

SOUTH EAST SYDNEY

Transport Strategy



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1 Executive Summary

South East Sydney is an important and diverse region, with attractive and vibrant centres, an extensive coastline, beaches, parks and recreational venues, world class education and health care, a broad range of employment opportunities and the economically important gateways of Sydney Airport and Port Botany. Both population and employment in the region are growing and while it is benefitting from significant investment in rail, light rail and roads, South East Sydney has the potential to grow more and develop sustainably taking advantage of existing patterns of development and travel, and its strategic location.

The *South East Sydney Transport Strategy* (the Strategy) provides a blueprint for transforming the way people travel to, within and through South East Sydney to 2056. The Strategy seeks to support future growth through transport investment within South East Sydney. The proposed transport enhancements support the redevelopment of government land, the growth of strategic centres, and the continued expansion and efficiency of Sydney Airport and Port Botany through improved and reliable access. The Strategy seeks to develop places that encourage more people to make shorter trips by walking, cycling and public transport to access local services, education and employment. It aims to achieve this by providing more trains, better buses, separated bike routes and sustainable local and strategic centres.

With the current infrastructure program delivering motorways, roads, rail and Metro networks between now and 2026, the Strategy sets out the medium and long term (2026-56) integrated transport and land use plan for South East Sydney; an area encompassing the Eastern Suburbs to the south of Bondi Junction, extending north to Central Station, west to the T4 Illawarra rail line and south to include Rockdale and Brighton Le Sands.

The Strategy has translated the City Shaping and City Serving corridors in *Future Transport 2056* into potential future networks for detailed investigation and economic assessment. The Strategy also recommends land use and policy opportunities to drive more sustainable movements and more successful places.

Progressing *Future Transport 2056* through place-based planning

Future Transport 2056 adopts an agile and flexible approach to planning for our future transport needs. The *Greater Sydney Services and Infrastructure Plan* will continue to be updated as land uses change, technology evolves and new opportunities emerge. Through the Strategy development there has been close engagement with our customers, the community and stakeholders, ensuring that their insights inform more detailed planning and that this planning is integrated across government and with industry.

Guided by *Future Transport 2056*, *Greater Sydney Services and Infrastructure Plan* and supporting plans, the Strategy is a more detailed place-based plan for South East Sydney, exploring different options to meet future demand on city-shaping, city-serving, centre-serving and dedicated freight corridors. The Strategy focuses on regional and local transport needs and how these can be met within the wider Greater Sydney transport vision.

The *South East Sydney Transport Strategy* vision was developed in collaboration with stakeholders and assessed in more detail where and when identified initiatives are most appropriate to realise this vision and align with land use plans. Importantly, it also enabled us to address stakeholder feedback on specific regional and local initiatives to be investigated to support the shared vision and objectives for South East Sydney.

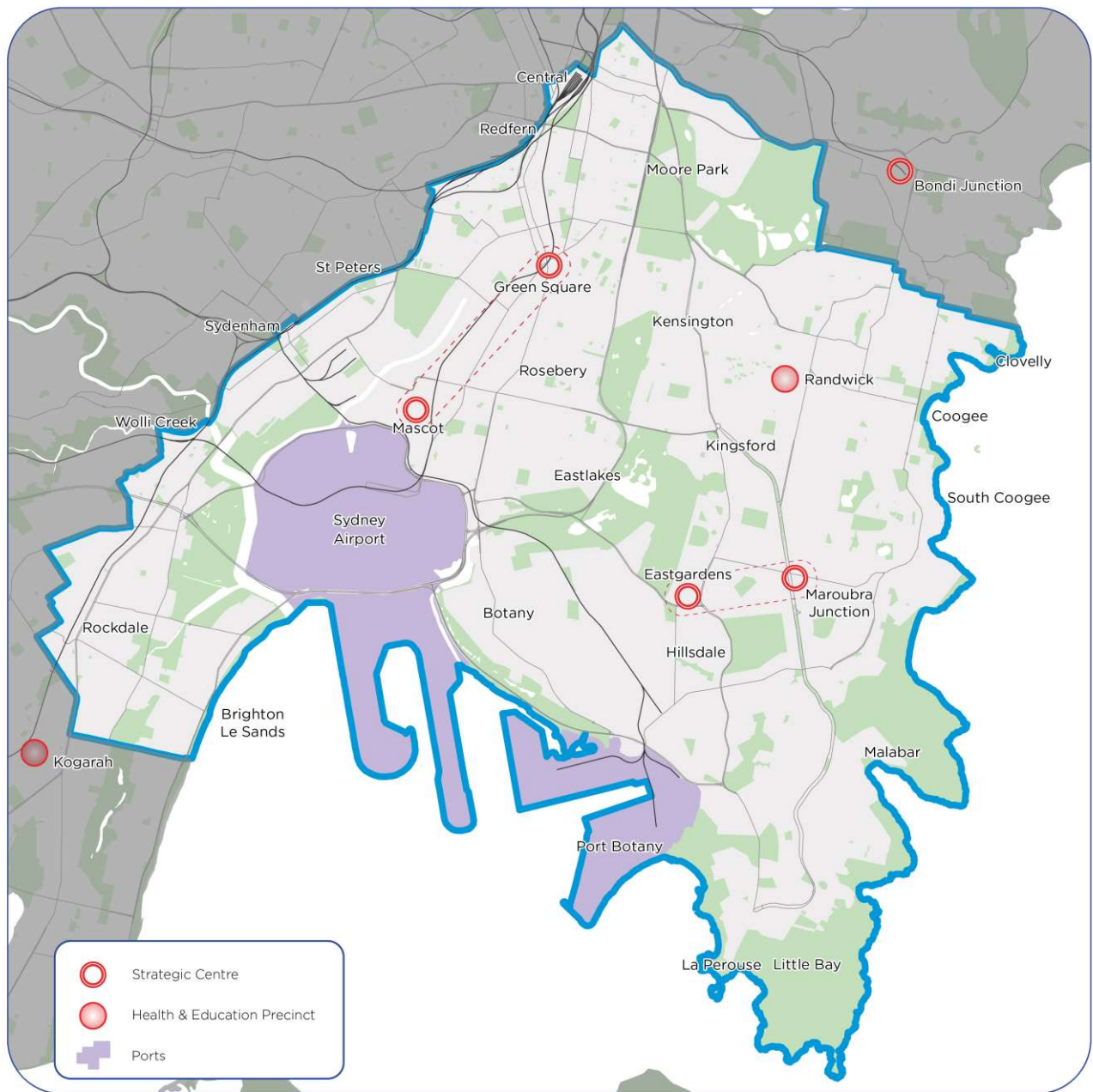
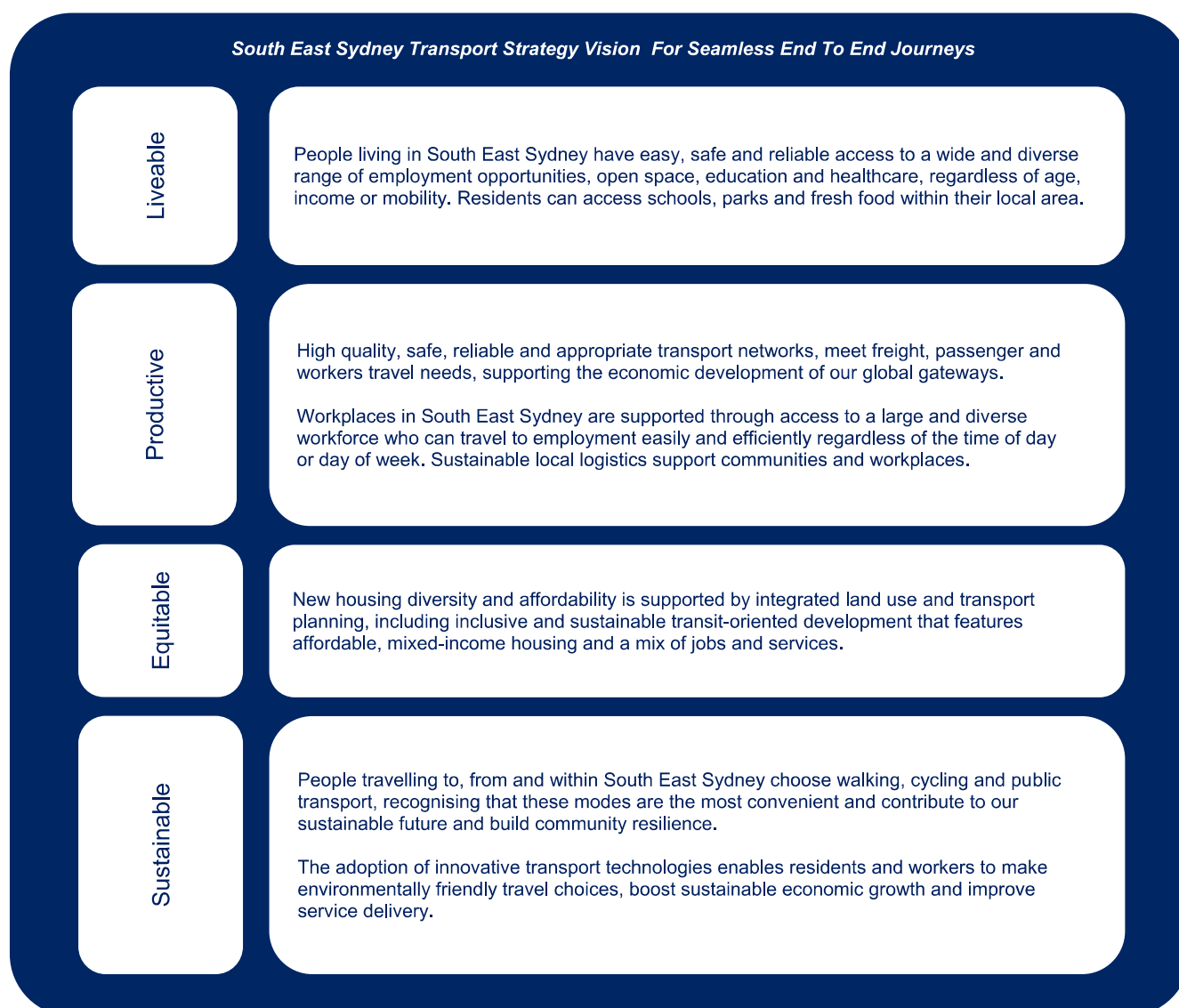


Figure 1 – Study Area

1.1 Vision and objectives



Objectives

Liveable

- All residents have easy, safe and reliable access to employment, open space, education and healthcare.
- All transport services are universally accessible.
- All residents can access a major employment centre (e.g. strategic centres, Eastern Harbour City CBD, Randwick Health and Education Precinct, Sydney Airport and Port Botany) within 30 minutes by public transport.
- All residents can safely walk to a local centre.
- Transport contributes to, and maximises the potential for, job growth through South East Sydney.
- The transport network is easy to use and understand and provides more 24/7 access.
- Businesses in South East Sydney are efficiently and sustainably connected to each other and their customers.

Productive

- Sydney Airport is connected to Sydney's eastern economic corridor and beyond by high quality mass transit
- Port Botany is connected to freight precincts in Greater Sydney and beyond by efficient and reliable rail freight services.
- Public transport is the preferred way for passengers and staff to access/egress Sydney Airport
- Road corridors serving Port Botany and the development of adjacent land are managed together to minimise conflict between land uses
- Port Botany and Sydney Airport have easy access by all modes to local commercial, industrial and employment precincts.
- Port Botany, Sydney Airport and industrial and employment areas within South East Sydney are well connected to industrial and employment lands within the Sydney metropolitan area.
- Port Botany, Sydney Airport and industrial employment lands in South East Sydney are connected to local residential areas and transport nodes by safe and direct active transport networks.
- Jobs in South East Sydney are easy to access from across the Sydney metropolitan area.

Equitable

- Public transport investment enables equitable, mixed use transit oriented development.
- Public transport investment facilitates an increase in local jobs.

Sustainable

- The walking and cycling transport networks serving the South East Sydney area are extensive and connected to the metropolitan wide networks.
- The street network facilitates movement and place functions and enables successful places.
- The use of existing and future assets is maximised by managing travel demand by time of day.
- A resilient and flexible transport network that allows for adaptation in response to technological and behavioural changes over time.
- Transport network investment is effective and efficient, ensuring whole of life costs are considered and where possible minimised without compromising service outcomes.

1.2 The Challenge

The road network is under pressure, impacting freight and other economically important traffic. Achieving a mode shift is critical, but public transport services and active transport options must be sufficiently attractive to support and encourage change.

There is limited spare capacity on the public transport network and services at peak times. The public transport network and services do not cater well for east-west movements or meet the travel needs of shift workers and weekend recreational travel.

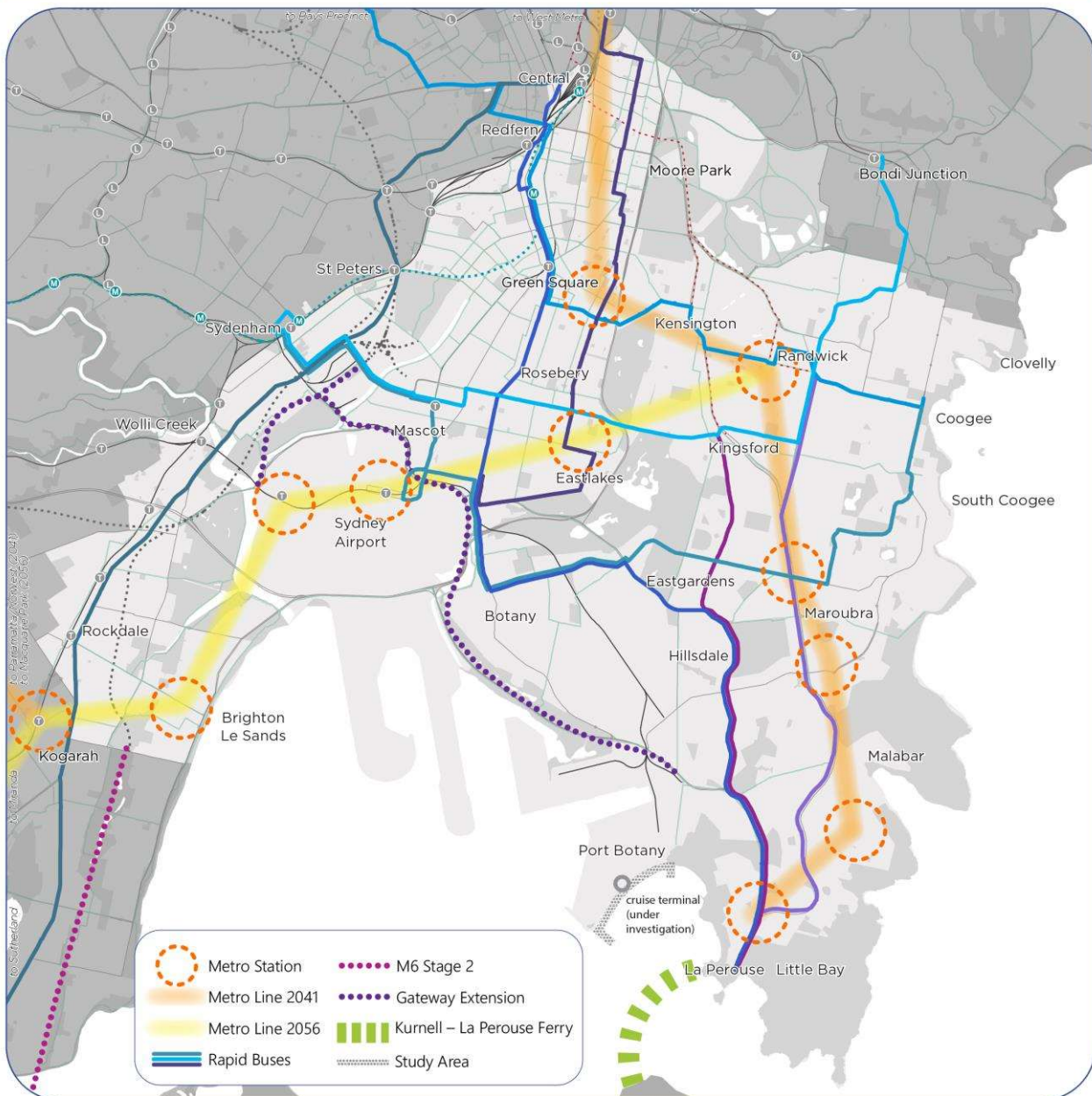
Links in the walking and cycling networks are missing.

Crashes involving vulnerable road users (pedestrians and cyclists) are a problem.

There are opportunities for land use change, but this can only be achieved with significantly increased public transport capacity and utility.

1.3 The response

Preferred Scenario



Initiatives for Investigation – subject to business cases and investment decisions

- 8 Rapid Bus Routes
 - Railway Square to Sutherland Hospital (via Princes Highway)
 - Eastern Harbour City CBD to La Perouse (via Green Square and Eastgardens)
 - North Sydney to Mascot (via Green Square)
 - Bondi Junction to Sydenham (via Randwick and Mascot)
 - Randwick to La Perouse (via Anzac Parade)
 - Kingsford to La Perouse (via Bunnerong Road)
 - Coogee Beach to Bays Precinct (via UNSW and University of Sydney)
 - South Coogee to Sydenham (via Sydney Airport)
- Delivery of the Principal Bicycle Network
- Sydney Metro West extension to Malabar/La Perouse
- Sydney Gateway Extension to Port Botany
- Metro from Kogarah to Randwick

Figure 2 – Preferred scenario and major initiatives listed in proposed priority for delivery, subject to business cases and investment decisions

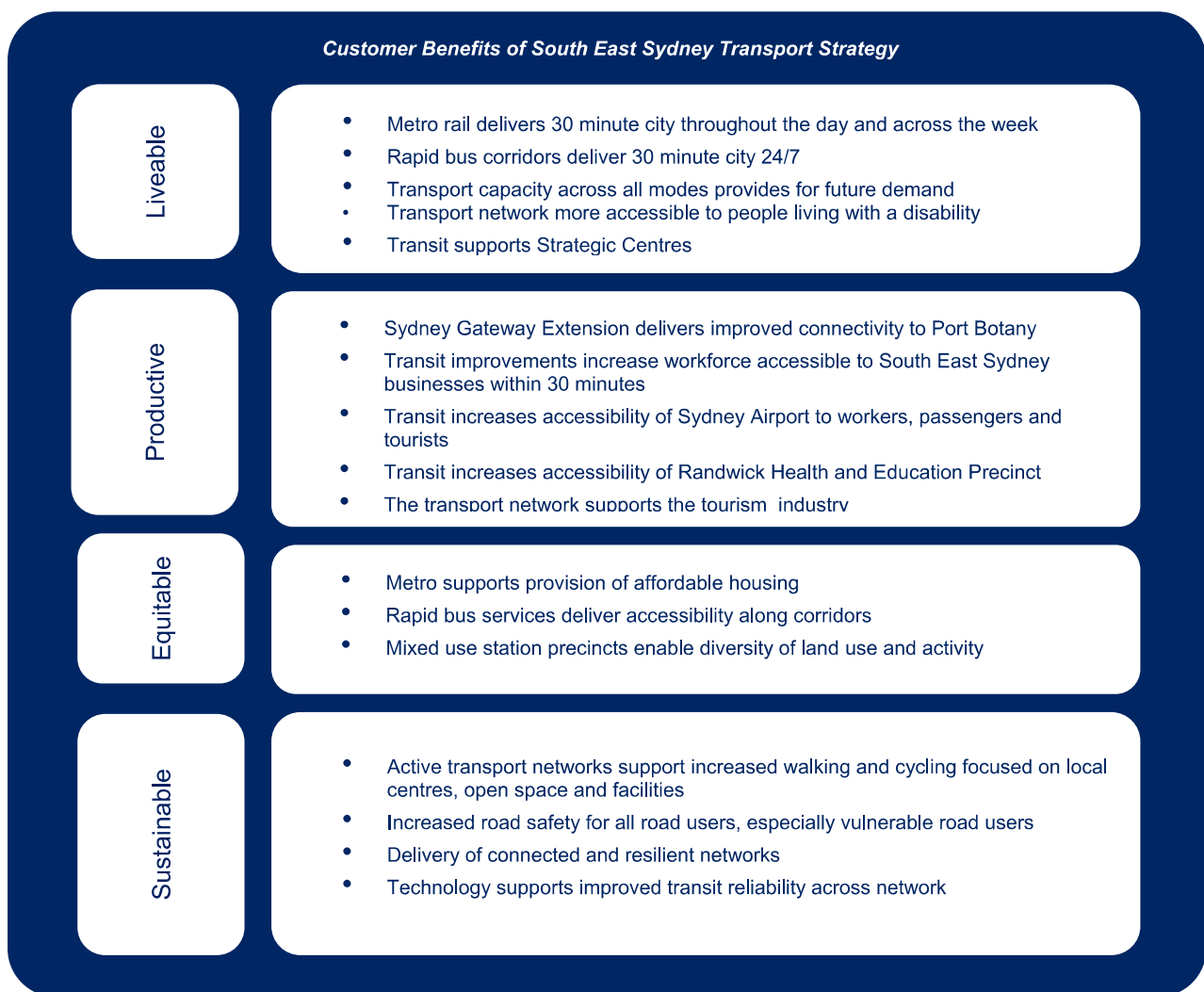


Figure 3 – Customer benefits

The Strategy recognises that meeting the vision of improving the travel experience and achieving a 30 minute city while undergoing considerable residential and employment growth, requires changes in travel behaviour. Transport needs to be more efficient in the future, while using the same amount of road space. Private car trips will become slower and on-street parking may be reduced as road space is allocated to rapid bus lines and cycleways to support more people moving more reliably.

The Strategy describes the consequences of not providing efficient and attractive alternatives to car use, significantly reducing the proportion of trips by private vehicle in the future will be severe in terms of travel time and access to jobs, education and services.

The proposed infrastructure and services for investigation, listed in the graphic in prioritised order of delivery, would result in a transport network that realises the vision, delivers *Future Transport 2056* and does not represent an over-investment for this area.

1.4 Next steps

The Strategy will realise the outcomes of *Future Transport 2056* for South East Sydney and become the long term NSW Government policy for South East Sydney through the development of a program of works for investment and delivery. The long term program will be adaptive and flexible enough to allow for significant changes in travel behaviour, such as the recent major shift to work from home during the COVID-19 Pandemic and be mindful of longer term changes to the use of

technology and travel behaviour to ensure the investment is best serving our customers' evolving needs and changing patterns of growth.

Transport for NSW will continue to build upon the successful co-design effort and collaboration with state agencies, local government and stakeholders in developing and implementing the Strategy. This will include identifying delivery pathways and sequencing for projects and policy change, adopting new technologies as they mature, in line with funding requirements and opportunities, such as private sector investment. Transport for NSW recognises that delivering place based outcomes requires action across multiple agencies and local government and new ways of working across government.

2 Introduction

South East Sydney is an important and diverse region, with attractive and vibrant centres, an extensive coastline, beaches, parks and recreational venues, world class education and health care, a broad range of employment opportunities and the economically important gateways of Sydney Airport and Port Botany. Both population and employment in the region are growing and while it is benefitting from significant investment in rail, light rail and roads, South East Sydney has the potential to grow more and develop sustainably taking advantage of existing patterns of development and travel, and its strategic location.

The *South East Sydney Transport Strategy* (the Strategy) provides a blueprint for transforming the way people travel to, within and through South East Sydney, building on the considerable advantages in the region. The Strategy does this within the framework provided by NSW Government strategic plans.

At the time of Strategy development the project team worked with stakeholders to agree population and employment forecasts for the long term based on the best information available, current trends and plans. Following COVID-19, all further analysis will consider a broader range of future forecasts to assess options for future demand that include significant behaviour change, such as major reductions in peak travel to work locations by private vehicle, public transport, cycling and walking and advice about longer-term housing development and air travel.

2.1 What is the plan?

The Strategy sets out the medium and long term (2026-56) integrated transport and land use plan for South East Sydney; an area encompassing the Eastern Suburbs to the south of Bondi Junction, extending north to Central Station, west to the T4 Illawarra rail line and south to include Rockdale and Brighton Le Sands.

The Strategy articulates *Future Transport 2056* at a regional level, setting out a clear vision and objectives, and the infrastructure and services needed to achieve the vision by 2056.

“Transport and land use plans must be integrated with our vision for places, to deliver long term social and economic outcomes.” Future Transport 2056 (p150)

2.2 Strategic land use and transport plans



Figure 4 – NSW planning framework

The *Greater Sydney Region Plan – A Metropolis of Three Cities* (Greater Sydney Commission, 2018) outlines key land use outcomes for Greater Sydney and sets the direction for land use planning through to 2056.

This plan establishes a vision for Sydney as a metropolis of three cities: the Eastern Harbour City; the Central River City; and the Western Parkland City. People should be able to access high order jobs and services in their nearest city within 30 minutes by public transport in the weekday morning peak, and access their closest strategic centre within 30 minutes by public transport, walking or riding, seven days a week.

The *Eastern City District Plan* is a guide to implementing the *Greater Sydney Region Plan* at a district level and is the bridge between regional and local planning. It contains 10 directions, 22 planning priorities and 78 actions to contribute to the implementation of the 40-year vision for Greater Sydney.

The NSW Government's overarching transport strategy, *Future Transport 2056* (Transport for NSW, 2018), sets the direction for transport planning in NSW through to 2056. *Future Transport 2056* guides the development and delivery of integrated transport solutions to achieve customer outcomes across safety, mobility and sustainability. This will be further supported through the development and implementation of the *Greater Sydney Services and Infrastructure Plan* (Transport for NSW, 2018).

To achieve the customer outcomes and future networks identified in *Future Transport 2056*, the NSW Government is working to identify and prioritise policy, service and infrastructure initiatives through multimodal place based plans. The *South East Sydney Transport Strategy* (the Strategy) is the first co-designed integrated land use and multimodal transport strategy.

The *State Infrastructure Strategy 2018* was released in March 2018 by Infrastructure NSW. It contains Infrastructure NSW's independent advice to Government on the infrastructure challenges and priorities facing NSW. It aligns with the *Greater Sydney Region Plan* and *Future Transport 2056*. This Strategy supports its delivery.

2.2.1 Why South East Sydney now?

South East Sydney is growing rapidly. Home to Australia's busiest airport and largest container port, these international gateways will experience a tripling of the freight moved and more than 50% growth in Sydney Airport passenger numbers by 2041, even with the opening of Western Sydney International Airport in 2026. Road congestion impacts bus service speeds and reliability, and both buses and trains are at capacity in the peak periods. The proportion of Sydney Airport passengers using trains has increased recently to 25%.

Population and employment growth is occurring across the area, from 320,000 to 518,000 residents by 2041 and 631,000 residents by 2056. The population of Green Square, Australia's largest urban renewal project, is currently only half of the planned total. The Randwick Health and Education precinct is increasing services and activity to meet community needs for education and health care, and will bring an increased demand for transport to support workers, students, and hospital patients and visitors. Sydney Airport and Port Botany also offer attractive jobs, and like the Randwick Hospitals Campus, these include a higher than average proportion of shift workers who travel outside of traditional peaks.

South East Sydney residents tend to live at greater densities, own fewer cars and walk more compared with Greater Sydney averages. The use of buses and trains is relatively high for journeys to work. A third of local residents work in the South East and over half work within the City of Sydney local government area.

This Strategy is looking to further promote the uptake of sustainable transport use through land use planning and the delivery of infrastructure and services that support changed travel habits. South East Sydney is well positioned to significantly increase walking, cycling and public transport use, supporting shorter trips, less driving per person and healthier lifestyles enjoying the parks, coastline and beaches.

Population and Employment



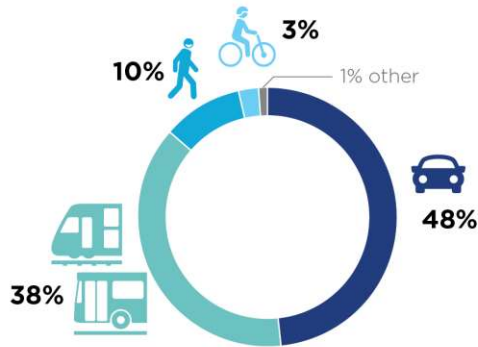
Over **320,000** residents



Over **240,000** jobs

Commute Mode

Resident mode to work



Almost **HALF** of the resident workforce commutes to the City of Sydney



1 in 3 SE Sydney workers live locally and of these **60%** drive to work



1,000 workers cycle to SE Sydney from outside the study area



Over **15,000** residents walk to work

Jobs by Sector



28%
Industrial



28%
Knowledge Intensive



16%
Health and Education



28%
Population Serving

House Types



20% Separate houses



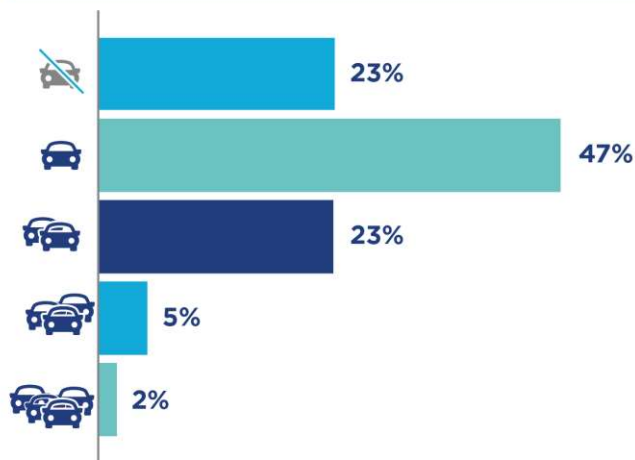
16% Terrace, townhouses, etc



63% Apartments

... **1%** Other

Household Car Ownership



Nearly **27,000** households do not own a car.

No-car households are typically located:



Close to the Harbour CBD (Redfern, Zetland, etc.)



At social housing developments



Near train stations



Within about 500m of UNSW

Source: 2016 Census, ABS

Figure 5 – South East Sydney at a glance (2016)

Committed and Planned Infrastructure

There are a number of major infrastructure and service improvements currently planned or being delivered for South East Sydney. This significant investment will improve travel options, expand the 30 minute city catchment for the Harbour CBD and strategic centres, embed emerging technology, increase amenity and access for residents, visitors, employees and employers in South East Sydney. The Strategy is looking to leverage off this investment, ensuring these projects are well integrated into existing and evolving places.

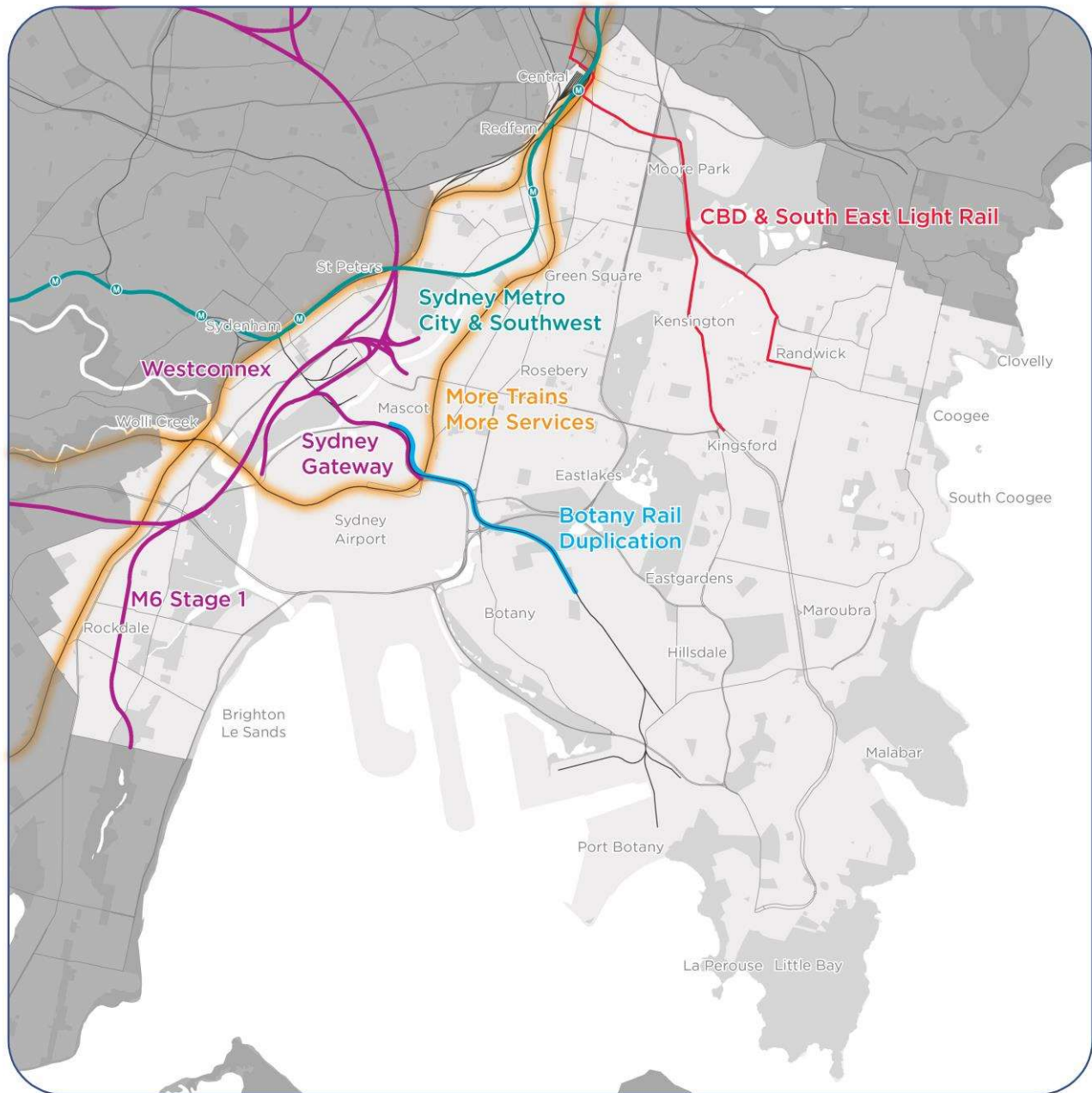


Figure 6 – Planned and committed transport infrastructure to 2026

The **CBD and South East Light Rail (CSELR)** will connect passengers from Circular Quay through to Randwick and Kingsford with a reliable and high capacity light rail service.

WestConnex is a 33-kilometre expansion of Sydney's motorway network that will provide a continuous motorway connection between the M4 and South East Sydney; additional motorway capacity between South Western Sydney and Port Botany/Sydney Airport; and a new inner western bypass of the Harbour CBD connecting the M4 and New M5. The St Peters Interchange is the network access/exit for South East Sydney.

The **More Trains, More Services** program will roll out world class technology to transform the rail network and provide customers with more reliable, high capacity turn up and go services. The next stages of More Trains, More Services will focus on delivering capacity improvements for the T4 Illawarra, T8 Airport and South, and the South Coast lines. Early stages of MTMS are delivered or in delivery, with later stages in development and subject to further investigation, business cases and investment decisions.

Sydney Gateway, Stages 1 and 3, will deliver major new motorway connections from Sydney Airport's Domestic and International terminals to the Sydney motorway network at St Peters Interchange.

Port Botany Rail Line Duplication (Sydney Gateway Stage 2), will improve the efficiency of the rail connection to the port and provide capacity to meet future demand; help reduce road congestion and ease pressure on the M5 corridor and support existing intermodal terminals at Minto, Yennora, Chullora and Enfield, and future port shuttle operations between Moorebank and the port.

The **M6 Extension Motorway program** of works is a proposed multi-lane road link extending from the New M5 Motorway at Arncliffe to the Princes Highway at Loftus. The program will be delivered in three stages. The first stage is known as the M6 Extension Stage 1 and comprises an approximately four-kilometre continuous twin tunnel (north and south) which will connect the New M5 at Arncliffe to President Avenue at Kogarah. Future stages are under investigation and subject to further investigation, business cases and investment decisions.

Sydney Metro City and Southwest will deliver a new station precinct at Waterloo and interchange at Sydenham. Customers will benefit from fully-automated, state-of-the-art trains providing customers with fast, safe, reliable and easy-to-use services. Customers won't need timetables – they'll just turn up and go with a train at least every four minutes in the peak.

2.3 Working with our stakeholders

This Strategy has been developed in close collaboration with our stakeholders through a process of co-design. Transport for NSW has worked across the Transport cluster and with stakeholders from across the NSW Government, the four local government areas, UNSW, Sydney Airport and NSW Ports. This collaborative process has developed a consensus around the problem, vision, objectives and the preferred solutions. Our stakeholders have directly informed the development and analysis of the scenarios and the selection of the preferred scenario.



Figure 7 – Collaboration and strategy

3 South East Sydney 2026: The challenge

The current program of investment includes projects that will be operational by 2026, including WestConnex, CBD and South East Light Rail, Sydney Metro City and Southwest and South West and More Trains More Services. Delivery of other programs will be ongoing, including bus priority and Sydney Metro West. The Strategy focuses on building integrated land use and transport strategies to realise the vision and respond to the problems of 2026 and beyond.

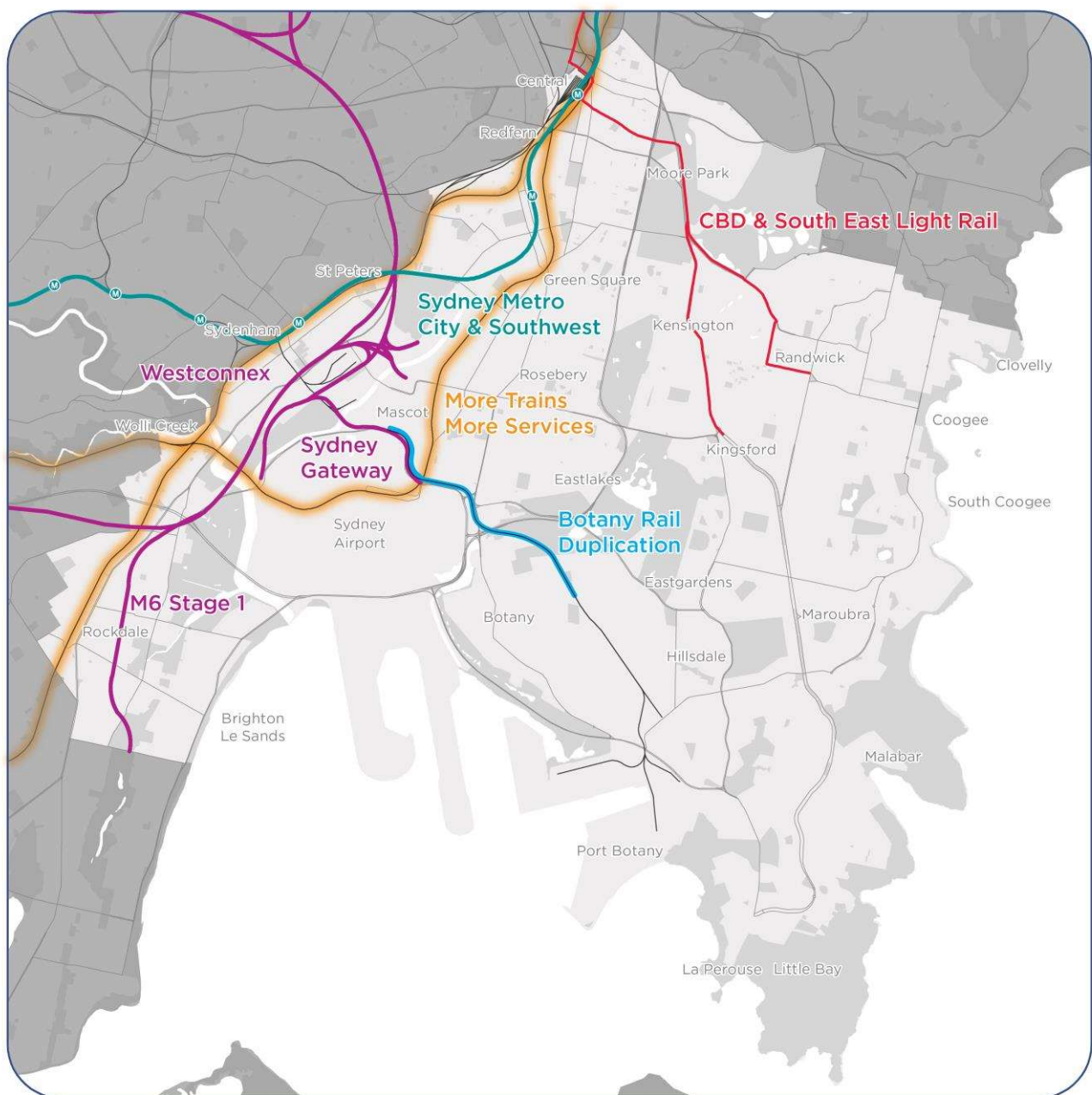


Figure 8 – Committed and planned improvements to 2026

3.1 Overview

In 2026, South East Sydney has benefitted from recent investment in transport infrastructure and services: WestConnex is complete, along with the Sydney Gateway motorway and M6 Stage 1; City and South West Metro is operational, extending west to Bankstown and serving Sydenham and Waterloo stations; CBD and South East Light Rail is operational, connecting Randwick and Kingsford to Central Station and Circular Quay. The completion of road works has increased capacity around Sydney Airport.

The residential population within the area has increased: Alexandria, Green Square, Rosebery, Waterloo, Mascot, Randwick, Banksia, Arncliffe, Eastgardens and the Anzac Parade Corridor have all experienced population growth in recent years and in some of these areas this growth has been significant.

Employment growth has also occurred. The continued growth of the airport has increased passenger numbers, staff and servicing requirements. This growth has been in part supported by the completion of the Sydney Gateway motorway and road network capacity increases. Activity at Port Botany has increased, largely supported by a shift to increased automation; staff numbers have remained stable. An increased number of containers are moved by rail to and from the port following the duplication of the Port Botany Goods Line.

The Randwick Health and Education Precinct has grown: the completion of new hospital and university buildings has consolidated the precinct as a centre for health, medical research and education excellence and daily numbers of staff, students, visitors and patients travelling to and from the precinct have increased.

While there has been considerable change in some locations, other parts of the South East Sydney area have experienced relatively little change to the transport network. The southern parts of the Eastern Suburbs largely remain beyond a 30 minute travel time by public transport of the Harbour CBD.

Industrial and employment lands, in particular Banksmeadow and the Southern Enterprise Area, continue to serve Sydney Airport, Port Botany and local businesses. WestConnex and the associated surface road network changes have improved connectivity to the industrial and logistics precincts in Western Sydney.

3.2 Why not business as usual?

There needs to be a change of approach to transport and access in South East Sydney – for the people living and working in the region and those visiting. Without change, congestion will worsen, and accessibility will reduce for everyone. It is not possible to construct more road space to accommodate ever increasing numbers of private vehicles – the significant investment and community impacts would be unacceptable – and our already congested centres do not have space to provide more parking.

The existing poor access to services and jobs experienced by many residents in South East Sydney will continue and be exacerbated over time as road congestion increases. Cycling will become less attractive in mixed traffic environments as traffic volumes grow and perceived safety is reduced.

The NSW Government has set targets focused on a 30 minute city and without prioritising public transport, walking and cycling these targets will not be met and liveability in South East Sydney will reduce. On-road public transport that mixes with private vehicles is vulnerable to the impacts of congestion leading to slower and less reliable travel. Figure 9 shows the areas in South East Sydney vulnerable to the impacts of increased road congestion and where travel times could

increase in the future, exceeding 30 minutes, as well as areas beyond the current 30 minute city catchment.

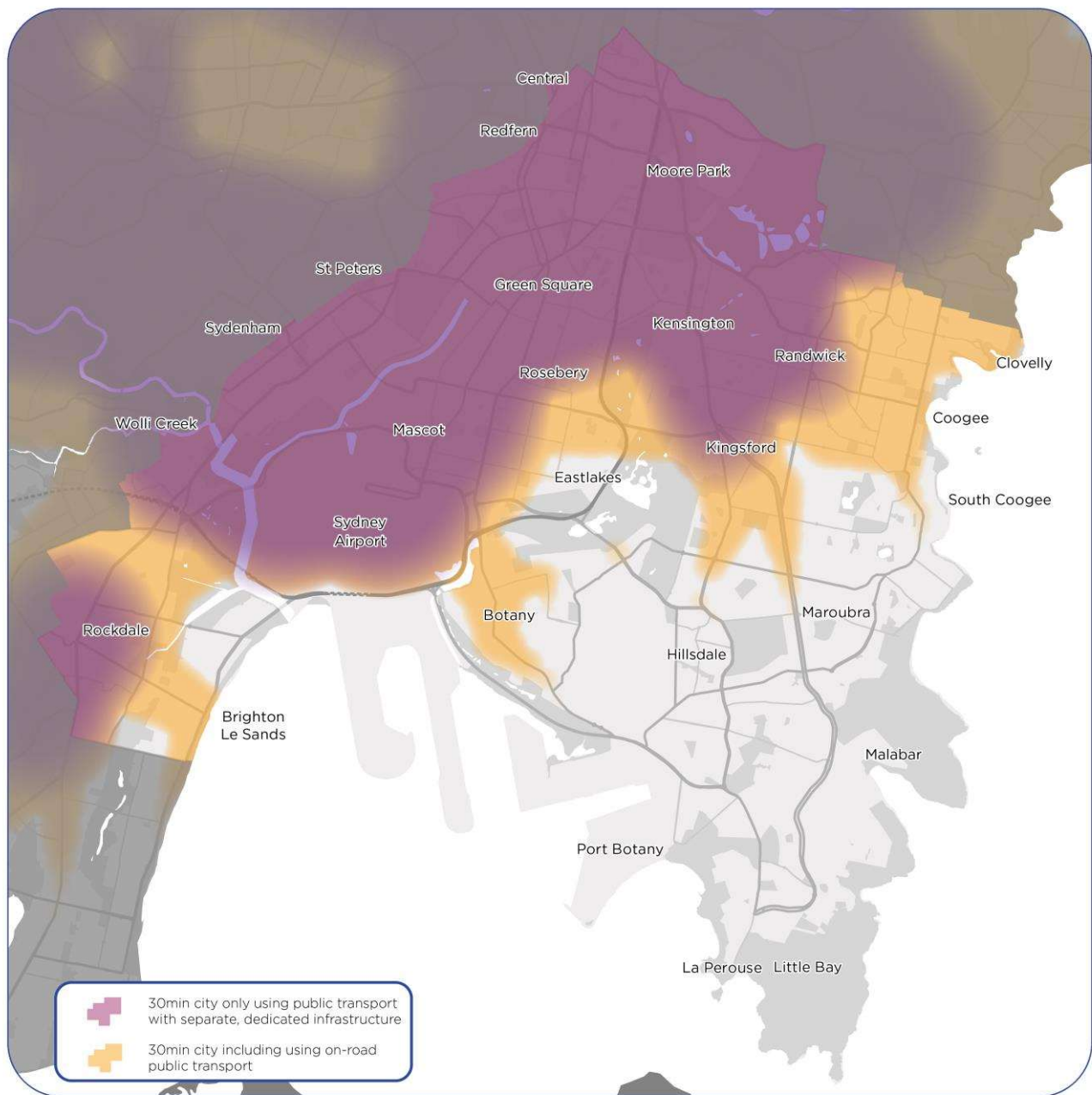


Figure 9 – Harbour CBD 30 minute city catchment in 2019

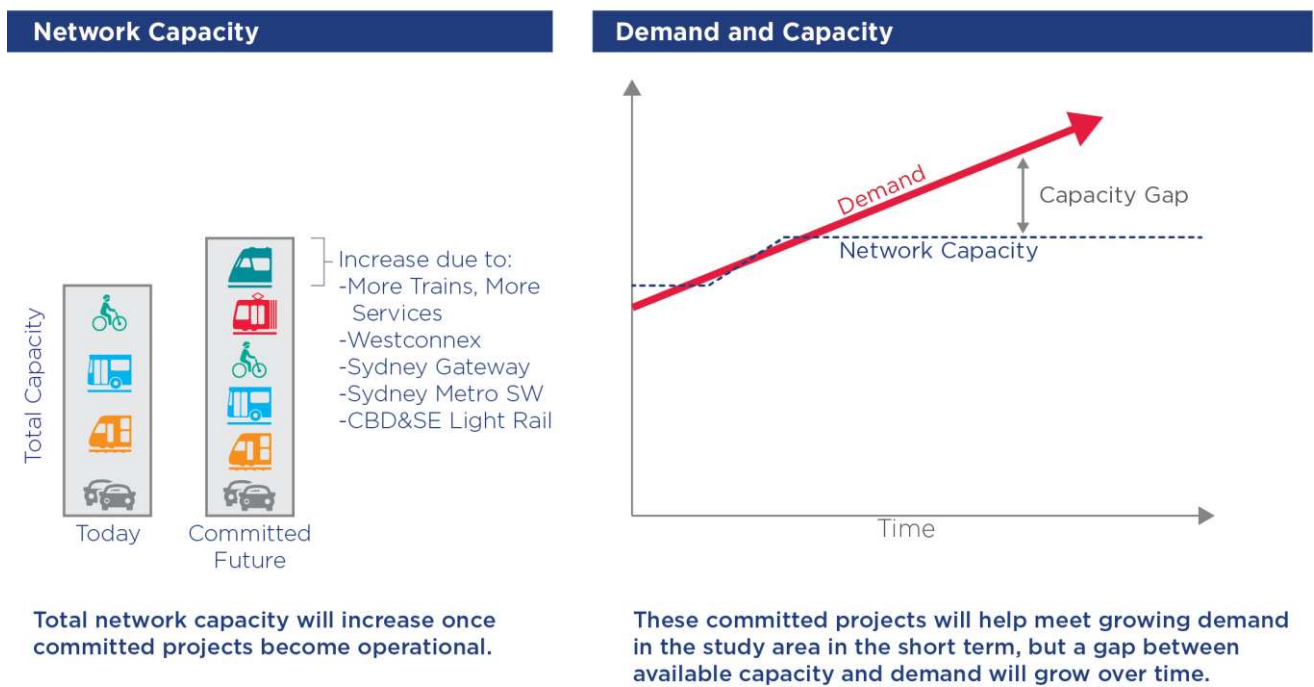


Figure 10 – Future capacity and demand

3.3 Problem statement

A guiding problem statement was developed in collaboration with our stakeholders. The problem statement sets out our priorities for action.

The road network is under pressure, impacting freight and other economically important traffic. Achieving a mode shift is critical, but public transport services and walking and cycling options must be sufficiently attractive to support and encourage change.

There is limited spare capacity on the public transport network and services at peak times. The public transport network and services do not cater well for east-west movements or meet the travel needs of shift workers and weekend recreational travel.

Achieving a mode shift is critical, but walking and cycling networks are not sufficiently attractive to support and encourage change. Links in the walking and cycling networks are missing and barriers make travel difficult.

Crashes involving vulnerable road users (pedestrians and cyclists) are a problem.

There are opportunities for land use change, but this can only be achieved with significantly increased public transport capacity and utility.

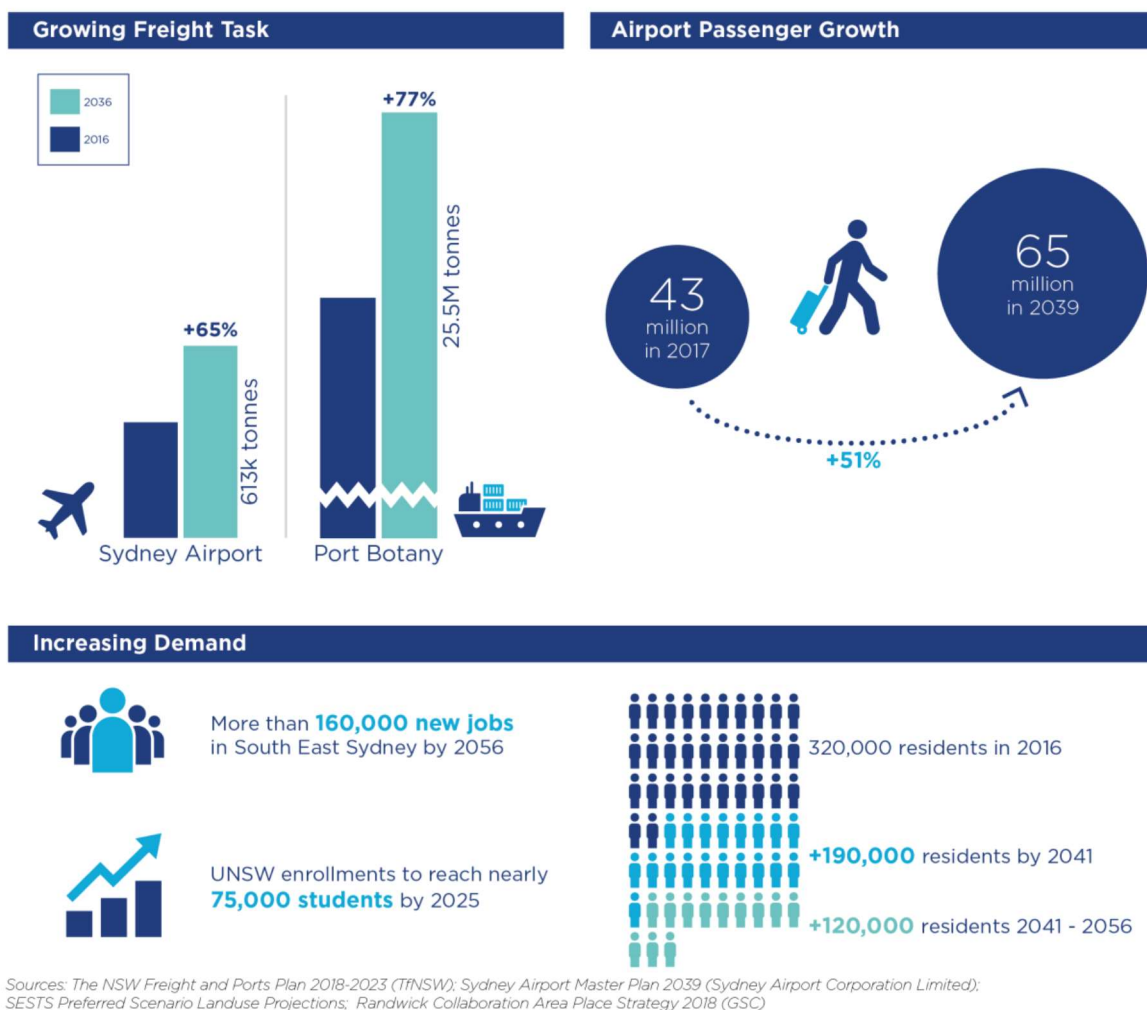
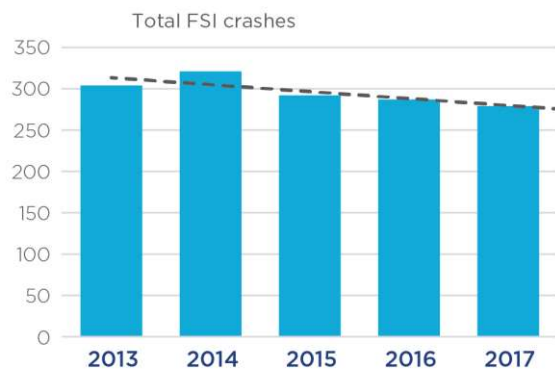


Figure 11 – Growing demands on the transport network

Fatal and serious injury (FSI) crashes



In South East Sydney for the **5 years** between 2013-2017 there were:



35 fatalities

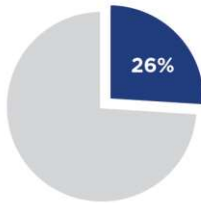


1,534 serious injuries

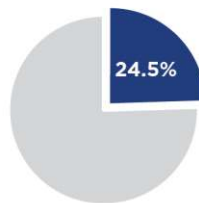
Vulnerable road users



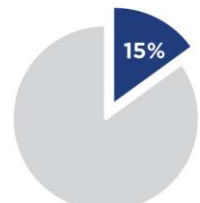
Motorcycles are involved in **26%** of FSI crashes



Pedestrians are involved in **24.5%** of FSI crashes



Cyclists are involved in **15%** of FSI crashes

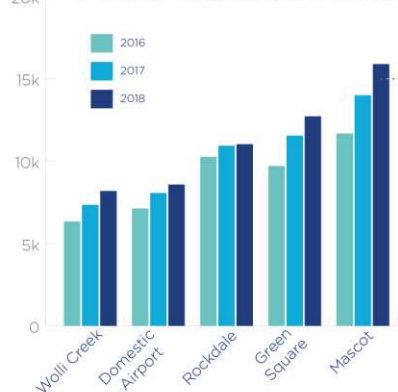


Source: Centre for Road Safety, Transport for NSW

Figure 12 – Fatal and serious injury (FSI) crashes in South East Sydney 2013-17

Train Patronage

Average weekday station entries



+81 million additional journeys per year on Sydney Trains (2013-2018)

In the mornings, trains at Mascot begin approaching **maximum capacity** at **7:15am**

Between 7:45 and 8:45am:

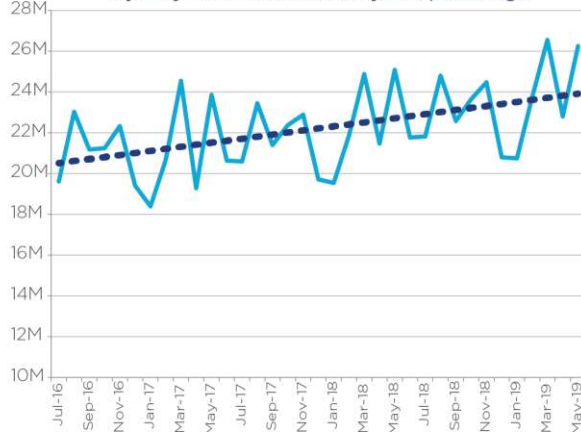
3 in 6 trains **arrive** over capacity

4 in 6 trains **depart** over capacity

Overcrowded trains tend to occur on express services

Bus Patronage

Sydney metro area monthly bus patronage



4% compound annual growth rate for bus patronage (Mar 2017-2019)

Road Network



On an average weekday, Heavy Vehicles as a portion of all traffic:

6% on the Princes Highway at Rockdale (2019)

14% on Canal Road (2017)

7% on South Dowling St (2019)

27% on Foreshore Road (2017)

2% on Botany Rd at Waterloo (2018)



AM Peak Journey Time Reliability is worst on:

South Dowling St (76%)

Joyce Dr (79%)

General Holmes Dr (78%)

Cleveland St (79%)

Sources: Bus and Train Patronage Tableau visualisations, Transport Performance and Analytics, TfNSW; Sydney Trains Annual Report 2017-18; TfNSW; Traffic Volume Viewer, RMS; JTR March 2019, Q. RMS; RMS Road Network Plan Report – Mascot to Eveleigh, 2018

Figure 13 – Patronage and volumes across modes 2017-2018

4 A Vision for South East Sydney 2056

4.1 Developing a vision for South East Sydney

The vision for South East Sydney was developed in close collaboration with our stakeholders. It is detailed and specifically defined for South East Sydney. It has been informed by global context set by the United Nations, is consistent with Australian Government land use and transport policies, NSW Government strategies and Local Government plans.

The vision was subsequently mapped back to the outcomes and directions of the *Greater Sydney Region Plan* and *Future Transport 2056* to ensure consistency and alignment with our strategic plans.

4.2 Vision

The *South East Sydney Transport Strategy* vision for seamless end to end journeys is informed by the policy context and developed in close collaboration with our stakeholders, looking to the future liveability, productivity, equity and sustainability of the region.

People living in South East Sydney have easy, safe and reliable access to a wide and diverse range of employment opportunities, open space, education, recreation and healthcare, regardless of age, income or mobility. Residents can access parks, schools and fresh food within their local area.

High quality, safe, reliable and appropriate transport networks, meeting freight, passenger and workers' travel needs support the economic development, efficiency and productivity of Sydney Airport and Port Botany.

Workplaces in South East Sydney are supported through access to a large and diverse workforce who can travel to employment easily and efficiently, regardless of the time of day and day of week. Sustainable local logistics support communities and workplaces.

New housing delivers diversity and affordability, supported by integrated land use and transport planning, including inclusive and sustainable transit-oriented development that features affordable, mixed-income housing and a mix of jobs and services.

People travelling to, from and within South East Sydney choose walking, cycling and public transport, recognising that these modes are the most efficient, contribute to our sustainable future and build community resilience.

The availability of innovative transport technologies enables residents and workers to make environmentally friendly travel choices, boost sustainable economic growth and improve service delivery.

4.3 Objectives and indicators

The objectives address the unique characteristics of South East Sydney and articulate the realisation of the vision at the local level.

Table 1: Objectives and Indicators

Liveable	OBJECTIVES	INDICATORS
	All residents have easy, safe and reliable access to employment, open space, education and healthcare.	 Number of SES residents within 30 minutes by public transport of the Harbour CBD [increase]
	All transport services are universally accessible.	 Number of SES residents within 30 minutes by public transport of their nearest strategic centre [increase]
	All residents can access a major employment centre (e.g. strategic centres, Harbour CBD, Randwick Health and Education Precinct, Sydney Airport and Port Botany) within 30 minutes by public transport.	 Number of SES residents within 30 minutes by public transport of Randwick Health and Education Precinct [increase]
	All residents can safely walk to a local centre.	 Number of SES residents within a 10 minute walk of a local centre or strategic centre [increase]
	Transport contributes to, and maximises the potential for, job growth through South East Sydney.	 Number of SES residents within a 10 minute walk of a public primary school [increase]
	The transport network is easy to use and understand and provides more 24/7 access	 Number of SES residents within 30 minutes by public transport of a public high school [increase]
	Businesses in South East Sydney are efficiently and sustainably connected to each other and their customers, including those out of the area.	 Population within 30 minutes by public transport of SES's beaches on weekends [increase]
		 Number of SES residents within a 15 minute walk of a local medical centre [increase]
		 Public transport service reliability within SES [increase]
		 Public transport operating speed within SES [increase]
		 Public transport overcrowding on services within SES [decrease]
		 Road network (key metropolitan routes in SES) reliability [increase]
		 Proportion of DDA compliant public transport services operating in SES [increase]
		 Proportion of DDA compliant public transport stops in SES [increase]
		 Service to service interchange times (interchanges occurring within SES) [reduce]
		 Casualty crashes in SES involving people walking or riding bikes [reduce]

Productive

Sydney Airport is connected to Sydney's eastern economic corridor and beyond by high quality mass transit.

Port Botany is connected to freight precincts in Greater Sydney and beyond by efficient and reliable rail freight services.

Public transport is the preferred way for passengers, visitors and staff to access/egress Sydney Airport.

Road corridors serving Port Botany and the development of adjacent land are managed together to minimise conflict between land uses.

Port Botany and Sydney Airport have easy access by all modes to local commercial, industrial and employment precincts.

Port Botany, Sydney Airport and industrial and employment areas within South East Sydney are well connected to industrial and employment lands within the Sydney metropolitan area.

Port Botany, Sydney Airport and industrial employment lands in South East Sydney are connected to local residential areas and transport nodes by safe and direct walking and cycling networks.

Jobs in South East Sydney are easy to access by public transport from across the Sydney metropolitan area.



Workforce within 30 minutes by public transport of Port Botany and Sydney Airport area [increase]



Workforce within 30 minutes by public transport of SES's strategic centres [increase]



Workforce within 30 minutes by public transport of Randwick Health and Education Precinct [increase]



Mode share of Sydney Airport staff [increase public transport, walking and cycling]



Mode share of Port Botany and the Port Precinct staff [increase public transport, walking and cycling]



Mode share (origin and/or destination trips) of Randwick Health and Education Precinct [increase public transport, walking and cycling]



Extent of the Sydney metropolitan area within a 30 minute freight trip (using the freight road network) of Port Botany [increase]



Extent of the Sydney metropolitan area within a 30 minute freight trip by road (using the freight road network) of Sydney Airport [increase]



Proportion of homes within SES within 100m of a road on the freight road network [decrease]



Freight road network within SES accessible to high productivity vehicles (HPV) [increase]



Casualty crashes in SES involving heavy vehicles [decrease]

Equitable

Public transport investment enables equitable, mixed use transit oriented development.

Public transport investment facilitates an increase in local jobs.



Number of homes within a 10 minute walk of transit nodes in SES [increase]



Number of jobs within a 5 minute walk of transit nodes in SES [increase]



Proportion of homes in SES within a 10 minute walk of a transit node defined as affordable [increase]

The walking and cycling networks serving the South East Sydney area are extensive and connected to the metropolitan wide networks.

The street network facilitates movement and place functions and enables successful places.

The use of existing and future assets is maximised by managing travel demand by time of day.

A resilient and flexible transport network that allows for adaptation in response to technological and behavioural changes over time.

Transport network investment is effective and efficient, ensuring whole of life costs are considered and where possible minimised without compromising service outcomes.



Number of square kilometres of Green Grid within SES [increase]



Open space in SES per SES resident [increase]



Length of protected/separated cycleways in SES [increase]



Mode share of peak period trips with an origin and/or destination in SES [increase public transport, walking and cycling]



Mode share of all trips with an origin and/or destination in SES [increase public transport, walking and cycling]



Number of SES residents within 5 minute walk of the Green Grid [increase]



Car ownership per dwelling in SES [reduce]



Bus service kilometres travelled in SES where PTIPS is activated [increase]



Vehicle kilometres travelled by SES residents per capita and in total [reduce]

The assessment of the strategic options or scenarios, has used these indicators to determine the extent to which each option would achieve the objectives and realise the vision in the longer term.

4.3.1 Why the South East Sydney Transport Strategy approach will work

The *South East Sydney Transport Strategy* is a fundamental shift from a 'predict and provide' approach to 'vision and validate'. The Strategy has not simply modelled transport demand into the future and responded, but instead looks to manage changing land use and transport demand together to achieve the vision developed in collaboration with our stakeholders.

The Strategy sets out future travel needs against existing transport networks and service capacity, identifying the behavioural and policy change that is necessary to support growth consistent with the vision. The approach identifies the transport networks and services to support the future demand within the context of the behavioural and policy change. In this way the Strategy recognises and plans for growth to meet the vision.

The vision is validated through a process of identifying future transport networks and services that respond to land use change, are consistent with the Strategy vision and meet future demand (that is, supply will meet demand). Future demand was modelled for each land use scenario and this informed the assessment by the indicators in Section 4.3.

This approach recognises that continuing to accept current mode share, and in particular high levels of private car use, is not going to realise the vision, rather it will lead to increased road congestion and reduced accessibility for local residents, workers and visitors.

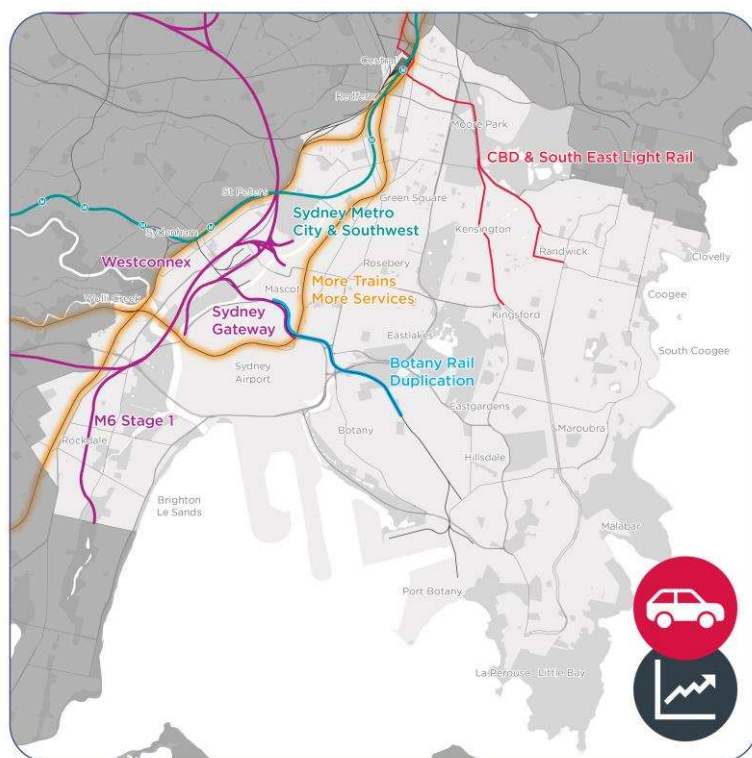
4.4 Integrated land use and transport scenarios

The Strategy tested six distinct land use and transport scenarios and assessed how each address the vision; four that redistributed the DPIE land use forecasts for population and employment across the study area, then one for the Compact City model using the *Eastern City District Plan* forecasts, which are higher, redistributing growth from across Sydney. As an assessment of even higher growth scenario there was an option with more jobs, people and transport.

Transport for NSW worked with advisors and land use stakeholders including the four Councils, the Department of Planning, Industry and Environment, the Greater Sydney Commission, the Department of Communities and Justice (incorporating the former Family and Community Services and Correctional Services), NSW Health Infrastructure, UNSW, Sydney Airport and Port Botany to develop the alternative land use futures. A transport network, including infrastructure, services and policies, was defined for each of these land use futures (scenarios). Future population and employment was modelled based on both the land use change and the transport response using 2041 as the future time horizon to allow for a comparison between scenario outcomes.

4.4.1 Reference Case

The reference, or base, case assumes the delivery of the currently committed and planned infrastructure and a growth in residential population (housing) and employment consistent with the Department of Planning, Industry and Environment's (DPIE's) forecasts. The reference case 2041 provides a base from which other scenarios can be measured in terms of the extent to which they meet the Strategy's vision.



Land Use Assumptions

- Residential growth Green Square-Waterloo, Banksia-Arncliffe, Kensington, Kingsford, Maroubra and Malabar
- Employment Redfern, Green Square, Mascot, Sydney Airport, Randwick Health and Education Precinct

Transport Network Assumptions

- CBD and South East Light Rail (CSELR)
- More Trains More Services program to increase rail network capacity (in peak periods) on the T8 and T4 Lines
- Sydney Metro City and Southwest
- Sydney Metro West (to Eastern Harbour City CBD)
- WestConnex (Stages 1 to 3) and Sydney Gateway
- Western Harbour Tunnel and Beaches Link
- M6 Stage 1
- Port Botany Rail Line Duplication

Figure 14 – Reference Case 2041

4.4.2 Compact City

The Compact City scenario assumes a land use distribution and transport network consistent with the GSC's *Greater Sydney Region Plan* vision for three cities and *Future Transport 2056*'s City Shaping and city serving corridors. For the Mass Transit Corridors identified in *Future Transport 2056*, the scenario has used a Metro product, but this would be subject to further analysis as part of the solution. This scenario has a higher population total to meet the *Eastern City District Plan* growth targets than the Reference Case. At a local level this scenario focuses on jobs and homes within, or well connected to, strategic centres and collaboration areas, supporting intensification and the protection of industrial lands maintaining the port and airport functions.

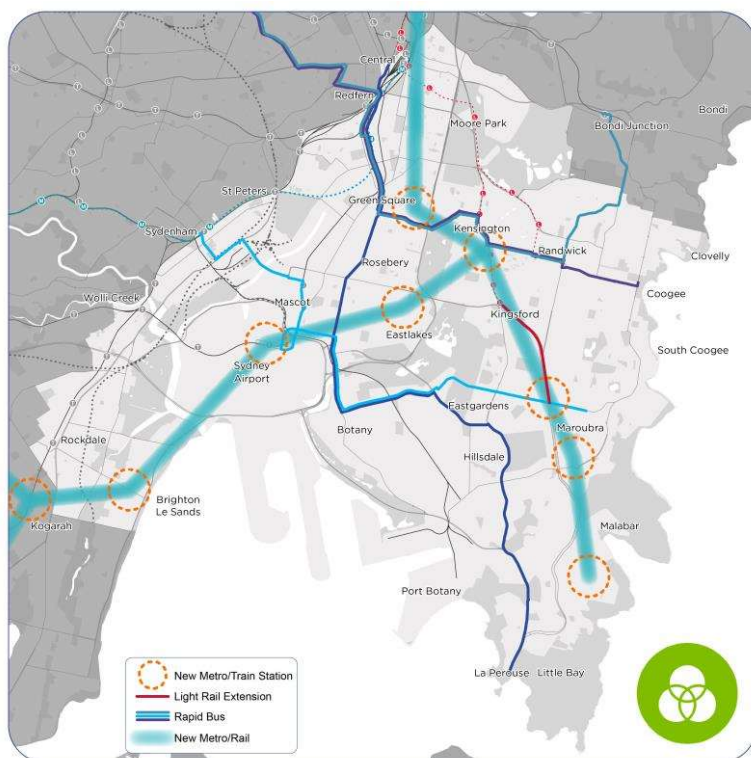


Figure 15 – Compact City scenario 2041

Advantages of the Compact City scenario include:

- Significant expansion of the 30 minute city catchment of
 - Harbour CBD
 - Randwick Health and Education Precinct
 - Strategic centres (Randwick, Green Square-Mascot and Eastgardens-Maroubra Junction)
 - Sydney Airport
- Extends the 24/7 public transport network and services
- Strengthens and supports strategic centres
- Supports residential growth in line with government targets
- Increases the capacity of the road network without construction of new road space.
- Forecast to provide sufficient capacity in the AM peak beyond 2056

Disadvantages of the Compact City scenario include:

- Significant capital cost associated with the expansion of transit networks
- Increased operational costs as the public transport network expands.

Land Use Assumptions

- Higher housing and job forecasts to match GSC growth
- Jobs within 400m of modelled station locations, homes within 800m

Transport Network Assumptions

In addition to the transport infrastructure from the Reference Case, the following transport initiatives are included:

- Extension of CSELR from Kingsford to Maroubra Junction
- Extension of Metro West to the South East (via Zetland, Randwick, Maroubra Junction, Maroubra and Malabar)
- New metro from Randwick to Miranda (via Eastlakes, Domestic Airport, Brighton-Le-Sands and Kogarah)
- Outside the study area, new metro connections between Hurstville and Macquarie Park and Kogarah and Norwest
- Four new rapid bus lines:
 - Randwick - Bondi Junction
 - Coogee - Bays Precinct
 - La Perouse - Green Square – Eastern Harbour City CBD
 - Maroubra Junction - Airport – Sydenham

4.4.3 Economic

The Economic scenario focuses on the promotion of our important trade gateways, improving their connectivity and protecting them from land use change that would see residential development nearby and the resultant potential for conflict. This scenario test an option using the DPIE figures used in the Reference Case, allocated to support employment centres.

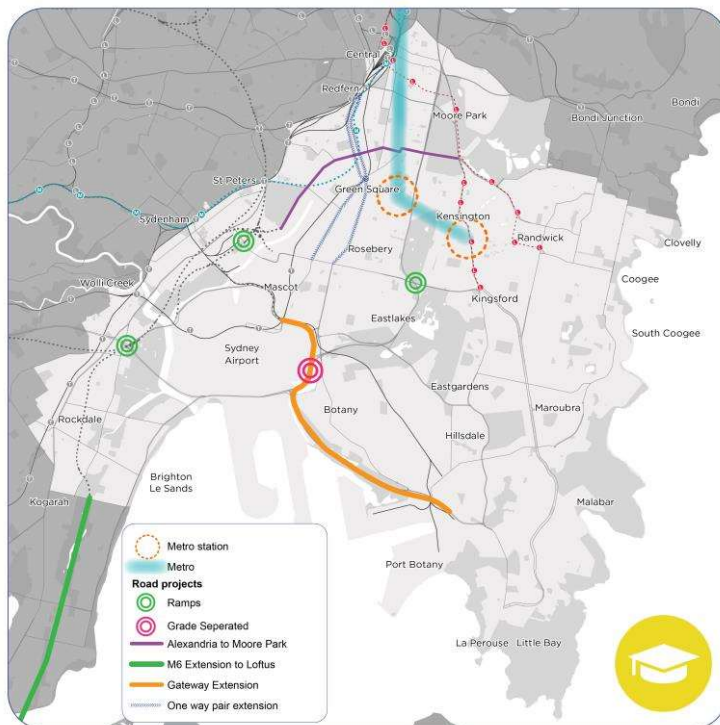


Figure 16 – Economic scenario 2041

The advantages of the Economic scenario are:

- Significant expansion of the 30 minute city catchment of Randwick Health and Education precinct
- Supports the strategic centres of Randwick and Green Square-Mascot
- Upgraded access between Port Botany and Sydney's motorway network, via an extension of Sydney Gateway and additional motorway access points.

The disadvantages of the Economic scenario are:

- Increasingly slow and unreliable travel on the road network
- Potential to negatively impact the attractiveness of Eastgardens-Maroubra Junction strategic centre reducing opportunities for people living in the southern parts of the Eastern Suburbs
- Does not support expansion of the 30 minute city catchment of
 - Harbour CBD
 - Sydney Airport
 - Eastgardens-Maroubra Junction.

Land Use Assumptions

- Lower total population forecast, higher jobs than reference case
- More jobs in Randwick Health and Education Precinct, Mascot and Port Precinct and Sydney Airport

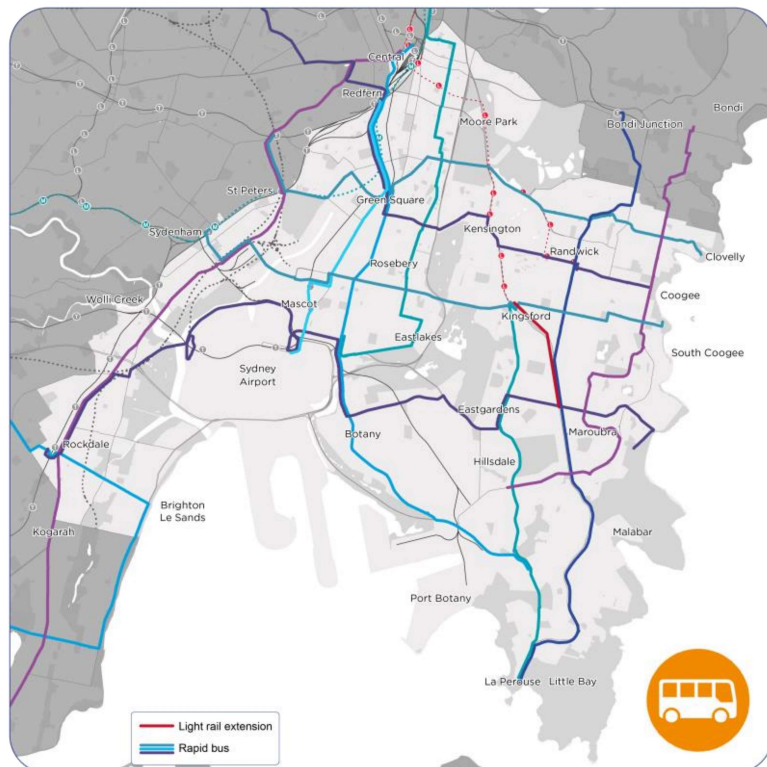
Transport Network Assumptions

In addition to the transport infrastructure from the Reference Case, the following transport initiatives are included:

- Extension of Metro West to Randwick Junction (via Zetland)
- Extension of the Botany Road / Wyndham Street one- way pair to Mascot (via O'Riordan Street / Botany Road)
- Extension of Sydney Gateway to Port Botany, with grade separation at General Holmes Drive
- Extension of the M6 Stage 1 to Loftus
- Additional ramps to improve accessibility to the motorway network:
 - at M5 East / M6
 - Southern Cross Drive/ Gardeners Road
 - Sydney Gateway / Canal Road.

4.4.4 Mass Transit Corridors

The Mass Transit Corridors scenario is focused on the existing and potential future on-road public transport network. Under this scenario existing corridors would be supplemented and service intensity increased with through bus rapid transit or light rail to increase capacity, improve reliability and reduce travel times. The population total matches the DPIE forecasts and the spatial allocation was agreed as a scenario by the Engagement Working Group as described in 4.4.



Land Use Assumptions

- Jobs focussed at interchange nodes
- Population growth focussed along the bus and light rail corridors

Transport Network Assumptions

- An extension of CSELR from Kingsford to Maroubra Junction
- 12 new rapid bus lines:
 - North Sydney to Mascot
 - Upper Bondi to Hillsdale
 - Coogee Beach to Bays Precinct via UNSW and University of Sydney
 - Bondi Junction to La Perouse
 - Clovelly to Newtown
 - Kingsford to Little Bay
 - Maroubra to Rockdale
 - Eastern Harbour City CBD to Botany
 - Redfern to Sydney Airport
 - South Coogee to Sydenham
 - Sutherland Hospital to Railway Square
 - Kogarah Bay to Brighton-Le-Sands

Figure 17 – Mass Transit Corridors scenario 2041

The advantages of the Mass Transit Corridors scenario are:

- Some expansion of 30 minute city catchments
- Strengthens the connections between strategic centres and recreational destinations
- Delivers general accessibility improvements throughout the south east
- Extends the 24/7 public transport network and services
- Relatively low capital cost as the existing road network is used
- Offers a relatively short delivery timeframe and requires limited construction to achieve network improvements.

The disadvantages of the Mass Transit Corridors scenario are:

- Does not support residential growth in line with government targets
- Significant reduction in road space available for freight movements across the south east
- May not provide sufficient capacity to meet forecast demand in the morning peak period.

4.4.5 Mass Transit Nodes

The Mass Transit Nodes scenario focuses on existing and potential future public transport nodes in the south east. This scenario, developed as a sensitivity test for a higher population through the process agreed by the Engagement Working Group, attracts higher future population and employment growth. The delivery of new Metro lines and stations, consistent with *Future Transport 2056*, supports development intensity at transport nodes.

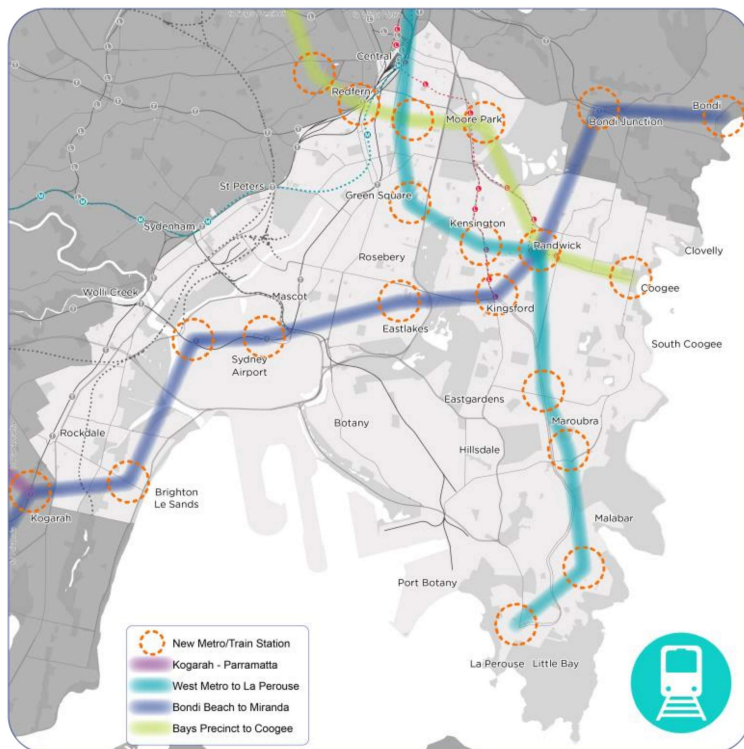


Figure 18 – Mass Transit Nodes scenario 2041

The advantages of the Mass Transit Nodes scenario are:

- Significant expansion of the 30 minute city catchment of
 - Harbour CBD
 - Randwick Health and Education Precinct
 - Strategic centres (Randwick, Green Square-Mascot and Eastgardens-Maroubra Junction)
 - Sydney Airport
 - Bondi Junction
- Extends the 24/7 public transport network and services
- Strengthens and supports strategic centres
- Supports residential growth above government targets enabling an broader expansion of 30 minute city catchments.

The disadvantages of the Mass Transit Nodes scenario are:

- Capital costs are greater than for all other scenarios
- Transport capacity is greater than forecast demand in the longer term (over supply not representing value for money).

Land Use Assumptions

- Jobs within 400m of proposed Metro Stations
- Population growth focussed within 800m of proposed Metro Stations
- Metro station locations chosen as they are in current and emerging Strategic Centres or would allow for the redevelopment and uplift of Government owned land

Transport Network Assumptions

Three new metro lines:

- Extension of Metro West to the South East (via Zetland, UNSW, Randwick Junction, Maroubra Junction, Maroubra, Malabar and La Perouse)
- New metro from Bondi Beach to Miranda (via Bondi Junction, Randwick Junction, Kingsford, Eastlakes, Domestic Airport, International Airport, Brighton-Le- Sands and Kogarah)
- New metro from Coogee to the Bays Precinct (via Randwick Junction, Moore Park, East Redfern, Redfern, University of Sydney)

4.4.6 Dispersed

The Dispersed scenario contemplates a relatively unrestricted or laissez-faire, approach to land use and transport planning for the south east. The scenario envisages residential development that responds to land availability and as such beyond that in the reference case levels. This development would occur with no transport intervention or investment beyond that assumed in the Reference Case. This scenario was developed as a sensitivity test by the Engagement Working Group. The nature of the dispersed development would make it difficult to effectively serve increased demand through an expansion of public transport services.

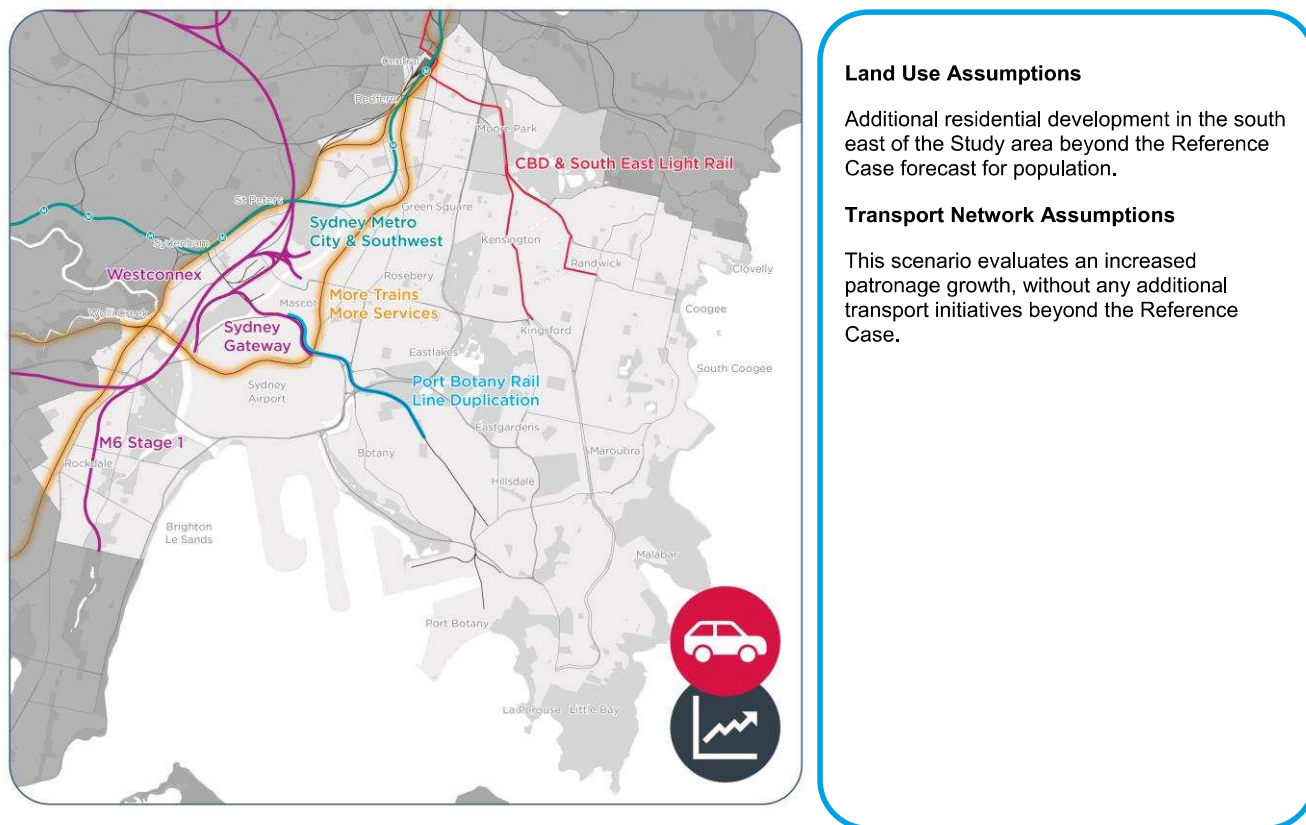


Figure 19 – Dispersed scenario 2041

The advantages of the Dispersed scenario are:

- Capital costs to Government are lower than for all other scenarios
- While travel will be increasingly slow and unreliable, this may encourage better use of existing infrastructure through, for example, peak spreading
- No further construction disruption.

The disadvantages of the Dispersed scenario are:

- Increasingly slow and unreliable travel across all modes
- Will not provide sufficient capacity to meet forecast demand in the morning peak period
- Potential to negatively impact the attractiveness of strategic centres including Eastgardens-Maroubra Junction, Green Square-Mascot and Randwick reducing opportunities for people living within and beyond South East Sydney.

4.5 Development of the preferred scenario

Using the suite of indicators developed, see Table 1, Transport for NSW assessed the performance of each scenario relative to the reference case in meeting the objectives and realising the Strategy's vision. The assessment process evaluated how the scenarios performed against each part of the vision and what component transport projects contributed to the assessment outcome. In this way it was possible to construct a preferred scenario that had the potential to realise all parts of the strategy vision and deliver beneficial land use outcomes.

The proposed infrastructure and services for investigation is intended to result in a transport network that realises the vision, delivers *Future Transport 2056* and that does not represent an over investment for infrastructure in this area. Affordability was a consideration, for example, Metro investment performs highly against all of the 30 minute indicators, but the additional route tested, even with a higher population to serve, did not attract sufficient usage to promote this component of the network. Where a higher cost mode was chosen, such as rail over light rail or bus, it was in part because the lower capacity mode could not serve customer demand as well as the performance of Metro against 30 Minute City indicators.

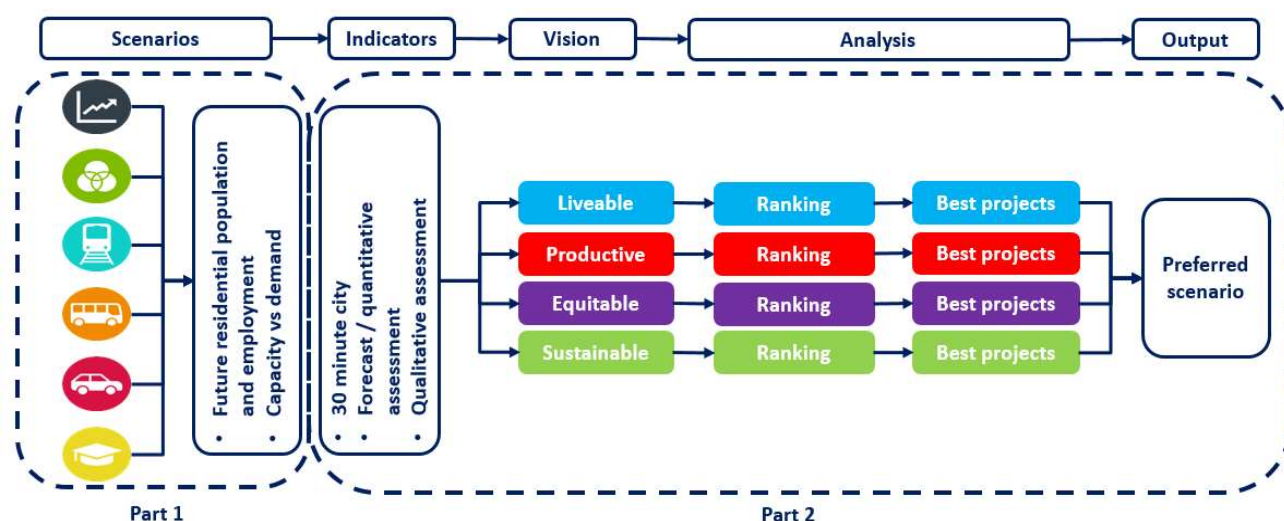


Figure 20 – Development of the Preferred Scenario

These projects were then brought together in the preferred scenario which in turn forms the basis of this Strategy. The next step beyond this Strategy would be detailed investigations, economic analysis, consideration of staging, sequencing and funding opportunities to ensure a program of investment represents value for money to serve the population and employment growth forecasts in the *Eastern City District Plan*.

5 Preferred land use and transport future

The *South East Sydney Strategy* combines land use change with transport investment. This will result in new Metro connections, the transformation of the bus network, delivering improved network performance and reliability, connecting and serving centres, a complete and dedicated bike network, providing access to local centres and recreational areas, and road improvements to support residential, better connections for freight to the port, economic and employment growth.

Land use, policy and regulatory changes will also be required to support the new networks and services and to deliver the Strategy's vision and meet the population and employment forecast growth in the *Eastern City District Plan*.

Progressing *Future Transport 2056* through place-based planning

Future Transport 2056 adopts an agile and flexible approach to planning for our future transport needs. The *Greater Sydney Services and Infrastructure Plan* will continue to be updated as land uses change, technology evolves and new opportunities emerge. Through the Strategy development there has been close engagement with our customers, the community and stakeholders, ensuring that their insights inform more detailed planning and that this planning is integrated across government and with industry.

Guided by *Future Transport 2056*, *Greater Sydney Services and Infrastructure Plan* and supporting plans, the Strategy is a more detailed place-based plan for South East Sydney, exploring different options to meet future demand on city-shaping, city-serving, centre-serving and dedicated freight corridors. The Strategy focuses on regional and local transport needs and how these can be met within the wider Greater Sydney transport vision.

The *South East Sydney Transport Strategy* vision was developed in collaboration with stakeholders and assessed in more detail where and when identified initiatives are most appropriate to realise this vision and align with land use plans. Importantly, it also enabled us to address stakeholder feedback on specific regional and local initiatives to be investigated to support the shared vision and objectives for South East Sydney.

Some of the initiatives outlined in *Future Transport 2056* and the *Greater Sydney Services and Infrastructure Plan* have been subject to further discussion and analysis and this has resulted in the changes identified in the Strategy as these changes more fully realise the vision:

- Extension of the proposed mass transit link to the south east from Malabar to La Perouse. Investigations of this option would place La Perouse residents within a 30 minute catchment of the Harbour CBD and enhance the urban renewal opportunities and recreational access by public transport to the end of the peninsula.
- Development of a more expansive network of rapid bus lines. The network of rapid lines will build a network to serve the east-west public transport demand reliably and provide stronger connections between Strategic Centres.
- Prioritising the delivery of Metro to the South East instead of light rail to Maroubra Junction, with Metro to provide the higher capacity to meet the higher demand now expected in the medium and longer term, and provide the catalytic opportunity for place development in station locations.

5.1 Preferred scenario

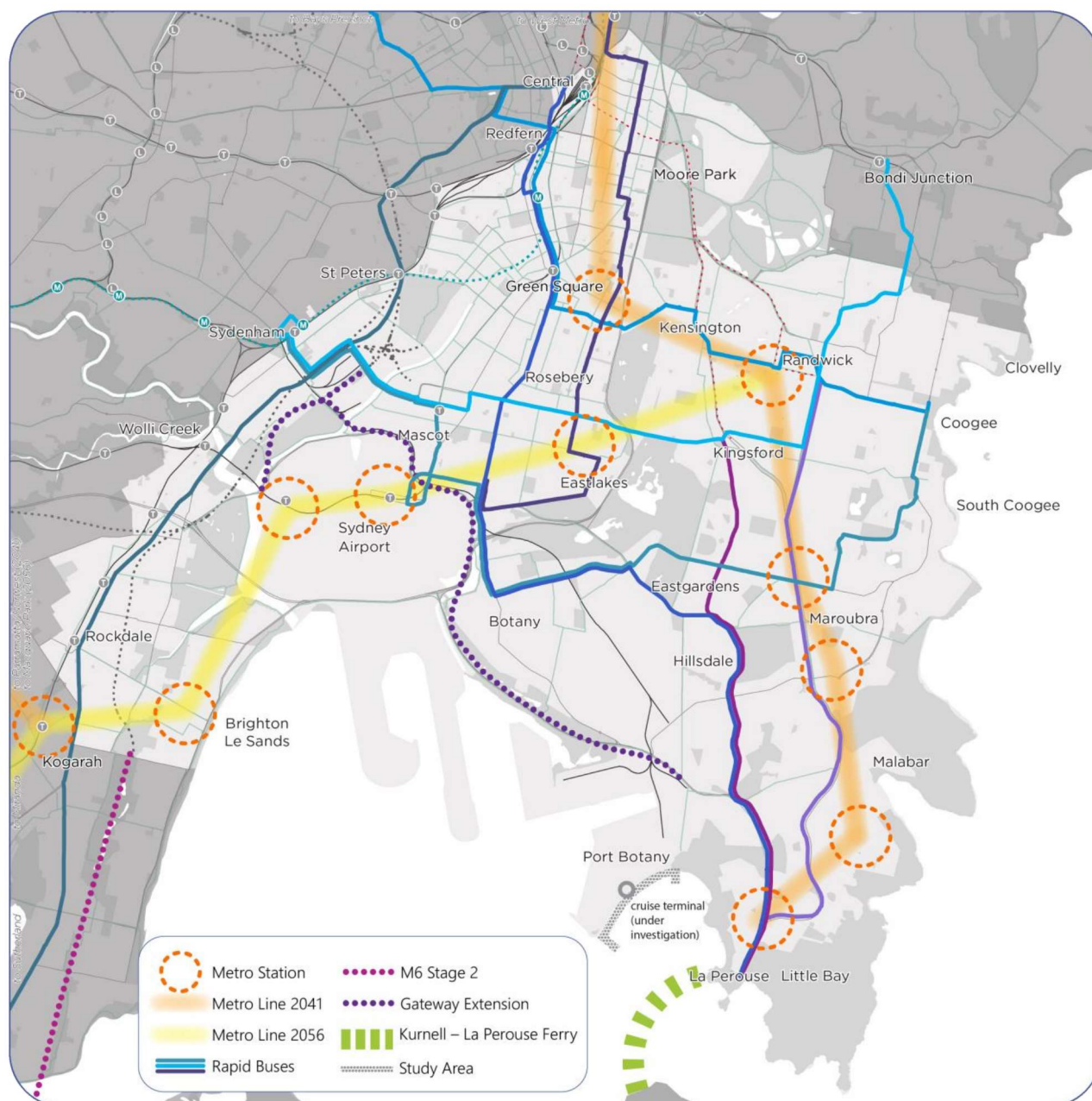


Figure 21 – Preferred scenario by 2056 subject to business cases and investment decisions

5.1.1 Proposed land use changes

The Strategy brings together the transport projects and land use assumptions which best reflect the vision and objectives for South East Sydney. The population and employment forecasts meet the *Eastern City District Plan* growth targets.

At a regional level, the Strategy assumes the three cities vision under the *Greater Sydney Region Plan* is achieved. At a local level, strategic centres, collaboration areas and new Metro stations are a focus for residential and employment intensification. Rapid bus lines provide connections between strategic centres and other activity nodes to support a network of centres across South East Sydney, connecting residents and workers to services and places of activity. Existing industrial land is protected from new residential development.

Under this scenario, the additional population growth, and the spatial distribution of this growth, is primarily driven by two new Metro lines (Harbour CBD to La Perouse and Randwick to Kogarah).

The Metro extension from the Harbour CBD to La Perouse is delivered first, by 2041. Across South East Sydney, medium term growth will be concentrated around six Metro stations along the Harbour CBD to La Perouse Metro corridor including Zetland, Randwick, Maroubra Junction, Maroubra, Malabar and La Perouse. Eight rapid bus lines will help to support the network, particularly east-west connections.

By 2056, the Randwick to Kogarah Metro is operational. Long term growth will be concentrated around two Metro stations, Eastlakes and Brighton Le Sands. The two airport Metro stations will support the role and function of the airport, providing connections from the east and west. This line will improve connectivity between the Health and Education precincts in Randwick and Kogarah.

Land use outcomes

There is potential for uplift in development capacity due to transport investment within South East Sydney. Uplift would be expected in areas within 800 metres of a Metro station or along rapid bus lines/ light rail corridors. Uplift around Metro stations would be expected to be greater due to its city shaping potential. Decisions around the likelihood of this uplift will influence the economic viability of the proposed Metro lines, particularly the South East line south of Randwick.

Potential building typologies for mixed use and residential precincts within close proximity to the proposed Metro stations are illustrated in **Figure 22**. These developments demonstrate desirable scale and density and quality outcomes at the street level. This scale is in keeping with recent development across South East Sydney.

Mixed use:

Waterloo Street, Surry Hills

Indicative FSR:

2.2:1

Indicative storeys:

5-6

Typical minimum lot area:

800 sqm



Mixed use:

East Village

Indicative FSR:

2.5:1

Indicative storeys:

6-8 storeys

Typical minimum lot area:

2,500 sqm



Residential:

Portman Street Terraces, Zetland

Indicative FSR:

1.5:1

Indicative storeys:

2-3

Typical minimum lot area:

250 sqm



Figure 22 – Building Typologies

The transport networks in the Strategy are planned to offer capacity beyond the forecast 2056 demand. The longer term future for this area could support more and higher density development than proposed in this Strategy.

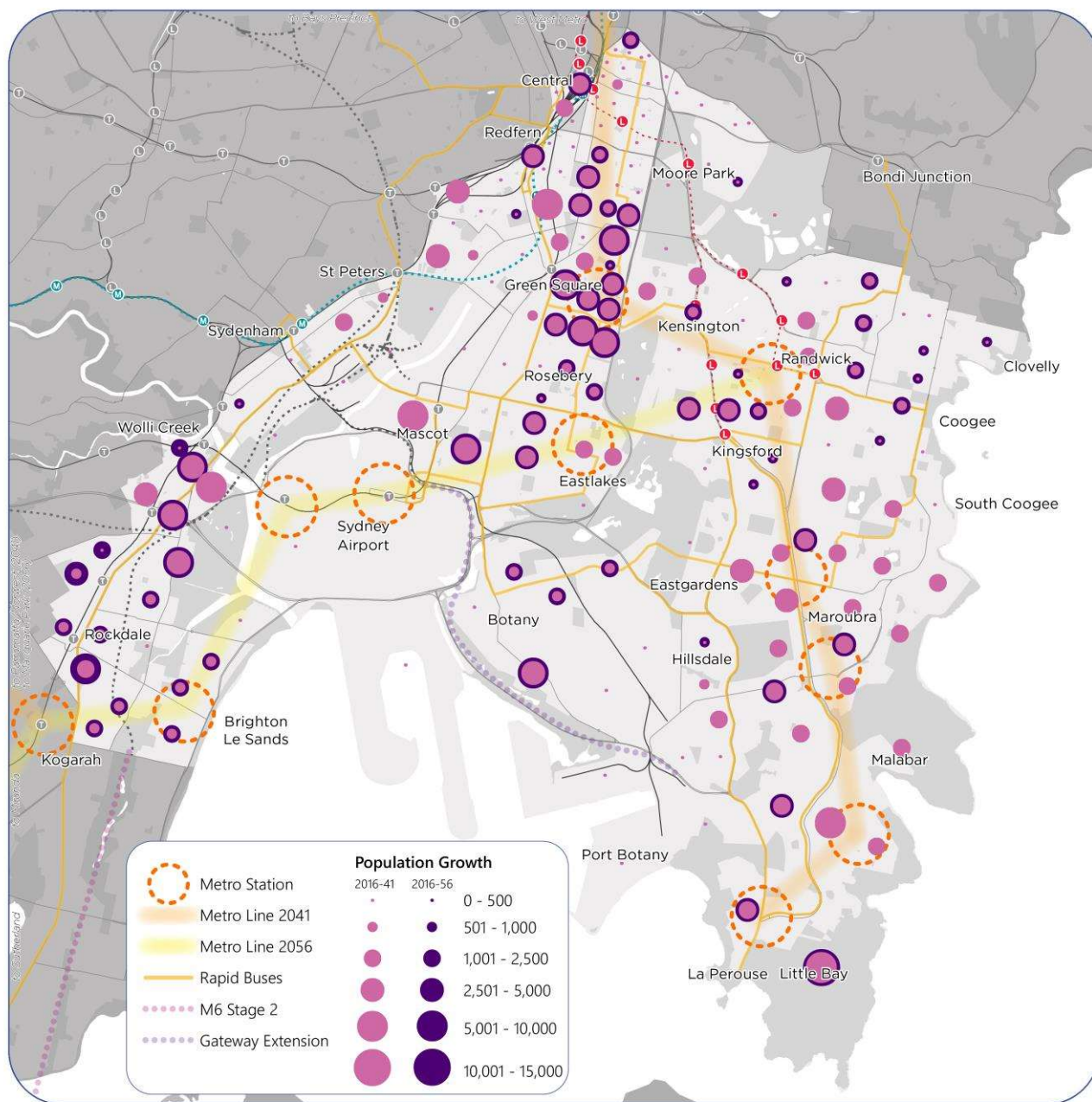


Figure 23 – Proposed residential growth to 2056

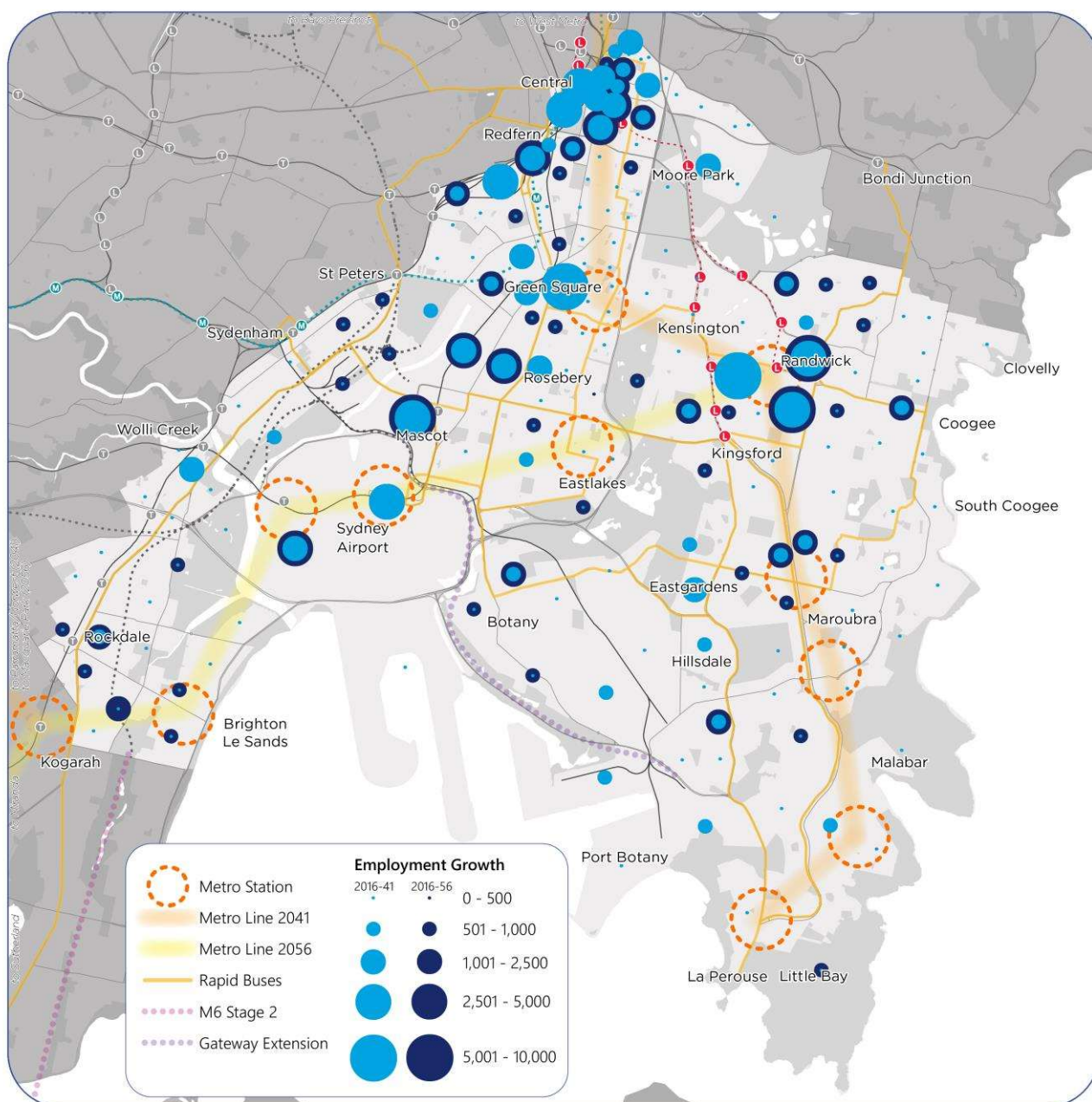


Figure 24 – Proposed employment growth to 2056

5.1.2 Policy change

Land use planning and development controls

The realisation of the Strategy vision will benefit through the Department of Planning, Industry and Environment and councils taking a supportive and consistent approach to land use and development planning controls.

Opportunities for Strategy implementation through the application of planning policy frameworks and approvals include:

- Setting maximum parking rates for new developments and/or unbundling parking where parking is provided.
- Car share parking accessible to both the development occupants and the wider community.
- Integrated electric vehicle charging.

- Bike parking with integrated e-bike charging and support services, such as a bike repair station.
- End of trip facilities, including showers and lockers.
- Inclusion of local scale consolidation and delivery centres within developments to support efficient and sustainable logistics.
- Connected basements and dedicated goods lifts.
- Ensuring all places are accessible for people living with disabilities.
- Travel plan requirements with conditions to ensure ongoing implementation and monitoring.
- Affordable housing incorporated into new residential developments.
- Walking and cycling connections, particularly to, from and through major development sites ensuring connectivity with the surrounding networks.
- Inclusion of childcare, food stores and parcel lockers within developments.

Opportunities through land use zoning include:

- Preventing urban encroachment on industrial and employment precincts and alongside road corridors serving these precincts and catering for relatively high proportions of truck movements.
- Supporting a land use mix to create sustainable local centres.
- Achieving appropriate development outcomes in close proximity to new transport investment, e.g. Metro stations.

Kerbside management

On-street parking and kerbside management policies are an important part of delivering change. On-street parking generates traffic with drivers circulating to find available parking, adding to traffic congestion and impacting safety and amenity. In centres the use of kerbside space can contribute to amenity and support buses, deliveries and servicing. An over-supply of parking in, and close to centres can lead to high levels of car use and traffic, eroding the outcomes of place making actions.

The Strategy vision can only be achieved if appropriate on-street parking and kerbside management policies are in place, to reduce traffic, deliver road safety and amenity outcomes, support the development of the public transport, walking and cycling networks, and provide for local freight.

Travel Demand Management

Travel Demand Management (TDM) describes a wide range of initiatives that seek to influence demand on transport networks by redistributing journeys to other modes, times, routes, or by reducing or removing the need to make a journey altogether. TDM strategies manage the capacity of networks more efficiently and encourage customers to make sustainable travel choices, including through targeted travel behaviour change initiatives.

TDM can be beneficial to managing demand for access to centres and interchanges through strategies that encourage customers to adopt one of more the 'Four R's'; that is:

- Retiming trips outside of peak periods to times when there is less congestion on the transport network. This can benefit customers by enabling a faster or more comfortable commute.

- Reducing the need to travel or removing the need to make a journey altogether. Examples include working from home, teleconferencing for a work meeting, or consolidating multiple freight and servicing dispatches into one delivery made easier through technology.
- Remodelling or switching to another more efficient or sustainable mode of transport. For example, buses are able to convey more passengers than cars for an equivalent amount of road space, and walking or riding a bike can be more direct (and healthier) than other modes for short journeys.
- Rerouting trips outside or around busy areas to avoid congestion or to take advantage of contra-flow routes or services, which are typically faster or less congested.

Transport for NSW will explore opportunities to embed TDM strategies in South East Sydney, including by working with Department of Planning, Industry and Environment and local councils to require new developments and businesses operating in key precincts to develop and implement travel plans that both encourage the use of sustainable transport choices and discourage single occupancy car use.

The *State Infrastructure Strategy* recommends that the NSW Government investigates for implementation an integrated system-wide user pricing regime that also contemplates impacts of electric and autonomous vehicle technology. If adopted, this work would inform the delivery of the Strategy.

Safe System requirements

Future Transport 2056 commits to a trauma free transport network through the adoption of a Safe System approach. Components of the Safe System approach can be implemented within South East Sydney to reduce the risk, incidence and severity of road crashes. Through targeted road safety communication and education to improve road user behaviour, working with the community to embed a road safety culture, and designing safety into our roads and vehicles, we can deliver significant road safety benefits and work towards the achievement of the vision for a trauma free network – no deaths or serious injuries on NSW's roads.

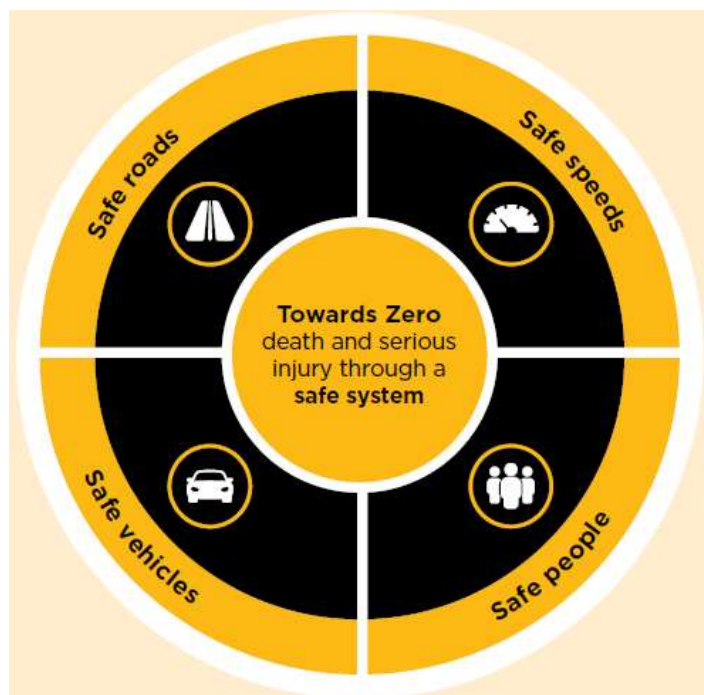


Figure 25 – Safe System approach

To achieve the vision of a zero trauma transport network by 2050, a number of policies will influence the design of the preferred scenario through development and delivery, including:

- Ensuring speed limits match the agreed movement and place functions across the transport network.
- Mandating pedestrian protection phases (removing green on green phasing) at all signalised intersections, and introducing pedestrian phases (with protection) where they do not already exist with the greatest priority being along heavy vehicle routes.
- Redesigning high risk intersections in busy pedestrian areas to provide signalised scramble crossings, reduced cycle times and raised intersections.
- Providing safe crossing facilities on all local streets through the installation of pedestrian refuges, traffic calming measures, raised pedestrian crossings, road narrowings and similar features.
- Prioritising pedestrian crossing movements along streets with a high place function by allocating more time, more often to pedestrians and implementing continuous footpath treatments.

Infrastructure and services

In addition to transport infrastructure investments committed and planned to 2026, the preferred scenario includes additional investment in transport infrastructure and services, including two new Metro lines, a network of new rapid bus lines, and road and cycling investment. For the sake of modelling and analysis the 'Mass Transit' product as described in *Future Transport 2056*, is described as Metro rail, with a very high maximum capacity as a result of the frequency of service and travel speed, but this would be subject to further investigation and refinement as a preferred scenario is defined.

- City shaping corridors
 - Metro extension to La Perouse (via Zetland, Randwick, Maroubra Junction, Maroubra and Malabar), an extension of Sydney Metro West, to provide fast and reliable transit between the Harbour CBD and the south east, meeting future demand and unlocking land with redevelopment potential, with delivery by 2041.
 - Metro between Randwick and Kogarah (via Eastlakes, Domestic Airport, International Airport and Brighton-Le-Sands) to provide cross-regional east-west mass transit to strategic centres, employment hubs and recreational destinations, meeting east-west travel demand and relieving pressure on radial routes, with delivery by 2056.

The delivery of Metro services will support an uplift in development capacity within South East Sydney, supporting the redevelopment of government land, the growth of strategic centres and the expansion of the Randwick Health and Education Precinct. Metro will extend the 30 minute catchment of the Harbour CBD and the south east's strategic centres. The two proposed Metro lines will underpin a connected transport network that will meet the future needs for both north-south and east-west travel. The proposed station localities will facilitate mixed use redevelopment providing communities with greater housing choice, local employment opportunities and a range of services and facilities, particularly for Maroubra and Malabar where the quantity of government owned land could be renewed in a manner that embodies the best planning for places, integrated with the transport networks.

The Metro line connecting Randwick to Kogarah in the longer term will provide for high speed, high frequency east west movements, support future demand across the Sydney Airport precinct for passengers and employees. This line will also support the evolution of local places at Eastlakes and

Brighton Le Sands and a radial connection between the Health and Education precincts at Randwick and Kogarah.

The preferred scenario includes new rapid bus lines linking strategic centres, employment hubs and the Harbour CBD. This will be a network of high frequency, on-road bus services benefitting from infrastructure that delivers vehicle priority and high quality stops, with signage and wayfinding. The delivery of rapid bus lines will include the broader rollout of traffic signal priority for buses on this network and the allocation of road space from general traffic to buses. The proposed network has been designed to establish key north-south and east-west corridors linking Strategic Centres and local places. Decisions about the specific roads these routes take is subject to further refinement and analysis. The proposed network includes lines along city serving and centre serving corridors:

- City serving lines
 - Railway Square to Sutherland Hospital (via Princes Highway)
 - Harbour CBD to La Perouse (via Green Square and Eastgardens)
 - North Sydney to Mascot (via Green Square).
- Centre serving lines
 - Bondi Junction to Sydenham (via Randwick and Mascot)
 - Randwick to La Perouse (via Anzac Parade)
 - Kingsford to La Perouse (via Bunnerong Road)
 - Coogee Beach to Bays Precinct (via UNSW and University of Sydney)
 - South Coogee to Sydenham (via Sydney Airport).

Other projects in the Strategy include:

- The extension of Sydney Gateway by road to Port Botany, including intersection upgrades and improved access to industrial precincts.
- The delivery of the Principal Bicycle Network (PBN) within South East Sydney, a co-designed network linking local centres, strategic centres and the Harbour CBD.
- Review the current bus network to identify routes where high frequency across the day and week will attract a mode shift to bus travel.

Other projects, such as the M6 Motorway beyond Stage 1 (shown on the Preferred Scenario map), Sydney Metro West, Western Harbour Tunnel and other city shaping projects further removed from the Study area, are included in the future networks as they are included in *Future Transport 2056*.

Airport Line

The Airport Line was completed in 1999. While the tunnels and rail systems were publicly funded, the stations were constructed through a private financing initiative. The contract covers the construction and operation of Green Square, Mascot, Domestic and International stations. The station access fee was removed from Green Square and Mascot stations in 2011. The contract with station operator, Airport Link, ends in 2030. The Strategy assumes the cessation of the contract at that time.

A new Cruise Terminal investigation

A new Cruise Terminal at Yarra Bay or Molineaux Point near Port Botany was identified in the NSW Cruise Development Plan in July 2018 to support the growth of the cruise industry. The investigation process is now on hold, but has to date considered the social and economic costs and benefits, traffic and transport impacts, heritage and environmental impacts. The NSW Government made

the decision in March 2020 to place the Cruise Capacity business case on hold and will keep the community informed of its status.

Delivery of a Cruise Terminal would bring forward the timeframe for delivering improvements to the road network between Port Botany and the Sydney Motorway network.

5.1.3 Freight network improvement

Beyond the Port Botany Rail Line Duplication (Sydney Gateway Stage 2), the delivery of WestConnex, Sydney Gateway (Motorway) and the M6, the Strategy proposes an extension of Sydney Gateway from St Peters to Port Botany. Following current investment there will still be a number of at grade, signal controlled intersections and in order to keep freight flowing smoothly from Port Botany to Western Sydney, this corridor will require further investment in the longer term.

Dangerous goods are currently prohibited from being transported through road tunnels which effectively restricts access to the Sydney motorway network for trucks travelling to and from Port Botany and the airport. This extends travel times and distances for operators and puts additional volumes of heavy vehicles on urban roads, impacting amenity and other vehicles, such as buses. There is an opportunity to take a risk based approach to tunnel access, considering traffic volumes, alternative routes, tunnel design and the actual nature and volume of the goods being transported to increase freight efficiency, free up road space on surface corridors and improve amenity.

Local freight needs and impacts can be addressed through last mile / first mile solutions such as local consolidation centres connected to customers through walking, cargo bikes and electric vehicles. These solutions can be supported through development control and approval mechanisms, and technological advances in automated delivery.

Movement and Place

Transport for NSW and the Government Architect are working to deliver the Successful Places outcome of *Future Transport 2056* through development of Movement and Place guidance and a road space allocation policy. This is a change from the old ways of doing things, with an emphasis on all customers sharing the road space.

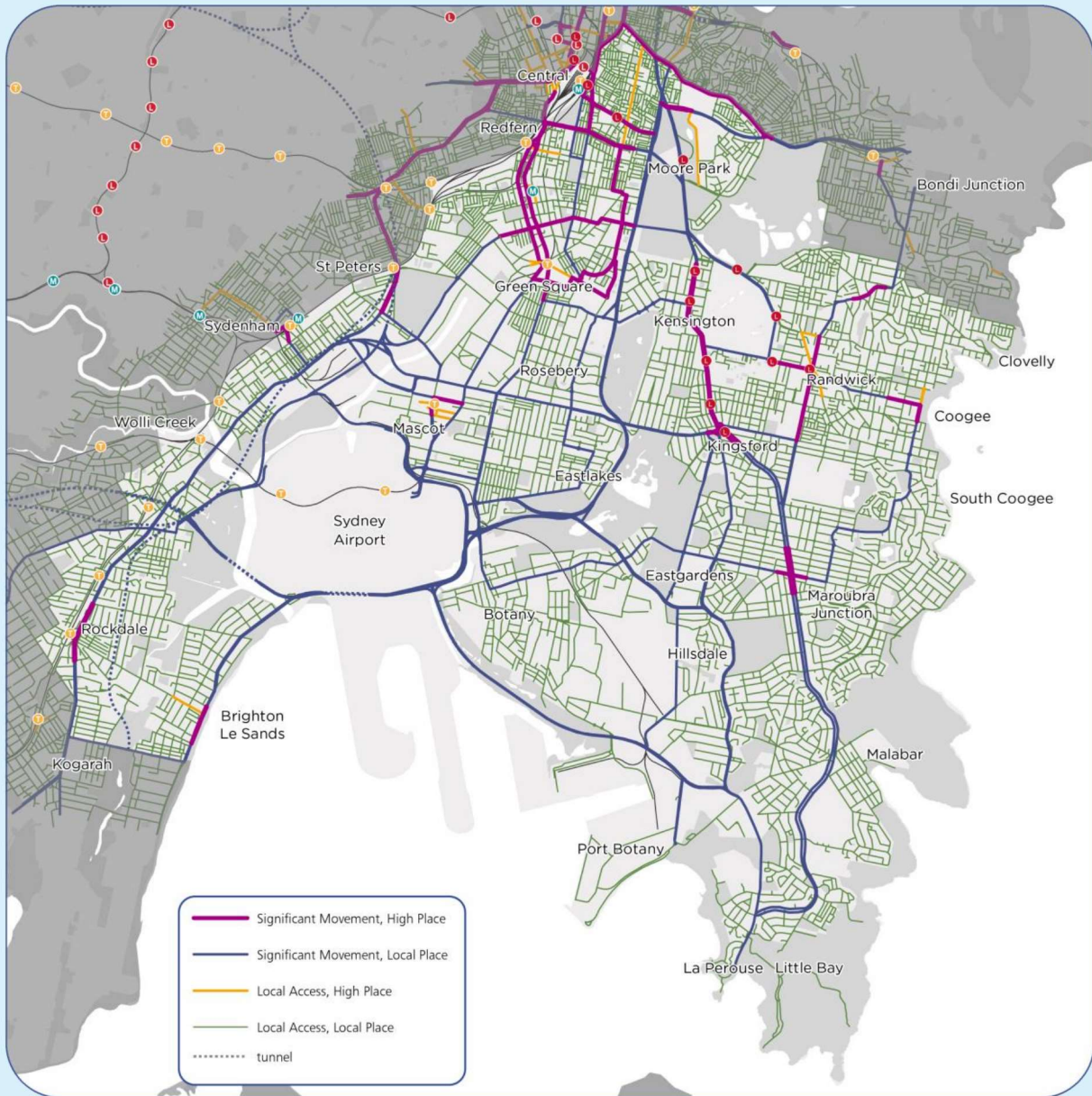


Figure 26 – Visionary (2036-56) movement and place functions for surface transport network for South East Sydney

The road network serving South East Sydney has been workshopped by Transport for NSW, the four Councils, Government Architect and the Greater Sydney Commission, against the Movement and Place Framework to develop a spatial interpretation of the Strategy's vision.

The Movement and Place Framework considers both the “movement” function and “place” function of each road, route and street. The included the consideration of whether the section of the network was a high or low movement function and a high or low place function.

- The movement and place categorisation is based on the future place-based vision for each road, route or street.
- The movement significance considers all forms of movement- bus, cycling, walking, freight, commercial vehicles and cars.
- Place qualities are complex, multi-layered and diverse.
- Movement is a key enabler of place outcomes.
- Movement needs to be understood across the whole street, from property line to property line – including people walking and riding.

Examples of places with 'high movement' functions are motorways, major arterial roads like Gardeners Road, Wentworth Road and Foreshore Road where the need to keep traffic flowing safely and efficiently is important as the connections between destinations is the most important feature.

Examples of places with 'high place' function include Belmore Road in Randwick passing through the shops, Bourke St through the Mascot town centre, Crown Street in Surry Hills. These are places where pedestrian activity in the vicinity of the road network is of highest importance. Travel speed through these areas is not the dominant priority, making attractive civic places for people to spend time, eat, shop and socialise is, as well as providing access via public transport.

The challenge comes with places of both 'high movement' function and 'high place' function. In these instances both factors are very important and need to be balanced. In South East Sydney this has usually happened where local centres have developed over time along major roads and both the place has, or is planning to, grow in the future resulting in more active footpaths, lots of short trips to local services and the need for access and, at the same time the traffic needs of the road have grown. Examples of where decisions need to be mindful of this balance include sections of Anzac Parade, parts of Botany Road, and in centres like Rockdale, Maroubra and Randwick. State and local governments need to work together to deliver agreed outcomes as both a responsible for achieving balance.

5.1.4 Place development

During the Strategy development and solution generation, a number of place based outcomes were identified that will be incorporated into the design of centres that are growing. NSW Government owned land in South East Sydney could be redeveloped in a way that delivers a diversity of housing and revitalised places for local communities. These measures seek to:

- Improve walking permeability and conditions
- Support sustainable local logistics
- Provide affordable and key worker housing
- Deliver a mix of employment.

Place based outcomes

Many of the opportunities to deliver the place benefits of growing centres can be driven by policy, regulatory or legislative change. These would combine to deliver walkable centres offering a mix of commercial and retail services, connected to the surrounding community with continuous bike networks, and supporting greater local sustainability.

The Strategy's proposed investment in transport infrastructure and services will support the desired place based outcomes by:

- Focusing intensification of land use in strategic centres and industrial precincts
- Supporting economic activity through the protection of industrial and employment lands
- Promoting our international gateways through improved connectivity
- Unlocking areas identified with high redevelopment potential when coupled with mass transit investment
- Facilitating the redevelopment of NSW Government owned land to provide a mix of social and affordable housing with private sector housing.

In turn, the development of mixed use, high density centres serviced by Metro stations will support the realisation of the Strategy's vision. The proposed delivery of Metro services and rapid bus lines take into consideration the redevelopment potential of South East Sydney including the opportunities of government owned land.

The land use and transport initiatives identified for the Strategy will deliver the following outcomes:

- Expansion of the 30 minute city to improve accessibility to employment, open space, education, recreation and healthcare for residents and workers.
- Increased transport capacity to support housing growth and the economic development, efficiency and productivity of Sydney Airport and Port Botany.
- A shift from private vehicle use to public transport, walking and cycling, decreasing overall car use and associated energy consumption and pollution.
- Reduced traffic conflict and improved safety for all road users with a focus on people walking and cycling.

Strategic centres

The Strategy supports the growth of the strategic centres in South East Sydney, improving accessibility and connectivity to the surrounding residential areas.

Green Square-Mascot: The residential population in the strategic centre will grow, while the Southern Enterprise Lands, located between Green Square and Mascot, will be retained as an essential commercial precinct serving the airport and port precincts and local residential areas.

The Strategy proposes a Metro station at Zetland, serving the eastern part of the Green Square Urban Renewal Area and connecting to the Harbour CBD, Randwick, and south to La Perouse. In the long term, there will be the opportunity to interchange at Randwick to connect with Metro operating to Kogarah via the airport. New rapid bus lines will improve east–west and north-south to serve Mascot, including running between Sydenham and Bondi Junction, and Sydenham and South Coogee. The proposed North Sydney to Mascot rapid bus line will run through the centre, connecting Mascot to Green Square and beyond to the Harbour CBD. The realisation of the PBN in Green Square–Mascot will provide safe connections through the centre and beyond to the Harbour CBD, Sydney Airport and to Randwick.

Eastgardens-Maroubra Junction: The residential population of Eastgardens-Maroubra Junction will grow, largely due to the development of Eastgardens, to the north of the existing shopping centre. The redevelopment of nearby government owned land will increase the local population served by the strategic centre.

The Strategy proposes a Metro station to serve the Eastgardens-Maroubra Junction strategic centre. For modelling and assessment the station has been located at Maroubra Junction, in the east of the strategic centre and connecting to Maroubra, Malabar and La Perouse to the south and Randwick, Zetland and the Harbour CBD to the north. The options for station location would be tested as part of further investigations to understand the alternative benefits from different solutions. In the long

term there will be the opportunity to interchange at Randwick for Metro services to Kogarah and the airport. Rapid bus lines between Randwick and La Perouse, and Sydenham and Coogee will serve Maroubra Junction. Eastgardens will be served by rapid bus lines between Kingsford and La Perouse, and the Harbour CBD and La Perouse, providing connections to light rail services (at Kingsford) and rail (at Green Square).

5.1.5 Principal Bicycle Network

The PBN has been co-designed by Transport for NSW and councils and will deliver a safe, connected cycling network around strategic centres within 10km of the Harbour CBD and within 5km of all other strategic centres.

The PBN is focused on attracting short trips to bike travel by providing a high quality, largely segregated network of routes connecting into centres and between centres.

The Strategy includes the delivery of the PBN in South East Sydney.

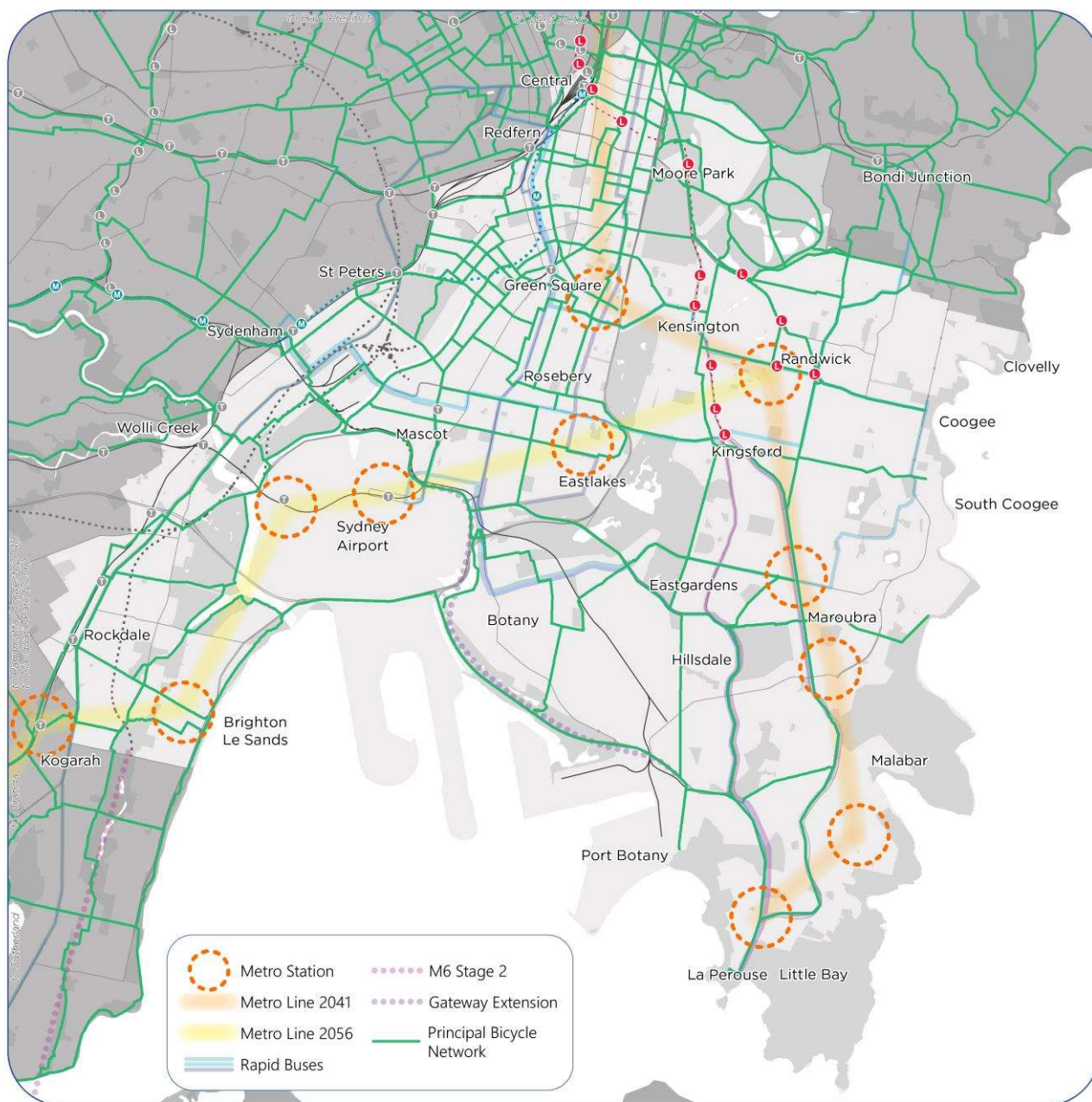


Figure 27 – Proposed Principal Bicycle Network by 2056

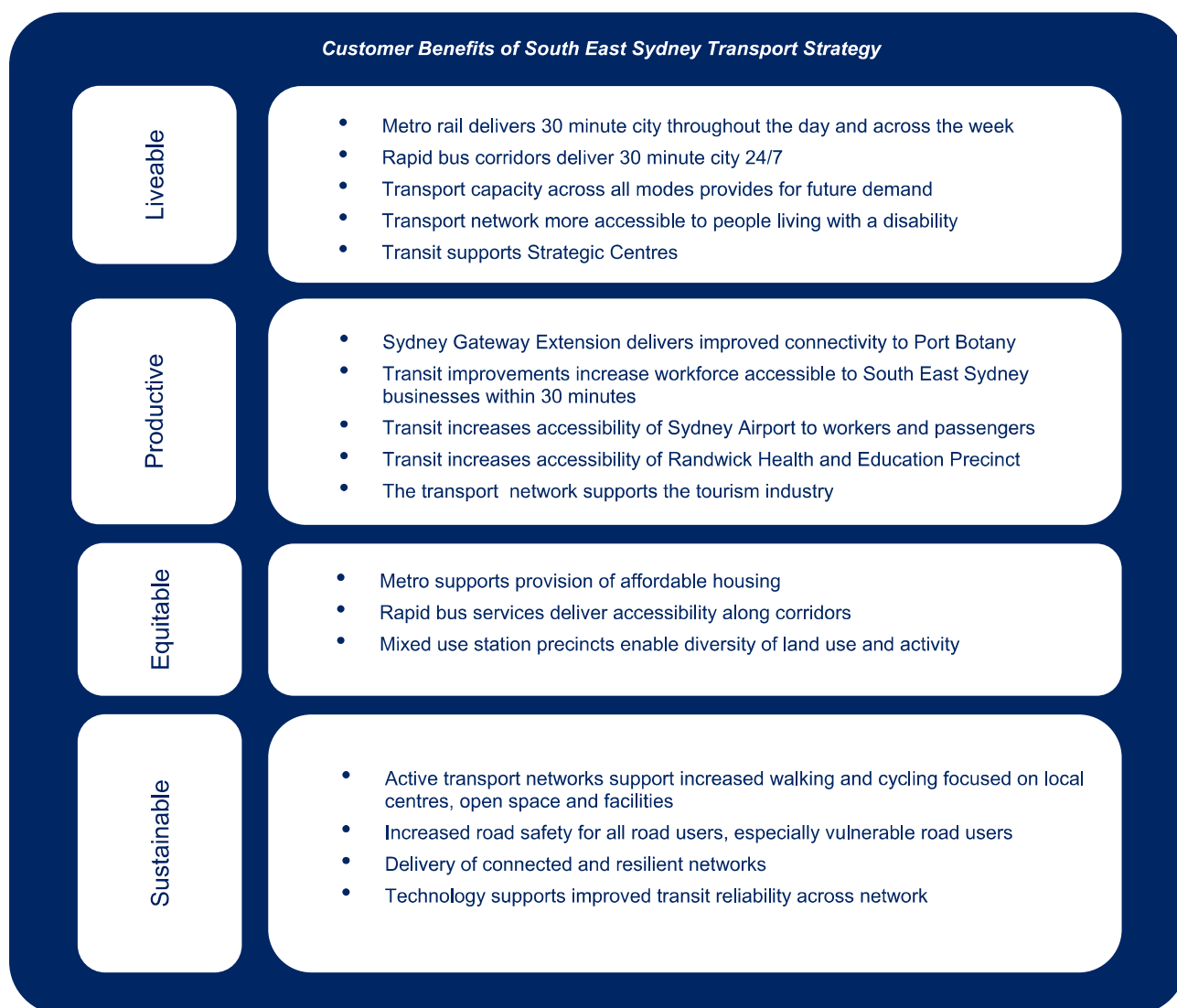


Figure 28 – Customer benefits

5.1.6 Randwick

The Randwick strategic centre includes the Randwick Health and Education Precinct (comprising, Randwick Hospitals Campus and UNSW Kensington Campus), UNSW Randwick Campus, Royal Randwick Racecourse and the surrounding centres; Randwick Junction and The Spot, Kensington and Kingsford. In recognition of the precinct's economic potential, the Greater Sydney Commission also identifies it as the Randwick Collaboration Area where a place based and multi-stakeholder approach is undertaken to solve complex urban issues.

The road network serving the precinct is congested which impacts bus services resulting in low speeds, extended travel times and a lack of reliability. The precinct's 30 minute city catchment is constrained with areas to the north and south of the Eastern Suburbs being beyond a 30 minute travel time. The lack of east-west connections also constrains access. The cycle network is limited.

The population and employment in the precinct is forecast to grow and there is great potential for the precinct to become a centre of health and education excellence fostering innovation and collaboration. This can only be achieved through improved accessibility and transit capacity.

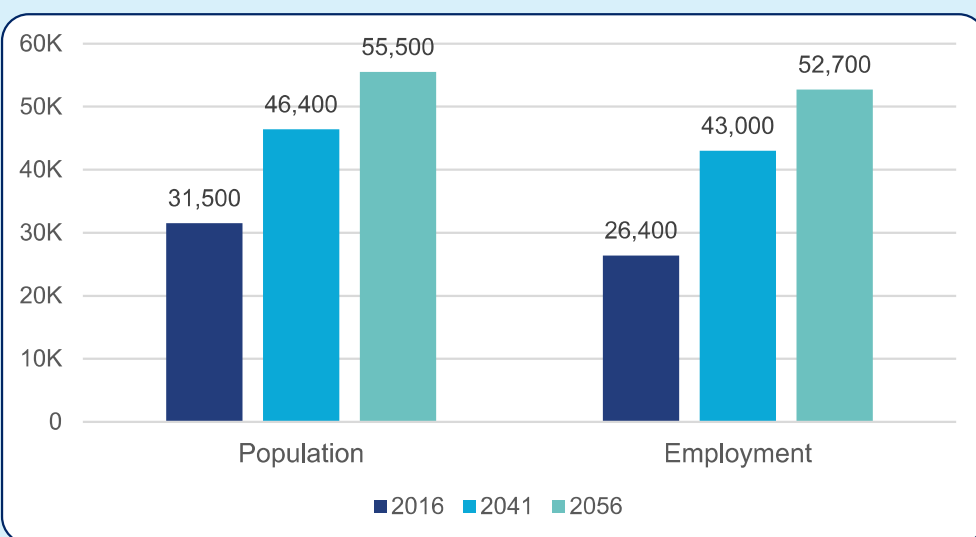


Figure 29 – Population and employment forecasts for Randwick Collaboration Area

The Strategy identifies the need for mass transit serving Randwick and has proposed Metro lines connecting the Harbour CBD to Randwick and extending south to La Perouse, and from Randwick to Kogarah, with onward services to the north, south and south west. This would significantly extend the precinct's 30 minute city catchment. To complement Metro services and provide capacity in the interim, the Strategy proposes rapid bus lines connecting to the north, south, east and west. Transit improvements and associated land use change will bring the potential for more affordable housing for students and key workers.

The Strategy sees the enhancement of the walking and cycling networks as essential, enabling residents, workers, students and visitors to get to and from the precinct and then move around

easily. The Strategy will deliver sufficient transport capacity to meet future needs, facilitate a shift away from private car reliance and bring amenity benefits through the precinct.

The Strategy can be implemented incrementally in the precinct, with an early focus on bus service improvements, particularly in response to the CSELR operation, pedestrian amenity outcomes, cycle network enhancements, traffic speed reductions and supporting policies, particularly focused on parking management and statutory planning controls.



Figure 30 – Randwick Collaboration Area with preferred scenario

5.1.7 Green Square – Waterloo Precinct

The Green Square – Waterloo Precinct is transitioning from industrial land uses to high density residential. It includes the Green Square Town Centre, the Waterloo Metro Quarter and the Waterloo Estate. The Southern Enterprise Area immediately to the south continue to provide important industrial space, supporting Sydney Airport, Port Botany and the wider region. Green Square Town Centre is the northern part of the Green Square-Mascot strategic centre.

Being located between the international gateways and the Harbour CBD, Green Square – Waterloo is impacted by through traffic, including a relatively high proportion of heavy vehicles, reducing local amenity and severing communities. There is a need to meet the needs of local businesses in serving the local area and the Harbour CBD while the potential of WestConnex is maximised to reduce the volume and impact of through freight movements.

Road congestion reduces the reliability and speed of bus services which are struggling to keep up with passenger demand. The predominance of heavily trafficked north-south roads frustrates east-west bus services, and walking and cycling routes. Rail services are crowded and there is limited capacity on morning peak services at Green Square.

Population in the precinct is forecast to continue to grow. The precinct offers an attractive residential location, close to jobs, education and services and supported by existing and committed transport infrastructure and services, including Green Square Station and Waterloo Station on the Sydney Metro City and Southwest line (to open in 2024). Residents own fewer cars and make more trips by bike than the Sydney average.

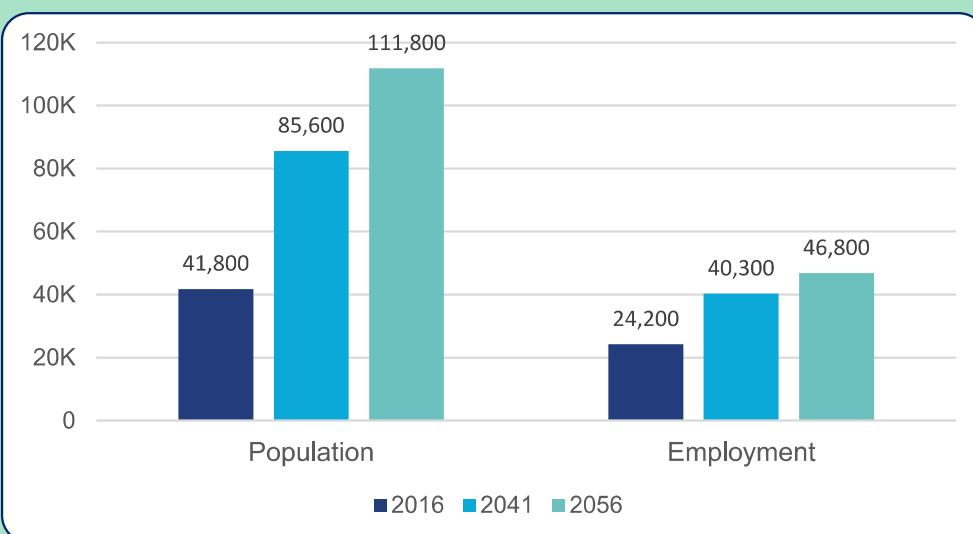


Figure 31 – Population and employment forecast for Green Square – Waterloo Precinct

The delivery of More Trains, More Services and the new Waterloo Station will increase rail capacity serving the precinct. The Strategy identifies the delivery of additional Metro lines connecting the Harbour CBD to Randwick and extending to the north, south and south west, and to include a station at Zetland, serving the eastern side of the precinct this would significantly expand the 30 minute city catchment throughout the day and across the week.

To complement the Metro and provide increased capacity in the interim, the Strategy proposes rapid bus lines connecting to the north, south, east and west. These services will benefit from

road space reallocation and intersection priority, delivering improved reliability and travel speeds.

The Strategy sees the enhancement of the walking and cycling networks as essential, providing safe and convenient access to rail stations, recreation and services. With Metro serving Zetland, the Strategy will deliver sufficient transport capacity to support growth and meet future needs and facilitate a reduction in private transport use. The balancing of movement and place functions will be addressed through careful street design as traffic volumes are reduced.

The Strategy can be implemented incrementally in the precinct, building on the *Green Square Waterloo Transport Action Plan*, a joint initiative of Transport for NSW and City of Sydney, with an initial focus on improving bus service capacity and performance, cycle network enhancements, traffic speed reductions and supporting demand management and planning policies, delivering greater amenity throughout the precinct.

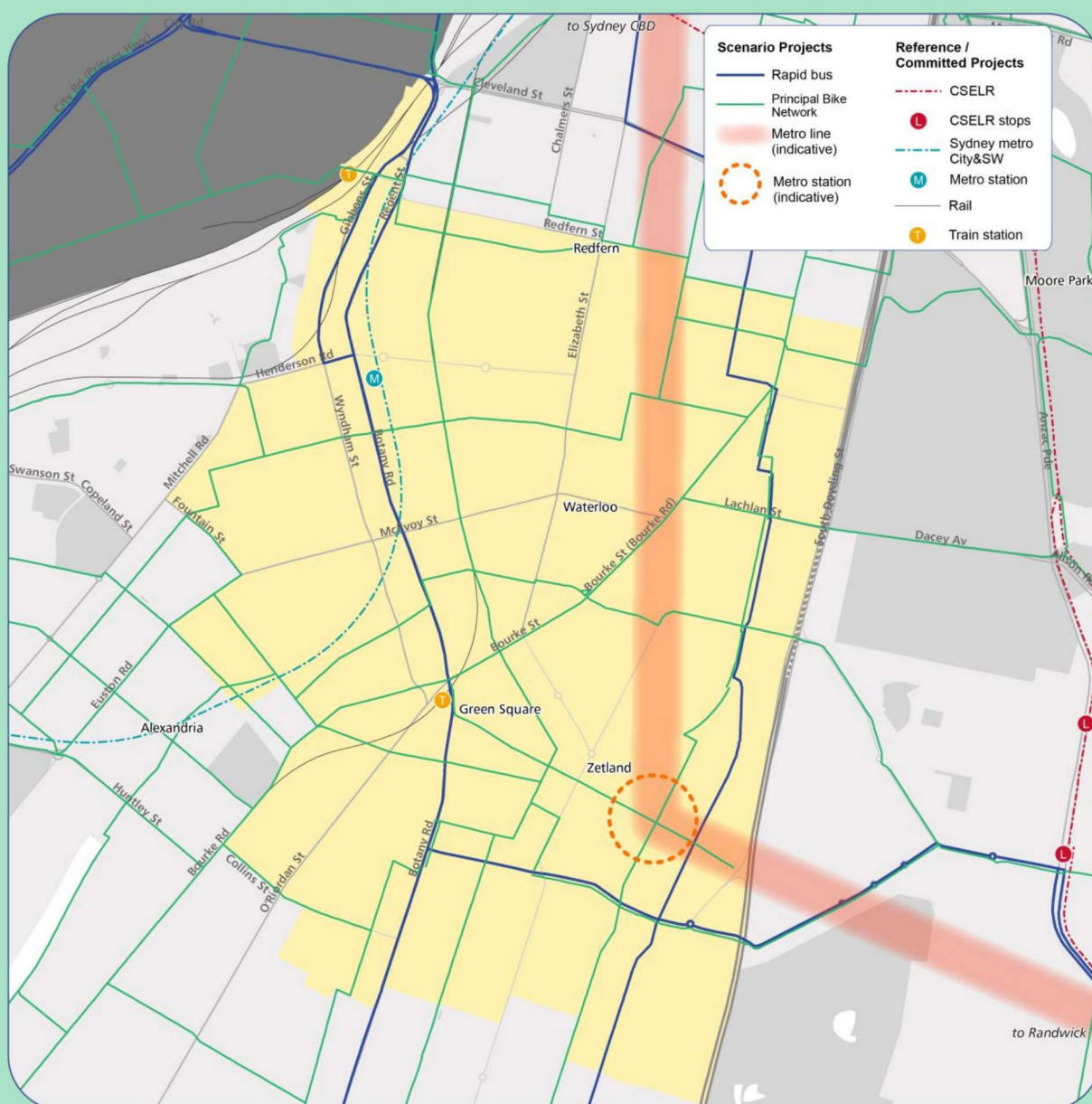


Figure 32 – Green Square – Waterloo Precinct

5.1.8 Sydney Airport and Port Botany Precinct

Sydney's international gateways, Sydney Airport and Port Botany, are collocated in the south of South East Sydney. The close proximity of these large trip generators and surrounding industrial lands, located just 8-12kms south of the Harbour CBD brings both benefits and challenges. While the airport is convenient for many air passengers, road congestion is compounded by the volume and mix of vehicles; freight, private vehicles bringing both passengers and workers, and general traffic passing through the area.

Sydney Airport's domestic and international terminals have stations on the T8 Airport rail line and while currently congested in peak periods, the capacity of this line will double with the delivery of More Trains More Services.

Foreshore Road carries over 90% of traffic destined for the port, providing a direct connection between Port Botany and the Sydney motorway network. In addition to Foreshore Road, Beauchamp Road and Denison Street provide important access to the port and connections to the nearby industrial area. Port related freight is also moved by rail with approximately 18% of TEUs transported by rail. The port and the adjacent Banksmeadow industrial area, are served by buses on Botany Road, Beauchamp Road, Denison Street and Bunnerong Road.

Activity at both the airport and port is forecast to increase: Airport passenger numbers will grow by over 50% by 2041 and the port container task is forecast to triple by the 2040s. The number of jobs at the airport will increase while jobs at Port Botany are expected to remain stable due to increased automation.

The road access to the airport and port will be improved by WestConnex and the Sydney Gateway motorway extension, and duplication of the rail freight line (Sydney Gateway freight rail) will support the NSW Ports target: 40% of the future container task moving by rail.

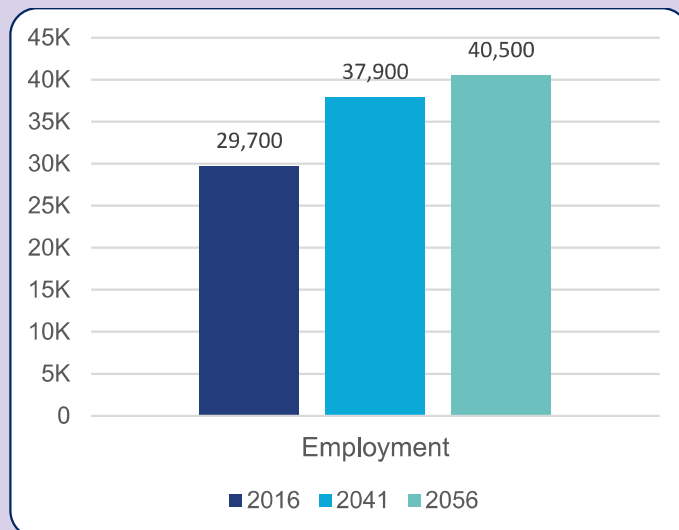


Figure 33 – Employment forecasts for Sydney Airport and Port Botany Precinct

Investigating a Cruise Terminal in South East Sydney

A new Cruise Terminal at Yarra Bay or Molineaux Point near Port Botany was identified in the NSW Cruise Development Plan in July 2018 to support the growth of the cruise industry. The investigation process is now on hold, but has to date considered the social and economic costs and benefits, traffic and transport impacts, heritage and environmental impacts. The NSW Government made the decision in March 2020 to place the Cruise Capacity business case on hold and will keep the community informed of its status. Delivery of a Cruise Terminal would bring forward the timeframe for delivering improvements to the road network between Port Botany and the Sydney Motorway network.

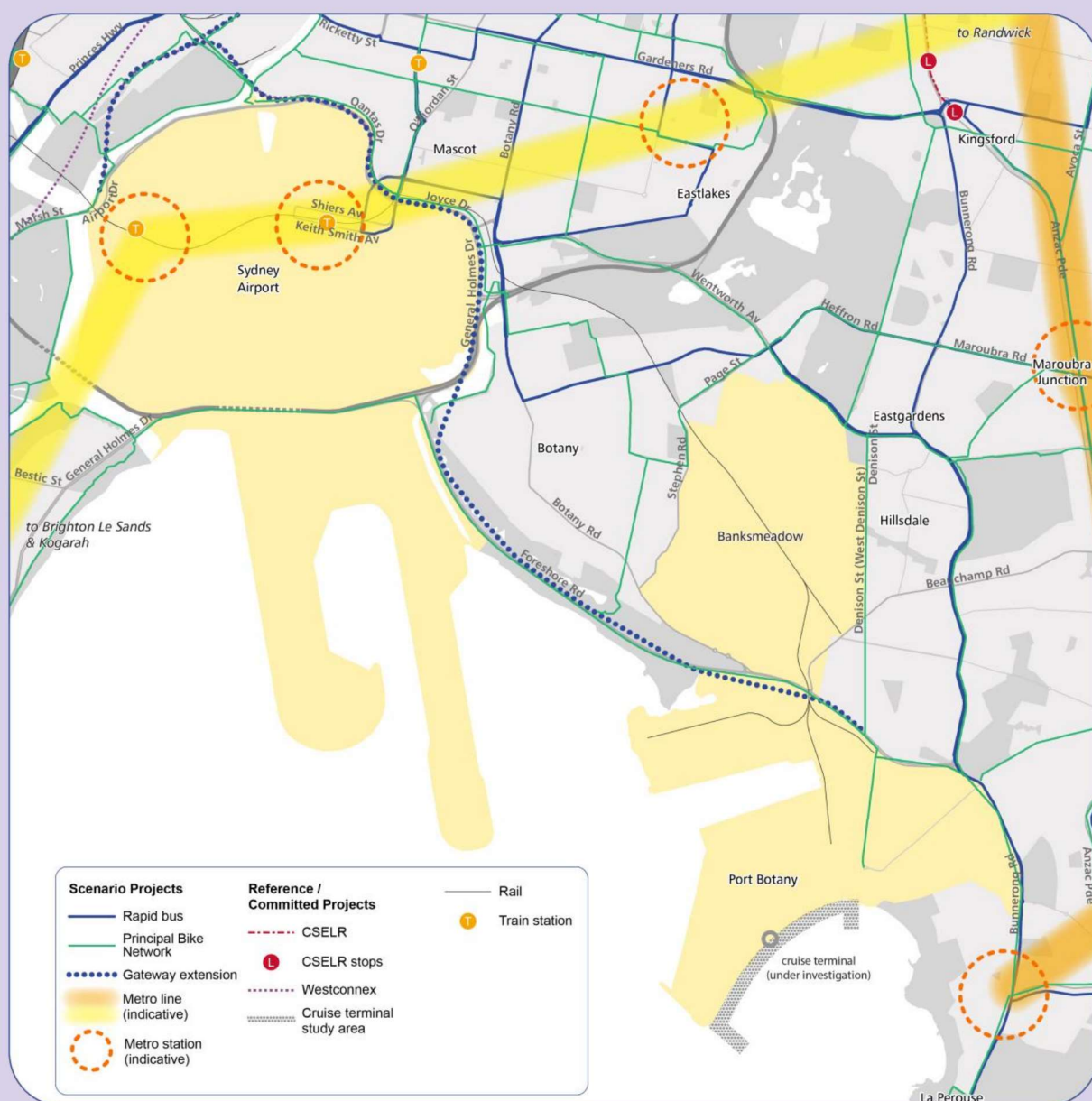


Figure 34 – Sydney Airport and Port Botany Precinct

The Strategy identifies the delivery of additional Metro lines connecting the Harbour CBD to Randwick and extending south to La Perouse and from Randwick to Kogarah via the Domestic and International terminals at the airport, significantly enhancing precinct connectivity for passengers and workers. Workers at the port and Banksmeadow will be able to access Metro at La Perouse via local bus services.

The Strategy proposes a rapid bus line between South Coogee and Sydenham via the proposed Airport Ground Transport Interchange, providing high frequency, east-west connectivity and enabling interchange with rail and Sydney Metro City and Southwest at Sydenham, and eventually a Metro station at Maroubra. The reliability and travel time of buses will be improved through the delivery of on-road bus priority infrastructure.

The Strategy supports efficient and reliable access between the port, surrounding industrial lands and key distribution locations in Western Sydney through the proposed continuation of Sydney Gateway to Port Botany. Worker access will be improved through dedicated walking and cycling infrastructure, enhancing existing network connections.

5.2 Co-dependency of catalytic transport investment and major redevelopment and uplift

It is clear that without change the current transport network serving South East Sydney will not meet the needs of the people living and working in the area and those visiting, and existing problems will not be addressed. With expected residential and employment growth, the transport experience for all customers will deteriorate over time with increased travel times, unreliable journeys and greater congestion. The 30 minute city will contract: it will take longer to reach jobs, education, services and recreational areas.

The Strategy identifies an alternative pathway which will see improved travel outcomes and an expansion of the 30 minute city benefitting the broader community through investment in line with the Strategy vision.

The delivery of mass transit, Metro and rapid bus lines, will support existing and future travel needs. But the Strategy acknowledges that while a transformational change in transport provision brings great benefits, it is costly. There is a need to maximise project benefits and support the economic case for investment.

The extent of Government-owned land in the South East offers an opportunity for redevelopment, establishing socio-economically diverse communities, both building the economic case for mass transit and demand for the significant capacity increase.

For example, between Maroubra and Malabar extension of Metro from the Harbour CBD to La Perouse is co-dependent with the redevelopment of the government owned land and the two must be planned together and their delivery coordinated. An increase in total development delivers the funding to redevelop the government owned land but also generates increased travel demand. Metro provides the capacity for the increased demand generated through development, and in turn the case for Metro is supported by this demand. Metro further plays a role in attracting the necessary private sector investment by offering quick and easy access to high value jobs in the Randwick Health and Education Precinct and beyond.

With the delivery of mass transit both residential and population growth can be expanded, focused on highly accessible precincts at new Metro stations, and bringing additional economic benefits.

5.3 The delivery

5.3.1 The cost

While the delivery of the infrastructure and services within the Strategy will come at a high capital and increased operational cost, the magnitude of the investment, and the necessary related trade-offs, will bring transformational change.

With predicted residential growth of 50%, employment growth of 30%, over the next 20 years and the commensurate increase in travel demand, the current projected future for people living and working in South Eastern Sydney suggests life will become increasingly difficult due to a lack of efficient and reliable transport, reducing access to employment, education and services.

The realisation of the Strategy will not only reverse these negative trends but deliver city wide improvements in access, connectivity and reliability.

City shaping corridors

City shaping corridors represent investment that can influence the overall urban structure of a metropolitan area and provide a foundation to a city's transport network. These corridors provide higher speed and volume. The Strategy proposes two new Metro lines for delivery by 2056. The Strategy describes these *Future Transport 2056* mass transit corridors as Metros, but further product definition, to confirm which technology would best provide very high capacity, high frequency services for our customers and communities.

The first corridor for identification, protection and delivery, is Metro to serve the city shaping corridor from the Harbour CBD to La Perouse. This would allow for the development and revitalisation of areas throughout the south of the Eastern Suburbs including, Maroubra Junction, Maroubra and Malabar. This transport investment will have a truly transformative impact on South Eastern Sydney, the Eastern District and Sydney as a whole. While shown in *Future Transport 2056* to Malabar, an option that extends to La Perouse would provide rail access and very fast trips to Harbour CBD and beyond for more communities in the South East, make further urban renewal more attractive and support recreational travel being made by public transport across the day and week.

Metro and connecting local bus services will significantly expand the 30 minute city catchment of the Randwick Health and Education Precinct, enabling the recruitment of staff from across a greater area, supporting healthcare, tertiary education and research in the region. Without this Metro connection it will not be possible to meet future transport demand within existing road and bus capacity.

In the longer term a new Metro connecting Randwick and the airport to Kogarah and beyond will provide further capacity improvements and improve regional east-west connectivity via the wider Metro network. This would link Sydney Airport to health and education precincts at Randwick and Kogarah.

City and centre serving corridors

City and centre serving corridors will typically be served by buses and light rail, incorporating the current technology and best practice at the time of design and delivery. The allocation of road space to buses and light rail will facilitate reliable, high frequency services, supported by electronic priority, reducing journey times and expanding the 30 minute city catchment of strategic centres and the Harbour CBD.

While the costs of provision are significantly lower than a new Metro line, new buses and bus shelters would be required. For two of the Strategy's rapid bus lines a short dedicated bus bridge would be needed in Botany.

The proposed rapid bus network will offer:

- High frequency ('B-line style' turn up and go) with extended operating hours through the day and at weekends
- On-road bus priority through the reallocation of road space
- High quality, accessible bus stop structures and interchange locations
- Signage and quality wayfinding
- Electronic priority at signalised intersections to reduce delay and trip length.

The Strategy has identified eight lines, listed below, including east-west lines to support centre to centre connections and several north-south lines. The proposed network forms a 'grid' with 'turn up and go' frequencies to support network resilience and easy interchange. The reallocation of road space to rapid buses will increase the efficiency of road space use.

- Harbour CBD to La Perouse (via Green Square and Eastgardens)
- Coogee Beach to Bays Precinct (via UNSW and University of Sydney)
- Railway Square to Sutherland Hospital (via Princes Highway)
- North Sydney to Mascot (via Green Square).
- Bondi Junction to Sydenham (via Randwick and Mascot)
- Randwick to La Perouse (via Anzac Parade)
- Kingsford to La Perouse (via Bunnerong Road)
- South Coogee to Sydenham (via Sydney Airport).

The lines that will serve the most urgent need and should be investigated for delivery first are the north-south Harbour CBD to La Perouse via Green Square and East Gardens, and the east-west Coogee Beach to Bays Precinct via UNSW, Green Square and the University of Sydney. These are corridors where current demand outstrips the capacity of current services, suffer from travel time reliability and would deliver against the aspirations of *Future Transport 2056* and the *Eastern City District Plan*. As a program for delivery is developed, it will confirm that the rapid bus lines are connecting customers to their destinations as efficiently as possible, with the particular detail of the lines shown in the Preferred Scenario being subject for further investigation and investment decisions.

The sequencing of all of the corridors for delivery, the extent and timing of infrastructure works and road space allocation to provide priority require further investigation. The nature of the works would allow for services to be trialled to test potential, and the incremental delivery of the network.

Another component of centre serving corridors is the provision of a dedicated bike network. The allocation of road space to separated cycleways will make bike riding a much more attractive travel choice. The actual and perceived safety offered by separated infrastructure will see the increased take up of cycling in South East Sydney, with much higher use for short trips to local centres and to access transit such as rapid buses and Metro.

The Strategy is forecast to provide sufficient public transport capacity to support the movement of current and future residents, workers and visitors, safely and reliably. Peak period car trips will become slower and less reliable.

5.3.2 The benefits and trade-offs

If fully realised, this network would significantly improve accessibility throughout the day and across the week. People living throughout South East Sydney would be able to access the Harbour CBD, Randwick Health and Education Precinct, Sydney Airport, other strategic centres and the beaches within 30 minutes by public transport.

Residents will be able to access more employment and educational opportunities easily and within 30 minutes of home. Local business and service providers such as the Randwick Hospitals Campus will have access to a much greater potential workforce, supporting the local community and economy.

Integrated development planning will support the provision of shared delivery facilities for residential and commercial development, freeing up precious kerb space and enabling goods to be safely held onsite after off-peak delivery.

The growth of our international gateways will be supported through improved freight and transit links, supporting the movement of goods and serving passengers and workers.

South East Metro will enable the redevelopment of government owned land increasing the provision of modern and accessible social and affordable housing connected to centres and services.

Local residents will be able to travel to and from local centres on foot and by bike, using dedicated pathways and bike connections. The scarcity and expense of parking will encourage the take up of walking and riding for these trips. Supporting local centre access through improved connections to the surrounding community will increase the viability and vitality of these centres, ensuring they fully meet local needs, creating a virtuous cycle. Communities will become more sustainable and resilient to potential shocks and stresses.

The strategic design of places focused on new Metro stations will facilitate local trip making and reduce the overall need for travel. For example through the collocation of childcare, fresh food and services like chemists, dry cleaning and bank ATMs. These mixed use centres will include a range of housing options, supporting diversity and equity.

The Strategy recognises that meeting the vision of improving the travel experience and achieving a 30 minute city whilst undergoing considerable residential and employment growth, requires changes in travel behaviour. It will still be possible to drive in the future, but car trips will become slower as road space is allocated to more efficient vehicles, such as buses, and freight. The allocation of road space to rapid bus lines and cycleways will, on some roads, impact on-street parking. These changes recognise that transport needs to be more efficient in the future, whilst using the same amount of road space. The Strategy demonstrates that the consequences of not providing efficient and attractive alternatives to car use, significantly reducing the proportion of trips by private vehicle in the future will be severe in terms of travel time and access to jobs, education and services.

5.3.3 Innovation and Technology

Future Transport 2056 identifies a Customer Focussed outcome as: Every customer experience will be seamless, interactive and personalised by technology and big data. The Strategy plans to deliver this outcome through a combination of actions:

- Improved road safety outcomes through safer vehicles, safer speeds, safer roads and safer people based on world leading research and international experience
- Increased use of TfNSW's traffic signal software PTIPS (Public Transport Information and Priority System) and SCATS (Sydney Coordinated Adaptive Traffic System) for faster and more reliable bus and light rail travel through priority movements
- Even more real time information for customers through smart phones, signage and wayfinding
- New bus fleets to be electric:
 - For a reduction in point emissions and
 - Increase in passenger comfort with quieter, with fewer vibrations for passengers and
 - Easy to implement in the South East with proposed route lengths that would support charging regimes.
 - Consideration of Trackless Tram technology
- New developments to include charging stations for eBikes and Electric Vehicles
- Research into automated freight delivery, including non-road solutions
- Investigate opportunities to support trials for ride share the use of autonomous vehicles

5.3.4 How will we measure success?

Fundamentally the Strategy aims to meet the needs of South East Sydney into the future through the provision of high quality transport infrastructure and services supported by policy and regulatory change. The measure of transport capacity and mode shift in line with this capacity will be key determinants of the Strategy's success.

The measurable indicators linked to the vision and agreed with our stakeholders will be utilised to measure change and the achievement of the objectives over time. These indicators align with those identified in the Greater Sydney Commission's *The Pulse of Greater Sydney* and which will be used to measure the implementation of the *Greater Sydney Region Plan* and *Eastern City District Plan*.

This Strategy will be developed into a program of works for delivery. Implementation of this program over time will be tracked and reported to the community. Land use change will be linked to the realisation of transport infrastructure and service capacity improvements.

5.3.5 Next steps

The Strategy will realise the outcomes of *Future Transport 2056* and become the long term NSW Government policy for South East Sydney through the development of a program of works for investment and delivery. The long term program will be adaptive and flexible enough to allow for significant changes in travel behaviour, such as the recent major shift to work from home during the COVID-19 Pandemic and be mindful of longer term changes to the use of technology and travel behaviour to ensure the investment is best serving our customers' evolving needs and changing patterns of growth and travel.

Transport for NSW will continue to build upon the successful co-design and collaboration with state agencies, local government and stakeholders in developing and implementing the Strategy. This will include identifying delivery pathways, economic analysis and ensuring value for money, and sequencing for projects and policy change, in line with funding requirements and opportunities, such as private sector investment. Transport for NSW recognises that delivering place based outcomes requires action across multiple agencies and local government and new ways of working across government.



South East Sydney Transport Strategy

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