Council are reviewing and revising parking controls outlined in the former Rockdale and Botany Bay Council DCP's Councils' DCPs as part of a process to develop the Bayside DCP.

General recommendations provided follow a range of rationale including:

> Consideration of locality and other transport options, with rates across the LGA to be commensurate with the variability of public transport.

> An awareness of current trends in the reduction of car ownership rates and availability of ride and car share options and future transport initiatives for Bayside LGA and their potential to render basement car parking areas redundant.

> Provision of electric vehicle capable parking spaces where base infrastructure such as conduit are provided and remaining charging infrastructure can be more easily implemented later.

> Providing 150% of anticipated bicycle parking spaces to facilitate growth in mode share.

> Providing motorcycle parking bays in accordance with demand and leveraging the relative space efficiency of this mode.

> Balancing the requirements of car parking and loading facilities with the requirements of developments to maintain the attractiveness of development in Bayside without causing a noticeable disposition to the surrounds.

> Consideration of innovative parking provision models including:

– Unbundled parking; on-site car parking is leased or sold separately;

Unbundled Parking

The cost of parking for residential and commercial units is usually passed on to the occupants indirectly through the rent or purchase price (bundled) rather than through a separate transaction.

This means that tenants or owners are not able to purchase additional parking if required or given the opportunity to save money by reducing their parking demand.

The unbundling of parking can be introduced in several different ways:

> Facility managers can unbundle parking when renting building space;

> Developers can make some or all parking optional when selling buildings;

> Renters can be offered a discount on their rent for not using some or all of their allocated parking spaces; and

> Parking costs can be listed as a separate line item in the lease agreement to show tenants the cost and enable them to negotiate reductions.

However, since the demand for parking is likely unknown at the time of approval, and may change following construction, the unbundling of parking represents a risk to developers and building owners.

This then reduces the uptake of unbundled parking when integrated into the building envelope.

– Decouple parking; providing car parking off-site in nearby areas, often shared with others through management schemes;

Decouple parking

The parking provision can be used by multiple developments, with ownership of individual bays changing over time to reflect the need at any point. The benefit of this type of system is that it provides economic resilience to the community – if demand for parking drops, then increased development density can be permitted using the same

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parking resource. However, this requires policy provisions which allow for off-site parking, including the construction of multi-deck car parking in residential zones; something that few if any planning frameworks allow for. As such, this is likely viable only in mixed-use Activity Centre areas where decked car parking can be incorporated into proximal commercial development.

- Financial contributions to public parking or transit in-lieu of on-site parking provisions;
- Reduction of supply in-lieu of car share spaces; and
- Linking green travel plans with parking supply

Residential parking rate maximums are an appropriate response to place downward pressure on car ownership and higher uptake of sustainable transport modes. These are best suited to locations with high quality and frequent public transport services that provide a diverse range of easily accessible trip destinations.

These must be supported by on-street parking management. Restrictions must be in place to prevent people from moving to a location with no car parking and relying on street parking.

Permit parking considerations

Residents parking their vehicles on-street do so either because the number of vehicles owned is greater than on-site car parking, or that parking has been appropriated for other uses (a home gym, extra bedroom/workroom, additional storage etc.)

An annual parking permit fee functions as a price signal to residents. It allows vehicle owners to adequately account for the cost of parking infrastructure and consider storage as part of the real cost of ownership.

Where residents have insufficient parking, this permit scheme allows Council to accept the burden of car storage, but provides funds for the maintenance of that infrastructure at an equivalent market rate.

Alternatively, residents may choose to retain their vehicles wholly on-site, or divest surplus vehicles and rely on car share operators for occasional vehicle use.

This permit system can be used at Council's discretion to extend to storage of non-car vehicles (caravans, boats, trailers etc.). This form of management has several benefits:

> It allows the underlying parking restrictions to support the desirable use of on-street parking;

> The pricing regime can be introduced progressively over time; and

> It retains equity for all residents, existing and future.

Permit parking economics

Recent investigations into the cost of on-site parking provides some indication of the scale of this benefit to residents, which is in the order of $2,000 per annum. This figure is internationally consistent across the areas where studies have been completed, which includes cities across the Netherlands, San Francisco in California, and Darebin in Victoria.

Based on the estimate 2016 Census car ownership overspill, Council is subsidising on-street parking in the order of $10 million per annum.

It is expected that any form of on-street parking permit model would involve a relatively low introductory price, with gradual increases over time to manage uptake and on-street usage.

Table 12-17   Car parking strategy actions

#	Action
CP1	Revise DCP car parking rates to be reflective of sustainability targets and demand based on overall transport connectivity. This should be supported by detailed analytics.
CP2	Review taxi ranks near bus stops and identify which should be removed to improve safety and avoid conflict.
CP3	Existing car parking in centres is managed to accommodate future increased demands through prioritisation of space through the parking hierarchy.
CP4	Council to consider council-owned/managed off-street car parks to provide public EV charging infrastructure.
CP5	Introduce an integrated residential permit scheme and price permits at a rate consistent with the opportunity cost of parking infrastructure, with a transition period to support behaviour change by residents.

13 Implementation

The actions have been considered in terms of timing, Councils key role, impact to Council, partners and responsibilities for planning/ investigation, construction/ implementation, maintenance/ ongoing review and funding for each of these stages.

Table 13-1   Action implementation plan

Action code	Initiative/ Action	Description	When	Council action required	Estimated cost to Council	Planning/ investigation responsibility	Planning funding	Construction/ implementation responsibility	Construction/ implementation funding	Maintenance/ ongoing review responsibility	Maintenance funding
Land use integration and funding											
LU1	Through-site links.	Plans for redeveloped large sites should have through links, publicly accessible at all times provided for more direct walking and cycling travel.	Ongoing/ policy	Review	Time	Developers	Developers	Developers	Developers	Developers	Developers
LU2	Funding opportunities.	Review transport infrastructure funding opportunities for non-residential development.	Ongoing/ policy	Review	Time	Council	N/A	N/A	N/A	N/A	N/A
LU3	Section 7.11 Plan.	Develop contribution plan work items to address transport infrastructure resulting from growth in industrial employment land	by 2022	Planning	Time	Council	N/A	N/A	N/A	N/A	N/A
LU4	Princes Highway and Grand Parade reduced speed limits.	Engage with NSW Government in a working group to develop a 'Place' strategy for the revitalisation of Princes Highway and The Grand Parade after the M6 Stage 1 Extension opens	2023	Advocate	Time	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
LU5	Land zoning/ development.	Prioritise new residential and commercial development away from existing and any proposed freight corridors and industrial land uses, protecting existing freight corridors.	Ongoing/ policy	Planning	Time	Council	N/A	N/A	N/A	N/A	N/A
LU6	GIS project mapping.	Develop an internal map based portal for all Council staff to provide oversight of integrate planning and capital works, infrastructure and asset management systems so that all staff can identify all existing, imminent and strategically planned works.	2022	Develop	$30,000	N/A	N/A	Council	Council	Council	Council
Travel demand management											
TDM1	Council workplace Travel Plan.	Develop a Travel Plan for all Council employment sites, to identify and communicate sustainable travel choices for staff.	by 2022	Develop	Time	Council	Council	Council	Council	Council	Council

Action code	Initiative/ Action	Description	When	Council action required	Estimated cost to Council	Planning/ investigation responsibility	Planning funding	Construction/ implementation responsibility	Construction/ implementation funding	Maintenance/ ongoing review responsibility	Maintenance funding
TDM2	Major landholder Travel Plan.	Encourage development of Travel Plans for major employers in the LGA such as Sydney Airport, hospitals, education campuses etc., to identify and communicate sustainable travel choices for staff.	Ongoing/ policy	Review	Time	Developers	Developers	Developers	Developers	Council	N/A
TDM3	Car share policy.	Develop a Car Share Policy.	by 2022	Develop	Time	Council	N/A	N/A	N/A	Council	N/A
TDM4	EV charging policy	Develop a EV Charging Policy.	By 2022	Develop	Time	Council	N/A	N/A	N/A	Council	N/A
Active transport											
AT1	Bridge from Wolli Creek station precinct to Inner West and Canterbury Bankstown Councils.	Plan for an active transport bridge linking Wolli Creek train station more directly to the Inner West Counciland Canterbury Bankstown LGAs.	Ongoing	Planning	Subject to funding arrangement	Councils and TfNSW	Councils and TfNSW	Councils and TfNSW	Councils and TfNSW	Councils	Councils
AT2	Trees.	Review street trees and canopy prioritising the strategic pedestrian and cycling networks to reduce urban heat island effect.	2022	Planning	To be determined/grant funding	Council	Council	Council	Council	Council	Council
AT3	Active transport links.	Endorse the strategic pedestrian and cycling network to connect centres, schools, open space and to integrate with the Green Grid Corridors and neighbouring LGAs.	Ongoing	Planning	To be determined	Council	Council	Council	Council TfNSW	Council	Council
AT4	Green Grid.	Develop masterplans for the Millstream and Botany Wetlands Corridor, Rockdale Wetlands Corridor and Wolli Creek Regional Park and Bardwell Valley Open Space Corridors to support walking and cycling and to connect communities to green infrastructure.	Ongoing	Planning	To be determined	Council DPIE	DPIE Council	Council & key landholders	Council & key landholders	Council & key landholders	Council & key landholders
AT5	M6 corridor active transport link.	Collaborate with NSW Government on developing a green active transport link along the M6 corridor, reflecting the Green Grid aims, and providing connections to centres and other destinations surrounding the route.	Ongoing as project progresses	Planning	To be determined	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
Pedestrian											

Action code	Initiative/ Action	Description	When	Council action required	Estimated cost to Council	Planning/ investigation responsibility	Planning funding	Construction/ implementation responsibility	Construction/ implementation funding	Maintenance/ ongoing review responsibility	Maintenance funding
Ped1	Footpath standards.	Identify consistent footpath standards for the LGA, specifically adopting wider footpaths along higher demand areas/ routes (i.e. strategic footpath network) to support DDA accessibility and cycling for more user groups, i.e. children.	by 2022	Develop	Time	Council	N/A	N/A	N/A	N/A	N/A
Ped2	Strategic pedestrian network.	Investigate the feasibility and implement the strategic pedestrian network, a larger block/ mesh network that covers the entire LGA.	Investigation by 2022	Planning	$20,000	Council	Council	Council	Council Developers	Council	Council
Ped3	Path upgrades.	Prioritise footpath/ shared path upgrades in the 800 metre catchment of schools.	Ongoing/ policy	Planning	To be determined	Council SINSW	Council SINSW	Council	Council SINSW	Council	Council
Ped4	Path upgrades at bus stops.	Investigate footpath upgrades connecting to bus stops and program priority works.	Ongoing	Planning	To be determined	Council	Council	Council	Council	Council	Council
Ped5	Pedestrian zones (Shared, HPAA, slow traffic roads).	Identify locations and investigate for potential pedestrian priority treatments (High Pedestrian Activity Areas, Shared Zones, 40 kilometre or lower speed limit zones). Investigate the feasibility of trials with temporary changes if funding opportunities arise. Consult with community stakeholders on locations and benefits.	Ongoing/ policy	Planning	To be determined	Council TfNSW	Council TfNSW	Council TfNSW	Council TfNSW	Council TfNSW	Council TfNSW
Ped6	10 minute retail walkability.	Provide wide pathsas part of 10 minute walkable retail catchments	Ongoing/ policy	Planning	Time	Council	N/A	N/A	N/A	N/A	N/A
Ped7	Pedestrian waiting space at intersections.	Identify opportunities for redevelopment sites to provide through site links and adequate pedestrian space on footpaths and for waiting at intersections. These benefits should be available at all times and part of occupation certification.	Ongoing as development occurs	Planning	Time	Council Developers	Council Developers	Council Developers	Council Developers	Council Developers	Council Developers
Ped8	Pedestrian / traffic separation	Provide separation/ space between footpaths and vehicle travel lanes along freight routes using on-street parking or landscaping and/ or investigate opportunities for speed limit reductions.	Ongoing/ policy	Planning/advocate	To be determined	Council TfNSW	Council TfNSW	Council TfNSW	Council TfNSW	Council TfNSW	Council TfNSW
Ped9	Missing pedestrian crossings at signalised intersections.	Identify intersections where additional pedestrian crossing legs could be provided subject to the location having a pedestrian desireline. Advocate TfNSW for upgrades.	Ongoing/ policy	Review/advocate	To be determined	Council TfNSW	Council TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
Ped10	Pedestrian crossings.	Investigate the feasibility of pedestrian crossings at a minimum of 200 metres in residential / industrial areas, and every 100 metres in centres (off state roads) where desireline exist.	Ongoing/ policy	Review	To be determined	Council TfNSW	Council	Council	Council	Council	Council

Action code	Initiative/ Action	Description	When	Council action required	Estimated cost to Council	Planning/ investigation responsibility	Planning funding	Construction/ implementation responsibility	Construction/ implementation funding	Maintenance/ ongoing review responsibility	Maintenance funding
Ped11	Pedestrian crossing period at signalised crossings.	Advocate for longer crossing times at signalised intersections used by vulnerable community members (young, older, parents and disabled people).	Ongoing/ policy	Advocate	Time	Council	Council TfNSW	Council TfNSW	Council TfNSW	TfNSW	TfNSW
Ped12	Pedestrian priority at intersections.	Advocate for pedestrian priority at intersections where demand exists. This may involve removal of double green at signalised intersections to allow pedestrians to cross before cars turn.	Ongoing/ policy	Advocate	Time	Council	N/A	TfNSW	TfNSW	TfNSW	TfNSW
Ped13	Pedestrian priority at minor roads.	Implement a program in line with the strategic pedestrian network and any intersection changes/ LATM works to prioritise pedestrian movement across minor roads through pedestrian priority treatments that are built for smooth pedestrian passage.	Ongoing/ policy	Planning	To be determined	Council TfNSW	Council	Council	Council	Council	Council
Bicycle and micro mobility.											
Bk1	Bike Plan	Prepare a Bike Plan to identify a safe, connected network throughout the LGA integrating with neighbouring LGA's and regional links.	Underway	Planning	Already procured	Council	Council	Council	Council TfNSW	Council	Council
Bk2	Cycling links to strategic centres	Identify cycling corridors to be prioritised to connect local and strategic centres, aligning with the state government proposed regional bike network.	Ongoing/ partially completed in Bike Plan	Planning	To be determined	Council TfNSW	Council TfNSW	Council TfNSW	Council TfNSW	Council	Council
Bk3	Cycling promotion	Identify and promote cycling access routes to recreational area and green space, particularly Botany Bay's foreshore	Underway	Planning	Bike Plan	Council	Council	Council	Council TfNSW	Council	Council
Bk4	Surrounding Councils collaboration.	Host a bi-annual meeting to plan and review regional bicycle network development with Inner West Council, Georges River Council, City of Sydney, Randwick and Sutherland Shire Council (e.g. Southwest Greenway and the Doncaster Avenue cycleway).	Ongoing/ policy	Planning	Time	Council	N/A	N/A	N/A	N/A	N/A
Bk5	Sydney Airport orbital bicycle route.	Work with Transport for NSW to develop the Principle Bicycle Network and the Sydney Airport 'Orbital' to provide direct active transport connections to nearby local centres from surrounding suburbs into the domestic terminal.	Ongoing	Planning	To be determined	Council TfNSW	Council TfNSW	Council TfNSW	Council TfNSW	Council	Council

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Action code	Initiative/ Action	Description	When	Council action required	Estimated cost to Council	Planning/ investigation responsibility	Planning funding	Construction/ implementation responsibility	Construction/ implementation funding	Maintenance/ ongoing review responsibility	Maintenance funding
Bk6	Cycling to train stations.	Advocate/ identify opportunities for a train station cycling interchange facilities, to integrate routes, and interchange with the rail network. The facility should include a range of bicycle parking options. i.e. Bike Sheds.	Ongoing/ policy	Advocate	Time	Council TfNSW	Council TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
Bk7	Tempe to Rockdale bicycle route.	Continue development of the dedicated bicycle route along the rail corridor between Wolli Creek and Rockdale (T4 line) , and between Wolli Creek and Tempe (T8 line)	Ongoing	Planning		Council	Council	Council	Council TfNSW	Council	Council
Bk8	Botany freight rail line bicycle path.	Advocate for the provision of a cycleway adjacent to Botany freight rail line to connect Sydney Airport and Botany Bay.	Ongoing as project progresses	Advocate	Time	Council	N/A	N/A	N/A	N/A	N/A
Bk9	Eastgardens to Port Botany bicycle link.	Develop an off-road bicycle link between Eastgardens and Port Botany with appropriate separation from dangerous vehicles and land uses.	by 2030	Planning	Time	TfNSW Council	Council	Council	Council	Council	Council
MM1	Micro-mobility.	Advocate for the state government to support the safe use of micro-mobility (e-scooter) technology on bicycle infrastructure to reduce transport energy consumption and space.	Ongoing/ policy	Advocate	Time	Council	N/A	N/A	N/A	N/A	N/A
Public transport											
PT1	Future mass transit station planning.	Consider alignment of future mass transit services across the LGA planning for high density and diverse land uses in these areas.	Ongoing/ policy	Planning	Time	TfNSW Council	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
PT2	Public transport supporting 30-minute city.	Advocate for better public transport coverage and frequencies in areas that don't have 30 minute access to a strategic centre across the week.	Ongoing/ policy	Advocate	Time	TfNSW Council	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
PT3	Fist/ last mile transport.	Advocate for first and last mile on-demand transport services to connect to key transport interchanges.	Ongoing/ policy	Advocate	Time	Council	N/A	N/A	N/A	N/A	N/A
PT4	Community transport/ On-demand transport.	Review community transport needs and advocate for on-demand service opportunities for lower demand areas away from high frequency public transport.	Ongoing/ policy	Advocate	Time	TfNSW Council	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
PT5	Randwick Health precinct to Bayside public transport link.	Investigate new connections from Randwick health precinct to Bayside, reducing the need to route via Sydney CBD.	Ongoing/ collaboration with TfNSW.	Advocate	Time	TfNSW Council	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW

Action code	Initiative/ Action	Description	When	Council action required	Estimated cost to Council	Planning/ investigation responsibility	Planning funding	Construction/ implementation responsibility	Construction/ implementation funding	Maintenance/ ongoing review responsibility	Maintenance funding
PT6	Eastgardens public transport	Advocate for improved mass transit links to Eastgardens.	by 2025	Advocate	Time	TfNSW Council	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
Bus stops											
BuSt1	Bus stop DDA compliance.	Prioritise upgrades of all bus stops based on patronage, community consultation and access to nearby destinations.include DDA compliance audit	2020	Review	Completed	Council	Council	Council	Council	Council	Council
BuSt2	Bus stop upgrade funding.	Investigate funding opportunities for new DDA compliant bus shelters, including tendering to outdoor advertising companies, while retaining functionality for buses, safety, and customer experience.	Ongoing/ policy	Review	Under investigation	Council	Council	Council	Council	Council	Council
BuSt3	Bus stop real time information display.	Advocate for real time information displays at key bus stops.	Ongoing/ collaboration with TfNSW.	Advocate	Time	Council	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
BuSt4	Bus stop reinstatement after temporary relocation.	Occupation certificates should require relocation/reinstatement of bus stops and other infrastructure that is relocated during construction activities.	Policy	Action	Time	Council	N/A	N/A	N/A	N/A	N/A
BuSt5	Eastgardens interchange upgrade.	Advocate for bus stop capacity upgrade at Eastgardens interchange.	Ongoing	Advocate	Time	Council	N/A	N/A	N/A	N/A	N/A
Bus											
Bus1	Strategic bus routes.	Advocate and provide input for the NSW Governments proposed strategic bus network including dedicated bus lanes for improved reliability.	Ongoing/ collaboration with TfNSW.	Advocate	Time	TfNSW Council	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
Bus2	Bus route changes.	Maintain engagement with TfNSW on their planned changes to bus routes and services.	Ongoing/ collaboration with TfNSW.	Planning	Time	TfNSW Council	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
Bus3	Bus performance studies.	Advocate for bus performance studies on key routes to identify priority measures in areas of congestion.	Ongoing/ collaboration with TfNSW.	Advocate	Time	TfNSW Council	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
Bus4	East-West bus routes.	Advocate for high frequency and direct bus service connecting centres in the eastern and western sides of the LGA e.g. Rockdale to Mascot / Botany.	Ongoing/ collaboration with TfNSW.	Advocate	Time	TfNSW Council	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW

Action code	Initiative/ Action	Description	When	Council action required	Estimated cost to Council	Planning/ investigation responsibility	Planning funding	Construction/ implementation responsibility	Construction/ implementation funding	Maintenance/ ongoing review responsibility	Maintenance funding
Bus5	Station feeder services.	Advocate for a business case to be developed and trials for direct and frequent bus connections between from train stations to centres away from the railway network. I.e. Rockdale to Brighton-Le-Sands, San Souci to Kogarah and Ramsgate Beach to Allawah/ Hurstville.	Ongoing/ collaboration with TfNSW.	Advocate	Time	TfNSW Council	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
Bus6	Bus service span.	Advocate for greater span of bus services on Sundays and late at night.	Ongoing/ collaboration with TfNSW.	Advocate	Time	TfNSW Council	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
Bus7	Bus route capacity.	Advocate for increased public transport capacity on routes and in periods of high demand, e.g. Bunnerong Road and Botany Road.	Ongoing/ collaboration with TfNSW.	Advocate	Time	TfNSW Council	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
Bus8	Electric bus/ Trackless tram trials.	Advocate for trials of electric buses/ trackless tram in the LGA.	Ongoing/ collaboration with TfNSW.	Advocate	Time	TfNSW Council	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
Bus9	On-demand bus trials.	Advocate for trials of on-demand buses in low demand areas to improve public transport accessibility.	Ongoing/ collaboration with TfNSW.	Advocate	Time	TfNSW Council	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
Train											
Train1	Train station access upgrades.	Advocate for accessibility upgrade at Bardwell Park, station.	Ongoing/ collaboration with TfNSW.	Advocate	Time	TfNSW Council	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
Train2	More Trains More Services.	Support TfNSW's efforts to implement More Trains, More Services.	Ongoing/ collaboration with TfNSW.	Collaboration	Time	TfNSW Council	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
Train3	Airport station access fees	Advocate for reduction/ removal of Sydney Airport station access fees.	Ongoing/ collaboration with TfNSW.	Advocate	Time	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
Roads											
Rd1	Movement and Place implementation.	Apply new Movement and Place Framework for planning road corridor use in Bayside.	Ongoing/ collaboration with TfNSW.	Planning	Time	TfNSW Council	TfNSW Council	TfNSW Council	TfNSW Council	TfNSW Council	TfNSW Council
Rd2	Movement and Place opportunities.	Leverage opportunities identified in the NSW Government's Road Network Plans to achieve the future movement and place categories.	Ongoing/ collaboration with TfNSW.	Planning	Time	Council	N/A	N/A	N/A	N/A	N/A
Rd3	Limiting through traffic on local roads.	Work with TFNSW to develop a plan to manage local traffic and limiting unnecessary through traffic arising from major road projects.	Ongoing/ collaboration with TfNSW.	Collaboration	Time	TfNSW Council	TfNSW Council	TfNSW Council	TfNSW Council	TfNSW Council	TfNSW Council

Action code	Initiative/ Action	Description	When	Council action required	Estimated cost to Council	Planning/ investigation responsibility	Planning funding	Construction/ implementation responsibility	Construction/ implementation funding	Maintenance/ ongoing review responsibility	Maintenance funding
Rd4	LGA traffic model.	Investigate the feasibility and funding opportunities for an LGA-wide traffic model to cumulatively assess the impacts of developments and population growth.	Ongoing/ collaboration with TfNSW.	Planning	To be determined	Council	Council	Council	Council	Council	Council
Rd5	Technology trials.	Support opportunities to trial technology that meets transport objectives in the LGA i.e. autonomous vehicles.	Ongoing/ collaboration with TfNSW.	Planning	Time	Council	N/A	N/A	N/A	N/A	N/A
Safety											
Safe1	Road Safety Audits.	Undertake road safety audits in crash cluster locations.	Ongoing/ collaboration with TfNSW.	Review	To be determined	Council TfNSW	Council TfNSW	N/A	N/A	N/A	N/A
Safe2	Speed limit review.	Review and align speed limits to the movement and place function of a road and the surrounding land uses, including lowering speed limits in areas of high pedestrian demand. Consideration be given to piloting 30km/h roads where appropriate.	Ongoing/ collaboration with TfNSW.	Review	To be determined	Council TfNSW	Council TfNSW	Council TfNSW	Council TfNSW	Council TfNSW	Council TfNSW
Safe3	Speed limit review.	Identify High Pedestrian Activity Areas with consideration given to introducing 30km/h zones.	Ongoing	Advocate	Time	Council	N/A	N/A	N/A	N/A	N/A
Safe4	Pedestrian and cyclist safety around work sites.	Ensure provisions for pedestrians and bicycles are provided as part of construction activities impacting the transport network in addition to the requirements of TfNSW Traffic control at work sites Technical Manual.	Immediately	Planning	Time	Council	Developers	Developers	Developers	N/A	N/A
Safe5	Taxi ranks	Consider designated pick up- drop off rideshare zones alongside eview Taxi ranks in town centres to improve safety and avoid conflict.	2023	Review	To be determined	Council	N/A	Council	Taxi industry	Council	Council
Freight, servicing and deliveries											
Fr1	Botany Road truck restriction enforcement.	Lobby TfNSW to monitor and enforce heavy vehicle ban on Botany Road. I.e. vehicle recognition technology.	Ongoing/ collaboration with TfNSW.	Advocate	Time	TfNSW Council	TfNSW	TfNSW	TfNSW	TfNSW	TfNSW
Fr2	Cooks River intermodal terminal access to WestConnex.	Advocate for dedicated road freight access from Cooks River Intermodal Terminal as part of WestConnex.	Ongoing as project progresses	Advocate	Time	Council	N/A	N/A	N/A	N/A	N/A
SD1	High density residential loading/ servicing.	Identify locations for short-term parking / loading zones in areas of high residential density, to cater for increase in deliveries and ride sharing vehicles.	Ongoing/ policy	Review	Time	Council	Council Developers	Council Developers	Council Developers	Council	N/A

Action code	Initiative/ Action	Description	When	Council action required	Estimated cost to Council	Planning/ investigation responsibility	Planning funding	Construction/ implementation responsibility	Construction/ implementation funding	Maintenance/ ongoing review responsibility	Maintenance funding
SD2	Small site servicing.	Review servicing requirements for proposed small developments, to minimise their impact on roads and footpaths.	Ongoing as development occurs	Review	Time	Council	N/A	Council	Developers	Council	Council
SD3	Delivery technology.	Support initiatives and technology advances that achieve objectives for first and last mile deliveries in strategic and local centres.	Ongoing/ policy	Collaboration	Time	Council	N/A	N/A	N/A	N/A	N/A
Car parking											
CP1	DCP car parking harmonisation.	Revise DCP car parking rates to be reflective of sustainability targets and demand based on overall transport connectivity. This should be supported by detailed analytics.	by 2022	Planning	Time	Council	N/A	N/A	N/A	Council	N/A
CP2	Taxi ranks	Review taxi ranks near bus stops and identify which should be removed to improve safety and avoid conflict.	2023	Review	To be determined	Council	N/A	Council	Taxi industry	Council	Council
CP3	Efficient and fair use of car parking.	Existing car parking in centres is managed to accommodate future increased demands through prioritisation of space through the parking hierarchy.	by 2022	Advocate	Time	Council	Airport	Council	Airport	Council	Airport
CP4	Future Technology	Council to consider utlising Council owned/managed off-street parking areas to provide public EV charging facilities	by 2030	Planning	To be determined	Council	N/A	Council	N/A	Council	N/A
CP5	Residential permit scheme.	Introduce an integrated residential permit scheme and price permits at a rate consistent with the opportunity cost of parking infrastructure, with a transition period to support behaviour change by residents.	by 2030	Planning	$30,000	N/A	N/A	Council	Council	Council	Council

14   Monitoring and review

The monitoring and review of the Transport Strategy actions, and reporting against its guiding principles, is a crucial element of implementation. The following sections set out the:

> Transport targets and performance measures;

> Monitoring and reporting on progress against implementation of actions and initiatives;

> Measuring performance against the targets and guiding principles / objectives; and

> Regular reviews and updates to the Transport Strategy.

14.1   Monitoring and reporting on progress

The Transport Strategy's implementation plan should be reviewed quarterly to track progress against implementation. Prepare an Annual Progress Review Report to review and provide feedback on progress against the delivery of the actions for walking, and achievement against the transport targets and performance measures. These actions could be incorporated into Council's Integrated Planning and Reporting Framework to formalise the monitoring and reporting process.
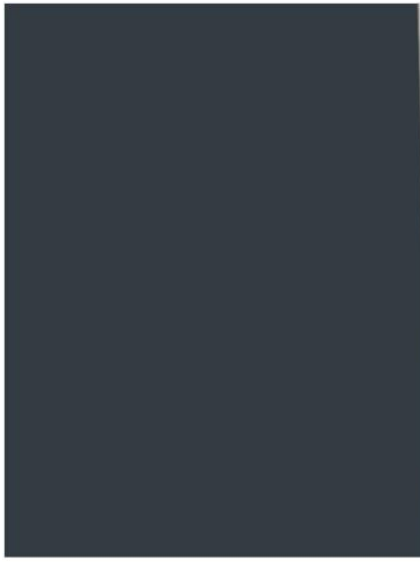
14.2   Measuring performance

To assess progress towards achieving the Transport Strategy's guiding principles, a series of performance measures are proposed in **Table 10-2**.

14.3   Review of the Transport Strategy

To ensure the Transport Strategy remains current as the LGA continues to grow, it should be reviewed an updated every five years. The review and update of the Transport Strategy should include:

- Updated transport data;

- Updated analysis based on the most recent residential and worker population forecasts;

- Updated mapping to include new destinations, lanes, streets and public spaces;

- Consideration of recent changes to transport networks;

- Review of guiding principles;

- Review of the progress in implementation of actions;

- Reporting against the performance measures; and

- Stakeholder consultation.

A

Consultation Outcomes Summary

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