



Industry briefing

April 2018



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This document provides a general overview of Sydney Metro, including Sydney Metro Northwest, Sydney Metro City & Southwest and Sydney Metro West. It also outlines the proposed approach to precinct and property development opportunities associated with Sydney Metro.

The document outlines progress made to date and the timeline for the next stages. As further environmental assessments and detailed engineering studies are completed, and additional input from industry is received and considered, construction methodologies and procurement timeframes will be confirmed.

Cover: Aerial view of Parramatta

This page: The twin Sydney Metro tunnels at Castle Hill

Premier's message

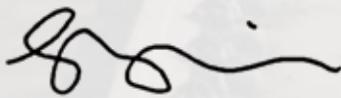


The NSW Government's city-shaping infrastructure program takes another step forward, with planning for Sydney Metro West – our next big public transport investment.

It will deliver a direct connection between

the CBDs of Parramatta and Sydney, linking communities along the way that have not been previously serviced by rail and unlocking housing supply and employment growth between the two major CBDs.

Industry's input has been vital in shaping how we deliver Sydney Metro and we welcome this opportunity for further collaboration and improvement to deliver this once-in-a-century infrastructure investment.



Gladys Berejiklian MP
PREMIER OF NEW SOUTH WALES

Minister's message



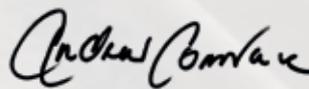
Tunnel boring machines will be in the ground by the end of this year as the NSW Government delivers Sydney Metro into the CBD and beyond to Bankstown.

Major construction is starting on Central

Walk and the new Sydney Metro platforms under Central Station as we get on with delivering Australia's biggest public transport project.

The first stage, the 36-kilometre Sydney Metro Northwest, is close to completion. It is an exciting time as stations come to life and we prepare for services in the first half of 2019.

I would like to thank industry for its valuable input and involvement so far, and I look forward to strengthening our partnerships as we deliver the biggest urban rail infrastructure investment in Australian history.



Andrew Constance MP
MINISTER FOR TRANSPORT
AND INFRASTRUCTURE

Sydney Metro

A new stand-alone railway, this 21st century network will revolutionise the way Sydney travels.

Services start in 2019, using Sydney's new generation of fully-automated metro trains.

From Sydney's booming North West region, metro rail will extend under Sydney Harbour, through new underground stations in the central business district (CBD) and beyond to the south west by 2024.

Customers won't need a timetable for Sydney Metro - they'll just turn up and go with a new metro train every four minutes in the peak.

When Sydney Metro is extended into the CBD, there will be ultimate capacity for a metro train every two minutes in each direction under the city - a level of service never before seen in Sydney.

Sydney Metro, together with signalling and infrastructure upgrades across the existing Sydney rail network, will increase the capacity of train services entering the Sydney CBD - from about 120 an hour today to up to 200 services beyond 2024. That's an increase of up to 60 per cent capacity across the network to meet demand.

Sydney Metro is made up of:

Sydney Metro Northwest - formerly the 36-kilometre North West Rail Link. This \$8.3 billion project is now under construction and will open in the first half of 2019. Construction is progressing rapidly towards completion, and Australia's first fully-automated trains are undergoing testing.

Sydney Metro City & Southwest - a new 30-kilometre metro line extending metro rail from the end of Sydney Metro Northwest at Chatswood under Sydney Harbour, through new CBD stations and south west to Bankstown. It is due to open in 2024 with the ultimate capacity to run a metro train every two minutes each way through the centre of Sydney.

Sydney Metro West - Sydney's next big railway infrastructure investment proposed to be delivered by the second half of the 2020s. This world-scale city-shaping project would link the CBDs of Parramatta and Sydney and communities along the way.

An
increase
of up
to 60%
capacity

Opening in the first half of 2019, Sydney Metro will transform the way Australia's biggest city travels and help shape its future.

This new world-class mass transit system will evolve with the city it will serve – cutting travel times, reducing congestion and delivering major economic and social benefits for generations to come.

Metro rail means a new generation of fast, safe and reliable trains easily connecting customers to where they want to go.

Sydney Metro will make it easier and faster to get around, boosting economic productivity by bringing new jobs and new educational opportunities closer to home.

With customers at the centre of all design decisions, stations will be fully accessible and quick and easy to get in and out of; trains will be fast, safe and reliable; and technology will keep people connected at every step of the journey.

Sydney Metro will integrate with new communities and transform existing urban centres, as well as the broader transport network, so customers have a range of transport options to get to and from their destinations.



Sydney Metro West

In November 2016, the NSW Government announced the Sydney Metro West project – the city’s next underground metro railway.

Connecting the Parramatta and Sydney central business districts, this once-in-a-century infrastructure investment will transform Sydney for generations to come, doubling rail capacity between these two areas, linking new communities to rail services and unlocking housing supply and employment growth between the two CBDs.

Sydney Metro West will service the key precincts of Greater Parramatta, Sydney Olympic Park, The Bays Precinct and the Sydney CBD.

Following extensive community and industry consultation in 2016 and 2017, the Sydney Metro West scope of works has been expanded and refined.

It now includes:

- ▶ a new underground metro station at Westmead, to support the growing residential area as well as the health, research and education precinct
- ▶ a new metro station under an existing suburban station on the T1 Northern Line east of Sydney Olympic Park – allowing faster connections for customers from the Central Coast and Sydney’s north to Parramatta and Sydney, through a quick and easy interchange between suburban and metro services
- ▶ further consultation on new intermediate metro stations between Parramatta and Sydney Olympic Park and between Olympic Park and the Sydney CBD
- ▶ at least one Sydney Metro West station under the Sydney CBD, delivering an easy interchange between suburban rail, new light rail and the new metro stations currently under construction.

It is also proposed that Sydney Metro West will have an underground interchange with an existing suburban station on the T1 Western Line either at Parramatta or Westmead, allowing a fast and easy interchange to metro rail services for customers heading to and from the outer west and Blue Mountains.

Community and industry consultation is continuing into potential new metro stations between the key precincts.

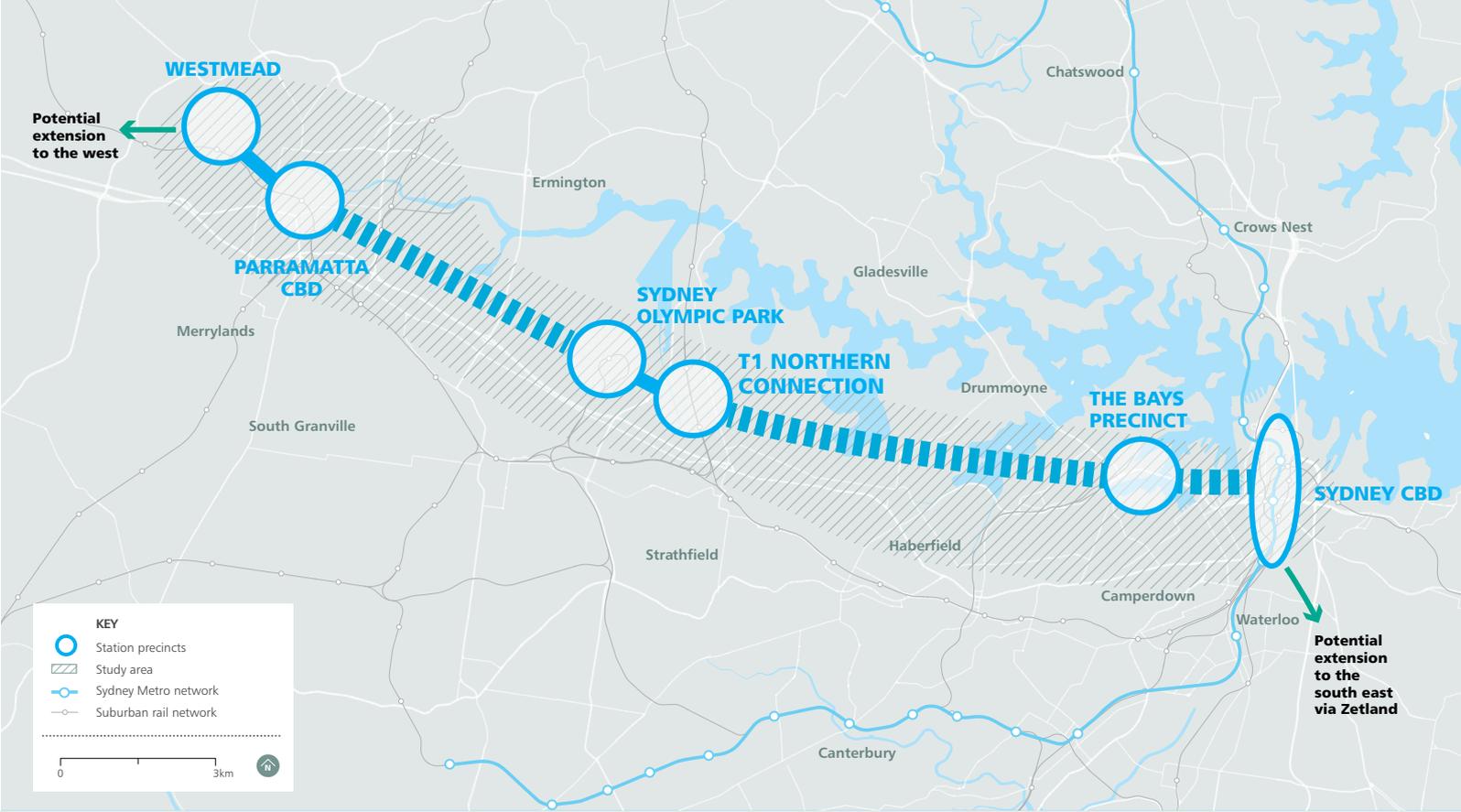
The NSW Government will also safeguard the ability to extend Sydney Metro to the south east of the Sydney CBD via Zetland (serving the Green Square town centre), as well as towards the west beyond Westmead – where one option could be to the new Western Sydney Aerotropolis.

Delivering a fast, safe and reliable metro service will be balanced with improving community benefits: Sydney Metro West will deliver faster public transport journey times than currently possible between the two CBDs while also delivering the best outcomes for communities, connecting as many people as possible to a new world-class mass transit system.

In 2018, further community and industry consultation will take place to refine the project before an investment decision is made by the NSW Government.

This engagement process has been used by Sydney Metro since 2011, and has delivered improved customer and community outcomes like extra metro stations, more car parking on metro rail projects currently being delivered by the NSW Government and reduced community impacts during construction.

**Doubling
rail capacity
to the west**





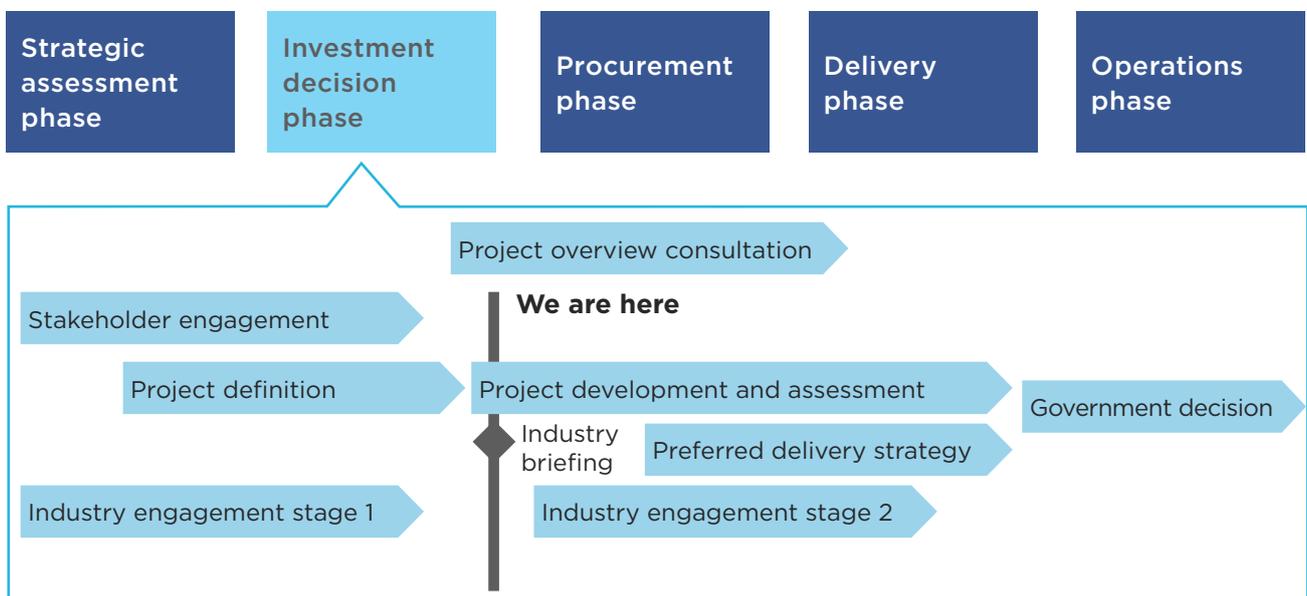
Artist's impression of Westmead Station

Sydney Metro West project development

Since the last industry briefing, there has been further definition of the project and feedback from the first stage of industry engagement in 2017. The project team has published the Project Overview Report and prepared the Initial Delivery Strategy. The next round of extensive community, stakeholder and industry engagement has started.

Project development and assessment will continue throughout 2018 to support an investment decision by the NSW Government.

Feedback from the community, industry and stakeholders such as local government will be a key part of this process. Developing the project will involve key stages outlined below.



Working with industry and stakeholders

Industry engagement helped shape the scope and delivery strategy for both Sydney Metro Northwest and Sydney Metro City & Southwest.

Similarly, we have been engaging with industry on Sydney Metro West since 2017 to help inform project definition and to test, refine and optimise the project by harnessing industry expertise and world's best practice.

We're looking forward to strengthening relationships with our industry partners as Sydney Metro West is further developed. Industry engagement has taken place in parallel with the community consultation process. It has included industry briefings and market sounding with organisations from Australia and overseas.

Sydney Metro West industry engagement timeline

2017

November 2017 industry briefing

- ▶ Sydney Metro West introduced to industry
- ▶ Plans to develop delivery strategy options, to test with industry via further market sounding in 2018.

Sydney Metro West industry engagement stage 1

- ▶ Conducted between July and December 2017
- ▶ High level of interest from all sectors and both local and international entities, including: operators; rolling stock, rail and line-wide systems suppliers/contractors; civil contractors; station builders; infrastructure investors and financiers; property investors and developers; corridor land owners; and professional service providers
- ▶ More than 160 registrations led to over 60 one-on-one meetings
- ▶ Feedback on project scope and direction, including:
 - project objectives, requirements and benefits
 - integrated development opportunities
 - station options, project design and construction
 - operations, trains and systems - including emerging technologies
 - project delivery strategies.

Outcome

- ▶ Helped to refine project definition, in particular the balance between connectivity and journey times; ways to improve customer; safety and place-making outcomes; how future technology may influence the customer experience; station locations; value sharing; economic development and future-proofing
- ▶ Provided insights on: industry capacity and interest; achieving value for money; and packaging, contracting, and procurement process options.

2018

Sydney Metro West industry engagement stage 2 (current)

- ▶ Industry briefing April 2018
- ▶ Initial Delivery Strategy feedback - April/May 2018
- ▶ One-on-one meetings - April/May 2018.

Next steps

- ▶ Late 2018: industry update and preferred delivery strategy for the project.

Industry engagement stage 1

The first round of industry engagement took place in the second half of 2017. The aim was to build awareness of the project and to obtain market information to shape its scope and definition, ensuring the desired transport and land-use outcomes are met.

Alongside extensive community and stakeholder consultation, Transport for NSW engaged with leading local and international metro owners and operators through an international benchmarking survey to help inform the project's development.

Topics discussed included project scope; train configuration, speeds, signalling and stabling; project delivery; and lessons learned.

Sydney Metro understands that local capability and capacity is being challenged by the volume of work in Australia and internationally.

We will continue to work closely with industry to ensure the project is attractive and can be delivered effectively and efficiently.

**Continuing
to work
closely with
industry**

Summary of initial industry feedback on Sydney Metro West

| | |
|------------------------------|--|
| Packaging | <ul style="list-style-type: none"> ▶ The project is generally considered too large for a single 'turn-key' type package ▶ General preference is for separate packages that align with market sectors and cover early and enabling works, tunnels (with or without station excavations), operations, trains and systems, stations, and integrated station development. |
| Contract models | <ul style="list-style-type: none"> ▶ A wide range of models considered appropriate, depending on scope, certainty and risk allocation ▶ Some models suggested for consideration: <ul style="list-style-type: none"> - design, build, maintain contract(s) for rail/line-wide systems and rolling stock with potential for Private Public Partnership - design and construct for tunnels - collaborative models for higher-risk elements - performance-based contracts for operations with terms of 5-10 years. |
| Transaction processes | <ul style="list-style-type: none"> ▶ Some suggestions included considering: <ul style="list-style-type: none"> - early contractor involvement - output/performance-based specifications for system and rolling stock - a strategy that minimises bid costs, including: communicating as much advance notice as possible, appropriate periods to bid, and a highly interactive bidding process - contribution to bid costs (in exchange for intellectual property) - seeking further market sounding feedback before adopting preferred solutions. |

Sydney Metro West delivery strategy

Sydney Metro West provides an opportunity to consider innovative methods of delivery.

Taking this approach and informed by industry feedback, Sydney Metro has developed an Initial Delivery Strategy which is a starting point for focused discussion.

It recognises that the scope of the project is evolving. In particular, the number of stations, locations, and associated land-use outcomes are subject to more detailed ongoing assessment, in order to optimise transport, economic, and urban renewal opportunities and benefits.

Industry input is being sought to critically evaluate this initial strategy and all options available for the delivery of Sydney Metro West. This will help shape an optimum delivery strategy for the business case.

Delivery innovation

The Initial Delivery Strategy base option includes some potential innovations for Sydney Metro, such as separate operations and maintenance packages, and multiple tunnel packages.

We are looking for industry to challenge this strategy both in terms of packaging and contract models and to further advise on preferred transaction processes.

We have developed a comprehensive survey that seeks industry input across all sectors. To assist this, we have also documented a wide range of potential options. We want industry to provide feedback on all options, and to help shape an optimum strategy.

In particular, in the context of fully automated train operations and associated systems, the project is keen to explore industry views on the opportunities and risks of:

- ▶ not having 'vertical integration' by de-coupling operations and long-term maintenance, with split responsibilities for day-to-day performance, compared with
- ▶ having 'vertical integration' by combining operations and long-term maintenance, and having single point accountability for day-to-day operational outcomes.

Potential intermediate stations

Industry input is sought to help shape the scope of Sydney Metro West. The Initial Delivery Strategy contemplates potential intermediate stations between: Parramatta and Sydney Olympic Park; the T1 Northern line connection and The Bays precinct; and The Bays Precinct and Sydney CBD. There is also potential for an extension and associated stations south of the Sydney CBD.

As part of assessing the value of potential intermediate stations, Sydney Metro is undertaking further engagement on, and detailed analysis of, 'integrated private development' opportunities.

These are options to enhance project benefits and deliver greater value for money by potentially integrating Sydney Metro West stations with private sector proposals, to renew precincts by development of larger private landholdings.

Sydney Metro is looking to engage with entities which own land or hold development rights over land within the Sydney Metro West study area, as well as the broader property development industry.

Integrated station developments

Sydney Metro is actively investigating integrated station development opportunities. The Initial Delivery Strategy envisages any such opportunities being delivered through either:

- ▶ a single-stage tender process comprising an agreement for the design and construction of the station and a separate development agreement, or
- ▶ a two-stage process with the first process comprising the design and construction of the station and a later process for the development of the station site.

Input from station constructors, builders and developers is sought into the risks and benefits of integrating development opportunities with station delivery and the above strategies.

Providing your input – industry engagement stage 2

The second round of industry engagement provides an opportunity for industry to further engage with Sydney Metro West to assist in developing a preferred delivery strategy and to help shape the project definition.

Sydney Metro is seeking to engage with local and international entities from all industry sectors, including: operators; rolling stock; rail systems and line-wide systems suppliers/contractors; civil contractors; station builders; infrastructure investors and financiers; property investors and developers; major corridor land owners in the Sydney Metro West Study Area; and professional services providers.

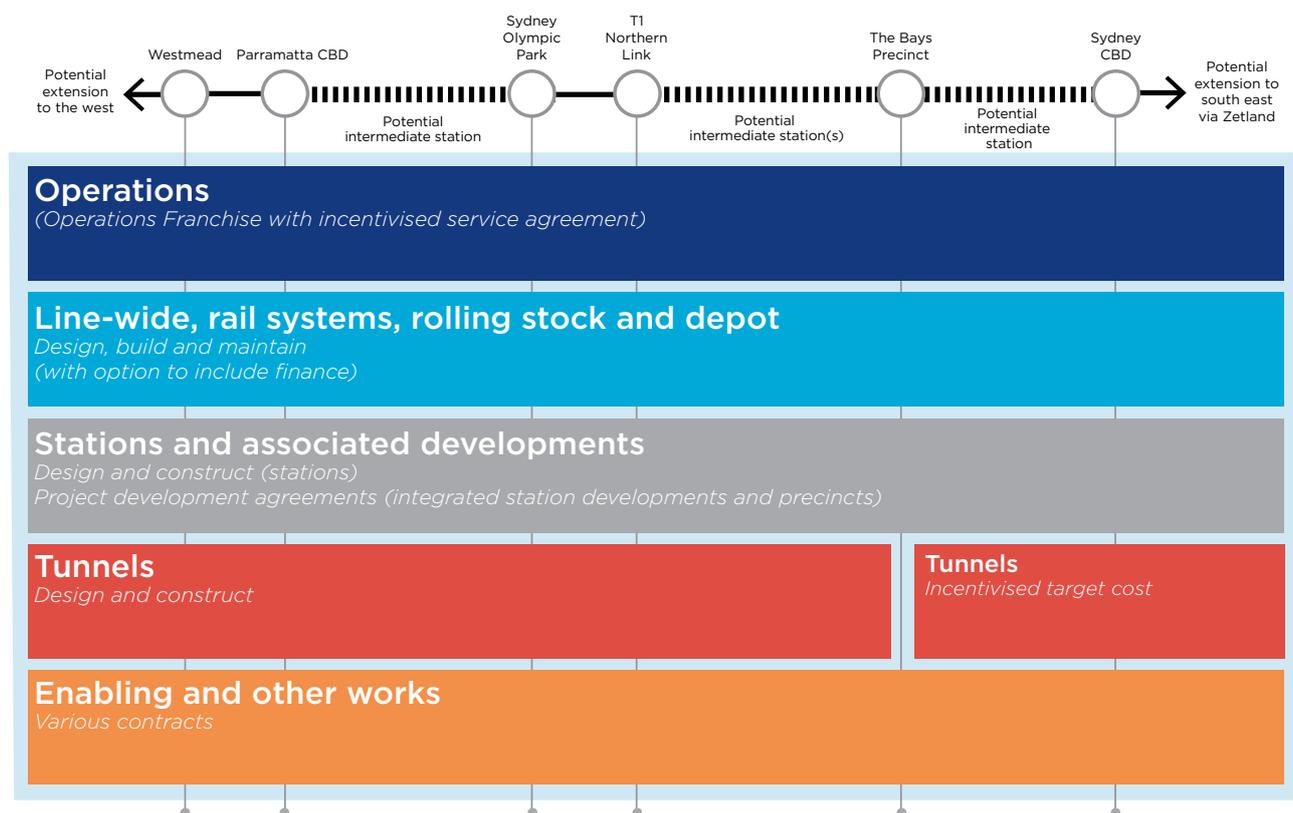
The second round of industry engagement will involve:

- ▶ a comprehensive market sounding survey of all sectors on the delivery strategy, including preferences for the packaging, contracting, and transaction process options

- ▶ one-on-one meetings, with selected participants to further investigate risks and opportunities on key aspects of the delivery strategy focusing on:
 - integrated private development – opportunities to integrate additional intermediate stations with city building initiatives
 - delivering stations with integrated development
 - strategies for metro operations and maintenance
 - growing industry capacity for projects like Sydney Metro West
 - developing a digital strategy for the Sydney Metro.

Meetings will be scheduled and arranged to encourage maximum participation, including remotely with international representatives.

Sydney Metro West delivery strategy



Register to be involved

To participate and to gain access to the delivery strategy survey and additional information, please contact us at:

 sydneymetro.info/industry

 industry.sydneymetro@sydneymetro.info

Sydney Metro is seeking to engage with local and international entities from all industry sectors



Sydney Metro City & Southwest updated project delivery strategy

Following further work by the project team and taking into account feedback from industry, the Project Delivery Strategy has been updated.

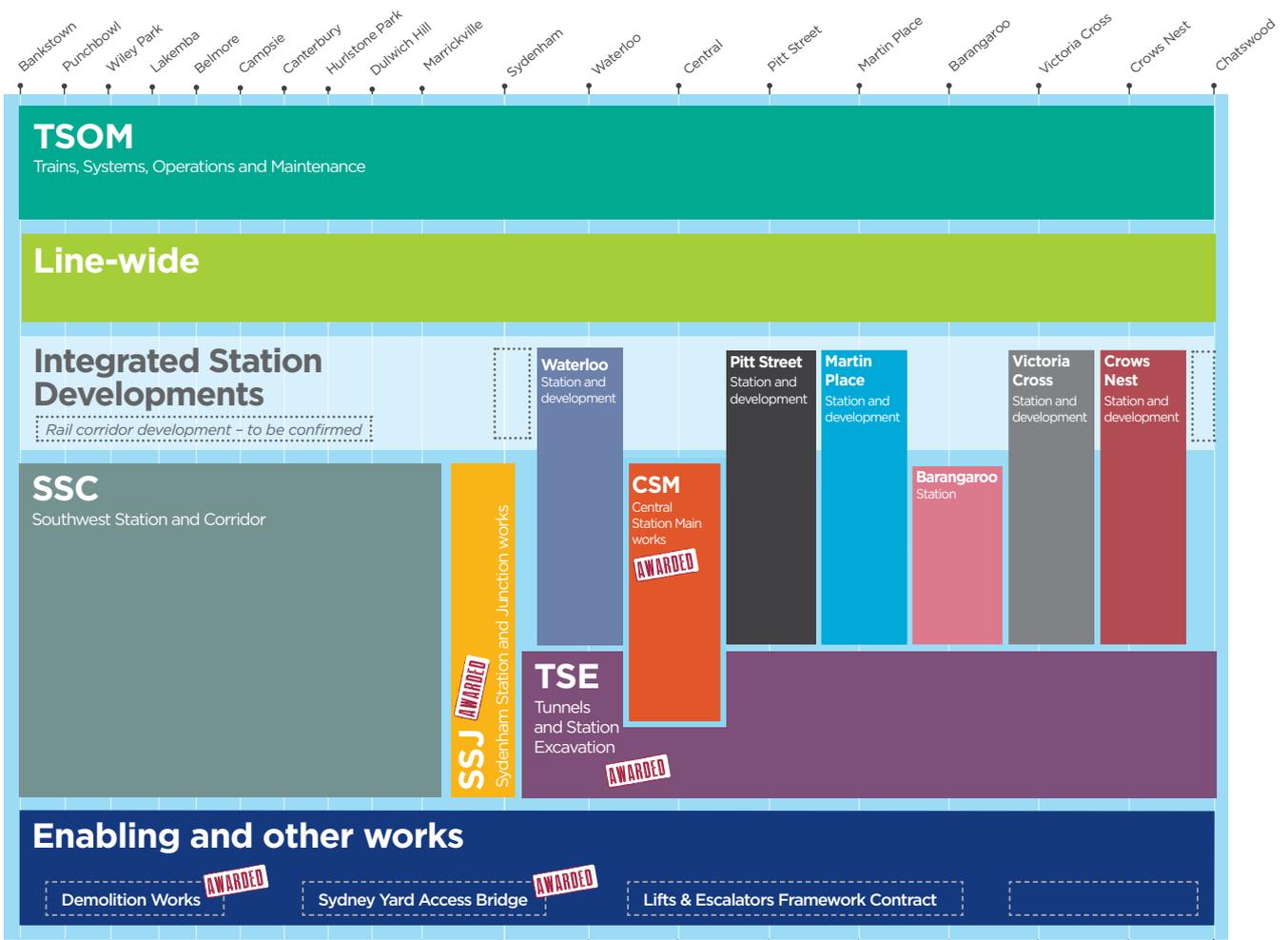
The strategy includes integrated station development packages at Pitt Street, Martin Place, Victoria Cross and Crows Nest stations. This means that as the new metro stations are built underground, new buildings can be constructed above them at the same time.

This will help reduce community impacts and the length of time required to deliver the outcomes of integrated station developments.

The updated strategy now includes an integrated station development package for Waterloo Station.

This will integrate the Waterloo Metro Station works with UrbanGrowth NSW's proposed Waterloo Metro Quarter over station development.

After completing the Expression of Interest process for the Barangaroo Station fit-out works contract, TfNSW has revised the delivery strategy for this package. In order to better match market capacity, improve risk allocation and achieve better value for money, Barangaroo Station will be let as a construct-only contract, following completion of design work under the management of TfNSW.



Sydney Metro City & Southwest project contract packaging approach

| Package | Overview of scope |
|--|---|
| TSOM: Trains, Systems, Operations and Maintenance | <ul style="list-style-type: none"> ▶ Rolling stock ▶ Signalling system ▶ Central control ▶ Communications and other systems ▶ Radio systems ▶ Platform screen doors and mechanical gap fillers ▶ Depot (including stabling) and operations control centre systems integration, testing and commissioning ▶ Operations and maintenance |
| Line-wide | <ul style="list-style-type: none"> ▶ Tunnel ventilation ▶ Track and tunnel services (drainage, lighting, fire systems, low voltage power supplies), combined services ▶ Stabling ▶ High voltage power supply ▶ Overhead line and traction supply |
| Integrated Station Developments: Crows Nest Victoria Cross Martin Place Pitt Street Waterloo | <ul style="list-style-type: none"> ▶ Excavation of remaining station shafts (to extent not undertaken by TSE contractor) ▶ Station structure ▶ Station fit-out, including mechanical and electrical ▶ Development structure ▶ Development fit-out, including mechanical and electrical |
| Barangaroo Station | <ul style="list-style-type: none"> ▶ Station construction and fit-out, including mechanical and electrical |
| TSE: Tunnel and Station Excavation works | <ul style="list-style-type: none"> ▶ Demolition and site preparation (via novation of demolition contractors) ▶ Tunnel boring and lining ▶ Cavern mining and lining ▶ Excavation of station shafts (extent varies at different station locations) ▶ Station structure at Barangaroo only |
| CSM: Central Station Main works | <ul style="list-style-type: none"> ▶ Customer continuity works ▶ Temporary decommissioning of platforms and reinstatement ▶ Metro box excavation ▶ Central Walk eastern concourse and entry ▶ Station structure and fit-out, including mechanical and electrical ▶ Services relocation |
| SSC: Southwest Station and Corridor works | <ul style="list-style-type: none"> ▶ Station works (including demolition, upgrades) ▶ Bridge and non-station civil works ▶ Services buildings and facilities ▶ Electrical works (low voltage) ▶ Cable and services routing ▶ Track and other rail infrastructure |
| SSJ: Sydenham Station and Junction works | <ul style="list-style-type: none"> ▶ Station works ▶ Services buildings and facilities ▶ Services adjustments and relocations (rail and non-rail) ▶ Signalling ▶ Track and other rail infrastructure (including stageworks) |

Sydney Metro City & Southwest - status

| PROJECT TIMELINE MILESTONE | COMMENCING |
|--|-------------|
| Early consultation | Q1 2015 ✓ |
| Project scope consultation | Q2 2015 ✓ |
| Industry engagement | Q2 2015 ✓ |
| Lodgement of State Significant Infrastructure Application Report (SSIAR) | Q4 2015 ✓ |
| Reference delivery strategy | Q4 2015 ✓ |
| Start major contract procurement | Q2 2016 ✓ |
| Chatswood to Sydenham Environmental Impact Statement (EIS) exhibition | Q2 2016 ✓ |
| Sydenham to Bankstown planning commenced | Q3 2016 ✓ |
| Augmentation proposal request | Q4 2016 ✓ |
| Chatswood to Sydenham EIS approval | Q1 2017 ✓ |
| Procurement of independent certifiers and delivery partners | 2016-2018 ✓ |
| Start construction | 2017 ✓ |
| Sydenham to Bankstown EIS exhibition | Q3 2017 ✓ |
| First tunnel boring machine | 2018 |
| Operations | 2024 |

Major contract package procurement

| PACKAGE | START DATE |
|--|-------------|
| Tunnel and Station Excavation works (TSE) | Q2 2016 ✓ |
| Early and enabling works | 2016-2017 ✓ |
| Trains, Systems, Operations and Maintenance (TSOM) | Q4 2016 ✓ |
| Central Station Main works (CSM) | Q1 2017 ✓ |
| Sydenham Station and Junction works (SSJ) | Q1 2017 ✓ |
| Southwest Station and Corridor works (SSC) | Q2 2017 ✓ |
| Integrated Station Developments | Q4 2017 ✓ |
| Line-wide | Q4 2017 ✓ |
| Barangaroo Station fit-out | Q4 2019 |



Metro precinct activation and integrated station development

Sydney Metro will transform Sydney, not just by delivering 66 kilometres of new metro rail services. Sydney Metro will also enable diverse new housing opportunities across the alignment. It will encourage greater commercial development and jobs all along the Global Economic Corridor – including key areas of the city and North Sydney.

To be successful, the Sydney Metro transport service will be integrated into active precincts around each metro station and their surrounding locations. The Sydney Metro program includes transport, commercial and residential mixed land-use opportunities at and around the station precincts.

Sydney Metro aims to ensure that optimal precinct development and activation outcomes around metro stations are achieved.

Our strategy for the development and activation of precincts along the alignment aims to:

- ▶ support the NSW Government's planning strategies and objectives
- ▶ maximise urban outcomes, enhancing customer experience and urban amenity
- ▶ create an urban environment which drives high usage of the metro
- ▶ ensure residual project lands are developed as soon as possible following completion of the metro infrastructure
- ▶ accommodate the requirements of key government services to support growth.

A customised approach across the Metro corridor

The 66-kilometre Sydney Metro alignment from Cudgegong Road to Bankstown incorporates three distinctly different geographical areas:

- ▶ Cudgegong Road to Chatswood – new centres around metro stations and expanding residential and commercial areas in north west Sydney
- ▶ Chatswood to Sydenham – the key hubs of St Leonards/Crows Nest, North Sydney, and the Sydney CBD, including the Barangaroo precinct and the Waterloo precinct, which are targeted for significant urban transformation

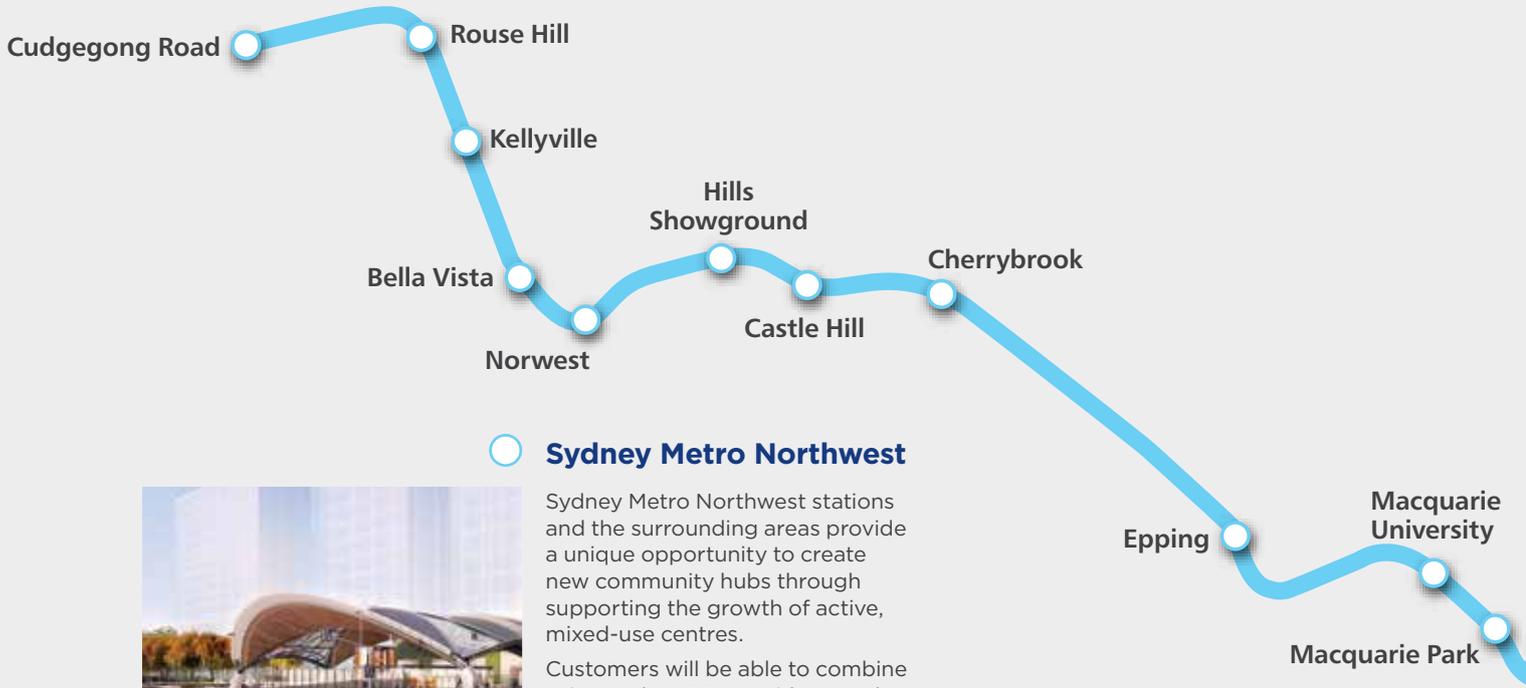
- ▶ Sydenham to Bankstown – long-established principally residential suburbs with key hubs at Campsie and Bankstown, in a corridor identified by the NSW Government for selected urban renewal opportunities.

Each of these areas is different in character and requires different approaches to the planning, development and integration of these precincts to realise the opportunities for enhanced urban outcomes.

The focus in realising these opportunities is promoting:

- ▶ vibrant new communities centred around metro station locations (for example at Cudgegong Road, Kellyville, Cherrybrook, Bella Vista and Hills Showground)
- ▶ integrated station development (ISD) opportunities integrated with new stations at existing commercial centres (for example at Crows Nest, Victoria Cross, Martin Place, Pitt Street and Waterloo)
- ▶ infill development adjacent to metro stations within existing centres (for example at Norwest, Epping, Castle Hill, areas between Sydenham and Bankstown)
- ▶ development opportunities within existing centres (for example at Macquarie Park, North Ryde, Waterloo, areas between Sydenham and Bankstown).

Precincts and places



Sydney Metro Northwest



Sydney Metro Northwest stations and the surrounding areas provide a unique opportunity to create new community hubs through supporting the growth of active, mixed-use centres.

Customers will be able to combine using Sydney Metro with everyday activities such as visiting the doctor, dropping children off at childcare or shopping. The focus on walking and cycling to the stations and precincts will keep customers sustainably connected.

Transport for NSW is working with Landcom and other government agencies to create new centres and expand residential and commercial areas.



Sydenham to Bankstown



Each area along the T3 Bankstown Line has its own unique identity.

The design of the stations along the line, and the precincts that surround the stations will reflect these distinct cultures.

Through landscaping, design, accessibility and utilising existing heritage, Sydney Metro stations will enhance the precincts in which they exist.



Australia's biggest public transport project

- 31 stations
- 66km new metro rail
- Services start 2019



Integrated station development

- CROWS NEST**
- VICTORIA CROSS**
- MARTIN PLACE**
- PITT STREET**
- WATERLOO**

Barangaroo precinct



Barangaroo is being transformed from a container terminal on the edge of Sydney's CBD into a spectacular 22-hectare waterfront precinct.

Once fully complete with a new Sydney Metro station by 2024, more than half of Barangaroo will be dedicated public space including a continuous Sydney Harbour promenade, expansive parklands, plazas and coves.

The Barangaroo precinct is being delivered by the Barangaroo Delivery Authority.

Central precinct



Central Station is a key transport hub in the NSW network and it will soon become a major interchange with the new Sydney Metro and an expanded Sydney Light Rail network.

An iconic landmark, the station is also at the heart of a revitalisation of Sydney's southern CBD.

Transport for NSW is working to re-imagine the Central Station precinct, ensuring that the investment in new transport infrastructure reflects what the community and stakeholders want for the grand landmark station, recognising its iconic place in Sydney's history and future.

