

# Part A | Introduction and context

## 1 Introduction

# 1 Introduction

This chapter provides an overview of the Sydney Metro West Concept and Stage 1, including the strategic context and key features, and the structure of the Environmental Impact Statement.

## 1.1 Overview

Sydney Metro is Australia's biggest public transport program. Services between Rouse Hill and Chatswood started in May 2019 on this new stand-alone metro railway system, which is revolutionising the way Sydney travels.

Sydney Metro's program of work is shown in Figure 1-1 and includes:

- The Metro North West Line – Opened in May 2019 with driverless trains running every four minutes in the peak in each direction between Tallawong Station in Rouse Hill and Chatswood
- Sydney Metro City & Southwest – A new 30-kilometre metro line extending the new metro network from the end of the Metro North West Line at Chatswood, under Sydney Harbour, through the Sydney CBD and south west to Bankstown. It is due to open in 2024 with an ultimate capacity to run a metro train every two minutes each way under the centre of Sydney
- Sydney Metro West (this project) – A new 24-kilometre metro line that would connect Greater Parramatta with the Sydney CBD. Confirmed stations include Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays and Sydney CBD. The location of the Sydney CBD station will be determined following further investigations and community and stakeholder engagement. This infrastructure investment would double the rail capacity of the Parramatta to Sydney CBD corridor with a travel time target between the two centres of about 20 minutes
- Sydney Metro Greater West – A new metro rail line that would connect the city's greater west with Western Sydney International (Nancy-Bird Walton) Airport and Western Sydney Aerotropolis, which is working towards opening at the same time as the airport.

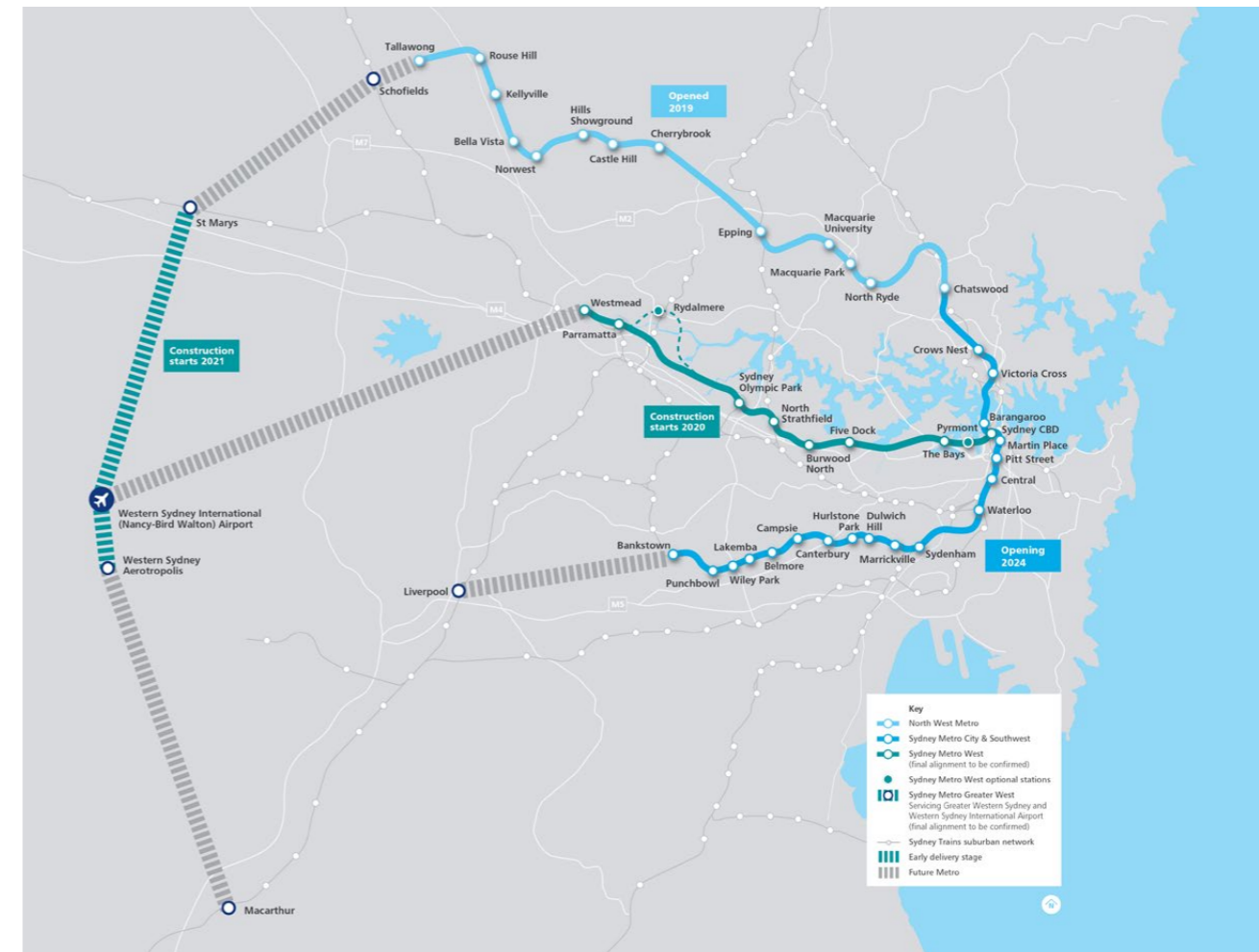


Figure 1-1: Sydney Metro network

Sydney is expanding and the NSW Government is working hard to deliver an integrated transport system that meets the needs of customers now and in the future. The delivery of Sydney Metro West is critical to keeping Sydney moving and is identified in a number of key strategic planning documents including the Greater Sydney Region Plan: A Metropolis of Three Cities – connecting people (Greater Sydney Commission, 2018a), Building Momentum: State Infrastructure Strategy 2018-2038 (Infrastructure NSW, 2018) and Future Transport Strategy 2056 (Transport for NSW, 2018).

Sydney Metro West would:

- Provide a direct, fast, reliable and frequent connection between Greater Parramatta and the Sydney CBD, linking communities along the way that have previously not been serviced by rail
- Relieve the congested T1 Western Line, T9 Northern Line (previously T1 Northern Line) and T2 Inner West and Leppington Line
- Double the existing rail capacity between the Parramatta and Sydney CBDs
- Significantly boost economic opportunities for Greater Parramatta
- Support new residential and employment zones along the Greater Parramatta to Sydney CBD corridor, including at Sydney Olympic Park and The Bays – providing improved transport for the additional 420,000 new residents and 300,000 new workers forecast to be located within the corridor over the next 20 years

- Allow customers fast and easy transfers with the T1 Western Line at Westmead, T9 Northern Line at North Strathfield, and the Sydney Trains suburban rail network and Sydney Metro in the Sydney CBD
- Allow for transfers with the future Parramatta Light Rail (Stage 1) at Westmead and Parramatta, as well as the planned Parramatta Light Rail (Stage 2) at Sydney Olympic Park
- Create an anticipated 10,000 direct and 70,000 indirect jobs during construction (based on Sydney Metro analysis).

### 1.1.1 Staged planning approval

The planning approvals and environmental impact assessment for Sydney Metro West will be broken down into a number of stages recognising the size of the project. This includes:

- Sydney Metro West at a Concept level
- Stage 1 - All major civil construction works between Westmead and The Bays including station excavation and tunnelling
- Stage 2 - All stations, depots and rail systems between Westmead and The Bays.
- Stage 3 - All major civil construction works including station excavation, tunnels, stations, depots and rail systems between The Bays and the Sydney CBD Station, and operation of the line.

Whilst the content of these stages may be varied, this Environmental Impact Statement covers the Concept and Stage 1 comprising all major civil construction works between Westmead and The Bays including station excavation and tunnelling.

At this point in development of Sydney Metro West, the design of the major civil elements (station excavations, tunnels and the formation of the stabling and maintenance facility) between Westmead and The Bays is well progressed. However, further work is required on the station location and tunnel alignment through the complex Sydney CBD.

Seeking planning approval for Stage 1 between Westmead and The Bays would allow:

- Additional time to consult with the stakeholders on the end-state design of stations including urban design, transport integration and placemaking outcomes
- Earlier commencement of critical construction activities which would allow Sydney Metro West as a whole to be delivered quicker and more efficiently, facilitating earlier realisation of the benefits of Sydney Metro West
- Each planning approval stage to be focussed on the critical issues associated with the particular works and the particular locations
- Additional time to solve certain design elements including the station location and tunnel alignment through the complex Sydney CBD environment.

The Sydney Metro West Concept is described in Section 1.3.2 and Chapter 6 (Concept description). Stage 1 is described in Section 1.3.3 and Chapter 9 (Stage 1 description). Sydney Metro West is subject to assessment by the Department of Planning, Industry and Environment and approval by the Minister for Planning and Public Spaces under Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

## 1.2 Background to Sydney Metro West

### 1.2.1 History

Sydney Metro and Transport for NSW are implementing a three-tiered rail network for Sydney, comprising:

- Tier 1: Sydney Metro - 'turn-up-and-go' services and single-deck metro trains
- Tier 2: Suburban - timetabled services with double-deck trains
- Tier 3: Intercity - timetabled services with on-board amenities for long distance trips.

This network delineation was first proposed in Sydney's Rail Future (Transport for NSW, 2012) and has been the basis for the development of the Sydney Metro network.

Congestion on the T1 Western Line is one of the most pressing challenges for the Sydney Trains suburban rail network. Demand for the T1 Western Line already exceeds capacity at peak times.

The need to upgrade capacity between Parramatta and the Sydney CBD was reinforced in February 2016 when Infrastructure Australia identified connectivity between the two centres as a national infrastructure priority.

In November 2016, the NSW Government announced Sydney Metro West as the State's next major public transport project, with a direct connection between Greater Parramatta and the Sydney CBD, and stations at Sydney Olympic Park and The Bays.

In March 2018, the NSW Government expanded the scope of Sydney Metro West to include a station at Westmead and a station to provide for customers to transfer to and from the T9 Northern Line. The NSW Government also announced that options for intermediate stations at Camellia/Rydalmere, Burwood North/Kings Bay/Five Dock, and Pyrmont were being considered.

### 1.2.2 Strategic context

Sydney is a global city and will experience significant population and employment growth in the coming decades. Investment in public transport will play an important role supporting this growth, ensuring Sydney's future liveability and global competitiveness.

The Greater Sydney Region Plan: A Metropolis of Three Cities (Greater Sydney Commission, 2018a) establishes a strategic vision that by 2056, Sydney will transform into a metropolis of three cities where people will live within 30 minutes of their jobs, education, health facilities and services. Sydney Metro West would be the mass transit link to connect the Central River City (Greater Parramatta) and the Eastern Harbour City (Sydney CBD) and support this transformation. Sydney Metro West would provide a fast, reliable and frequent connection between Greater Parramatta and the Sydney CBD to:

- Relieve the congested T1 Western Line, T9 Northern Line and T2 Inner West and Leppington Line
- Provide travel-time savings for customers in Western Sydney and along the corridor
- Reduce station crowding at some stations
- Provide rail transport to areas where this is currently not available
- Support the delivery of the '30-minute city' as identified in Future Transport Strategy 2056
- Reinforce Greater Parramatta as the Central River City
- Improve connectivity to major attractions, key precincts and public spaces located along the corridor, including Sydney Olympic Park and The Bays
- Support urban renewal and increased housing supply
- Increase accessibility across Sydney and provide customers with a new world-class metro service.

The Sydney Metro West corridor is characterised by the following key centres:

- Westmead - one of the largest health, education, research and training precincts in Australia
- Parramatta - where the number of jobs is expected to increase to more than 137,000 by 2036 (Greater Sydney Commission, 2018a)
- Sydney Olympic Park - a mixed used and lifestyle precinct where 34,000 jobs and more than 23,000 residents will be located by 2030 (Sydney Olympic Park Authority, 2018)
- The Bays - where the NSW Government is planning world-class destinations, including business hubs through urban renewal
- The Sydney CBD - Australia's largest business district.

Sydney Metro West is part of a broader metro network plan for Sydney which includes the Metro North West Line (opened in May 2019), Sydney Metro City & Southwest (due to open in 2024), and Sydney Metro Greater West anticipated to open when the new airport opens.

### 1.2.3 Sydney Metro

#### Customer experience

Delivering improved outcomes for customers and the transport network are critical to achieving Sydney Metro's vision for a 'world-class metro for Sydney'.

Sydney Metro places the customer at the centre of the design with the customer experience incorporating all aspects of a journey from door-to-door. Sydney Metro aims to make it easy for all customers, regardless of trip purpose, to choose public transport.

The Sydney Metro project development process includes consideration of the best outcomes for customers, transport integration, and city-shaping and land use benefits. This includes the design of the trains, stations and their relationship with the precincts within which they are located.

## Sydney Metro features

Sydney Metro is designed to make the customer journey to and from the metro station as seamless as possible by integrating walking, cycling, light rail, bus, ferries, taxi, on demand vehicle, ride share and kiss and ride infrastructure.

Key features of Sydney Metro in delivering customer experience include:

- No timetable – customers can just turn up and go
- Opal ticketing – fares are the same as the rest of Sydney
- Customer service assistants at every station and moving through the network during the day and night
- Australian-first platform screen doors improving customer safety and allowing trains to get in and out of stations much faster. These doors run the full length of all metro platforms and open at the same time as the train doors
- Continuous mobile phone coverage throughout the metro network
- Operational performance requirements that include 98 per cent on time running and clean platforms and trains
- Multi-purpose areas for prams, luggage and bicycles
- Wheelchair spaces, separate priority seating and emergency intercoms inside trains
- Safety benefits including security cameras on trains and the ability for customers to see inside the train from one end to the other
- Video help points at platforms, connecting directly with train controllers – an Australian first
- Level access between the platform and train and three double doors per side per carriage for faster loading and unloading
- Heating and air-conditioning on all metro trains
- On-board real time travel information and live electronic route maps.

## 1.3 Overview of Sydney Metro West

### 1.3.1 Location

Sydney Metro West would be located largely underground in twin tunnels. Indicative locations of the proposed alignment, stations and the main elements of operational ancillary infrastructure are shown in Figure 1-2.



Figure 1-2: Sydney Metro West

### 1.3.2 The Concept

Sydney Metro West (the Concept) would involve the construction and operation of a metro rail line around 24 kilometres long between Westmead and Sydney CBD. The key components are expected to include:

- About 24 kilometres of twin tunnels between Westmead and the Sydney CBD
- New metro stations at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays and Sydney CBD. The location of the Sydney CBD station will be determined following further investigations and community and stakeholder engagement. Optional stations at Rydalmere and Pyrmont are also under investigation
- A turn-up-and-go metro service operating early morning to late at night, between Westmead and the Sydney CBD
- Pedestrian links and connections to other modes of transport (such as the existing Sydney Trains suburban rail network and other parts of the metro network) and surrounding land uses
- Modifications to existing Sydney Trains suburban stations and associated rail infrastructure (such as overhead wiring, signalling, access tracks/paths and rail corridor fencing) at Westmead and North Strathfield
- Services within each of the metro stations, including mechanical and fresh air ventilation equipment and electrical power substations to supply power for operation
- A stabling and maintenance facility at Clyde, including associated aboveground and belowground tracks to connect to the mainline tunnels and other operational ancillary infrastructure
- Services facilities at Rosehill (within the Clyde stabling and maintenance facility construction site), Silverwater and between Five Dock and The Bays for fresh air ventilation and emergency evacuation
- Alterations to pedestrian and traffic arrangements, cycling and public transport (e.g. bus) infrastructure around the metro stations
- Subdivision of station sites to support integrated station and precinct development and ancillary facilities
- Ancillary facilities to support construction.

The Concept is further described in Chapter 6 (Concept description).

Components of Sydney Metro West are subject to ongoing design development and outcomes of stakeholder and community engagement.

### 1.3.3 Stage 1

Stage 1 would involve major civil construction work between Westmead and The Bays, including:

- Enabling works such as demolition, utility supply to construction sites, utility adjustments and modifications to the existing transport network
- Tunnel excavation including tunnel support activities
- Station excavation for new metro stations at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock and The Bays
- Shaft excavation for services facilities at Rosehill (within the Clyde stabling and maintenance facility construction site), at a location between the Five Dock Station and The Bays Station construction sites (to be determined), and at Silverwater
- Civil work for the stabling and maintenance facility at Clyde including earthworks and structures for crossings at A'Becketts Creek and Duck Creek
- A concrete segment facility for use during construction located at the Clyde stabling and maintenance facility construction site
- Excavation of a tunnel dive structure and associated tunnels at Rosehill to support a connection between the Clyde stabling and maintenance facility and the mainline metro tunnels.

Stage 1 is further described in Chapter 9 (Stage 1 description).



## 1.4 Purpose and structure of the Environmental Impact Statement

The purpose of this Environmental Impact Statement is to support Sydney Metro's application for approval as State significant infrastructure to the Minister for Planning and Public Spaces under section 5.15 of the EP&A Act. It addresses the environmental assessment requirements of the Secretary of the Department of Planning, Industry and Environment (the Secretary's Environmental Assessment Requirements), dated 11 December 2019 (refer to Appendix A).

This Environmental Impact Statement is presented in two volumes. Volume 1 contains the main Environmental Impact Statement (this report) and the initial appendices. Volume 2 provides the technical papers that form the technical basis of the information in Volume 1. The structure and content of this report are outlined in Table 1-1.

**Table 1-1: Structure and content of this report**

Chapter	Description
<b>Part A: Introduction and context</b>	
<b>Chapter 1 Introduction (this chapter)</b>	Outlines the key elements of Sydney Metro West and the purpose of this report.
<b>Chapter 2 Strategic need and justification</b>	Provides an outline of the need and justification for Sydney Metro West.
<b>Chapter 3 Sydney Metro West development and alternatives</b>	Provides an overview of the development process and the strategic transport alternatives and options considered for Sydney Metro West.
<b>Chapter 4 Planning and assessment process</b>	Provides an outline of the statutory approvals framework, including applicable legislation and planning policies.
<b>Chapter 5 Stakeholder and community engagement</b>	Outlines stakeholder and community engagement carried out to date, including during the preparation of this Environmental Impact Statement.
<b>Part B: Sydney Metro West Concept</b>	
<b>Chapter 6 Concept description</b>	Identifies the physical infrastructure, built form and operation of Sydney Metro West.
<b>Chapter 7 Placemaking</b>	Provides an overview of Sydney Metro's approach to placemaking and provides the design objectives for Sydney Metro West. Outlines the integration with local strategic plans, place and design principles for stations and ancillary facilities and the future design process.
<b>Chapter 8 Concept environmental assessment</b>	Provides a description of the existing environment of the study area, and an assessment of the potential direct and indirect impacts that may result during construction and operation of Sydney Metro West at a concept level.
<b>Part C: Sydney Metro West Stage 1</b>	
<b>Chapter 9 Stage 1 description</b>	Provides a description of Stage 1 including likely construction techniques and identifies the location and function of the main construction sites.
<b>Chapters 10-26 Stage 1 environmental assessment</b>	Provides an assessment of the potential direct and indirect impacts that may result during Stage 1.
<b>Part D: Synthesis, risk analysis and conclusion</b>	
<b>Chapter 27 Synthesis of the Environmental Impact Statement</b>	Provides a technical summary of the Environmental Impact Statement for the Concept and Stage 1.
<b>Chapter 28 Environmental risk analysis</b>	Provides an environmental risk analysis for the Concept and Stage 1 taking into account the potential impacts and mitigation measures identified in Chapters 9 to 26.
<b>Chapter 29 Project justification and conclusion</b>	Provides a conclusion to the report including justification for the Concept and Stage 1 and whether the Concept and Stage 1 has achieved the objectives of Sydney Metro West and has met the objects of the EP&A Act.