West

Major civil construction between The Bays and Sydney CBD

Environmental Impact Statement Summary

November 2021

Contents

Sydney Metro respectfully acknowledges the traditional owners and custodians of this great land and we pay our respects to Elders past, present and future, extending this respect to all Aboriginal and Torres Strait Islander peoples.

Cover: An artist's impression of Hunter Street Station.

About Sydney Metro West

Sydney Metro is Australia's biggest public transport project. By the end of the decade, the network will include 46 stations and more than 113 kilometres of world-class metro for Sydney.

Sydney Metro West will be a new underground metro railway that will double rail capacity between Greater Parramatta and the Sydney central business district (CBD), transforming Greater Sydney for generations to come.

This once-in-a-century infrastructure investment will have a target travel time of about 20 minutes between Parramatta and the Sydney CBD, link new communities to rail services and support employment growth and housing supply.

The project is expected to create about 10,000 direct and 70,000 indirect jobs during construction.

Stations have been confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pyrmont and Hunter Street in the Sydney CBD.

The Sydney Metro West environmental assessment process

Formal project planning for Sydney Metro West started in 2019 and will continue through the early 2020s.

Work started on this city shaping project at The Bays in 2020, with tunnel boring machines (TBMs) set to be in the ground in 2022. In March 2021, the project received its first major planning approval for the project concept between Westmead and the Sydney CBD and major construction work between Westmead and The Bays.

Sydney Metro is now seeking approval for further major civil construction work, including station excavation and tunnelling, between The Bays and Sydney CBD.

This document provides a summary of the associated Environmental Impact Statement (EIS) for this work – 'Major civil construction between The Bays and Sydney CBD Environmental Impact Statement 2021'. It includes potential impacts and mitigation measures, and gives details of how the community can have a say.

The full EIS and supporting documents are available at: **planningportal.nsw.gov.au/major-projects/project/41851**

An interactive portal with key information about Sydney Metro West is also available at: **sydneymetro.info/metrowest**

Future planning approvals will consider:

- rail infrastructure, stations, precincts and operations between Westmead and Sydney CBD
- integrated station and precinct developments at relevant stations.

The community will be able to learn more and have a say throughout the planning process.

The Bays to Sydney CBD virtual engagement room.

A Sydney Metro train on the Metro North West Line.

Sydney Metro West project update May 2021.


PYRMONT
NSW
GOVERNMENT
Transport

Premier’s message

Sydney Metro West is a once-in-a-generation investment, linking the thriving Greater Parramatta region to the Sydney CBD. The NSW Government is planning and prioritising public transport in Western Sydney by investing $12 billion over the next four years in Metro West.

Sydney Metro West will further support our growing city by connecting Greater Parramatta and the Sydney CBD and doubling the rail capacity between these two centres.

Sydney Metro will deliver a level of customer experience not seen before in Australia: a fully accessible turn-up-and-go metro that will forever change how we move around our great city.

As our state transitions to economic recovery from the COVID pandemic, it’s so important that we prioritise projects such as this that create jobs and opportunity for generations to come. I encourage you to have your say.

Dominic Perrottet MP
Premier of New South Wales

Minister’s message

Sydney Metro is a game-changer for Sydney.

Sydney Metro West will transform Sydney for generations to come. Not only providing new transport options for the area, but it is expected to create approximately 10,000 direct and 70,000 indirect jobs during construction.

There will be fast, safe and reliable metro trains with a trip time of about 20 minutes between Parramatta and the Sydney CBD.

With the first major tunnelling contract for this city-shaping project awarded in July 2021, mega tunnel boring machines will be in the ground before the end of next year.

Community engagement has been key to shaping Sydney Metro since the start. Please have your say as we deliver Sydney Metro West, a project that will revolutionise the way this city travels.

Rob Stokes MP
Minister for Planning, Public Spaces, Transport and Roads

An artist’s impression of Pyrmont Station.

About Sydney Metro

An artist's impression of Pyrmont Station.


PYRMONT
BREWED BEANS
M

Sydney Metro is Australia's biggest public transport project

A new generation of fast, safe and reliable metro trains.

Australia's first fully accessible railway: level access between the platform and train.

Heating and air-conditioning in all metro trains.

New driverless technology, including platform screen safety doors keeping people and objects like prams away from tracks.

At all times, a team of expert train controllers will monitor Sydney Metro, making sure everything runs smoothly.

Wheelchair spaces, separate priority seating and emergency intercoms inside trains.

Continuous mobile phone coverage throughout the metro network.

Slashing travel times

Sydney Metro West will have a travel time target of around **20 minutes** between Parramatta and the Sydney CBD.

Sydney Metro opened in Sydney's North West in May 2019

Metro services are already connecting people in the city's north west between Rouse Hill and Chatswood. Driverless trains run every four minutes in the peak in each direction, with plenty of room to grow in the future.

Sydney Metro City & Southwest opening in 2024

New fast, easy and reliable metro rail services will extend from Sydney's North West under Sydney Harbour and through the CBD to Bankstown in 2024, when Sydney will have 31 metro stations and 66 kilometres of new metro rail.

Kellyville Station on the Metro North West Line.

The biggest urban rail project in Australian history

Metro North West Line
Opened 26 May 2019

13 stations

4000 commuter car parks

36 kilometres

City & Southwest
Opening 2024

18 stations

New CBD connections

30 kilometres, including under Sydney Harbour

West
Construction started 2020

Nine stations

Connecting Greater Parramatta and the Sydney CBD

3.2 million — Western Sydney population, 2036

Sydney Metro – Western Sydney Airport
Construction started 2020

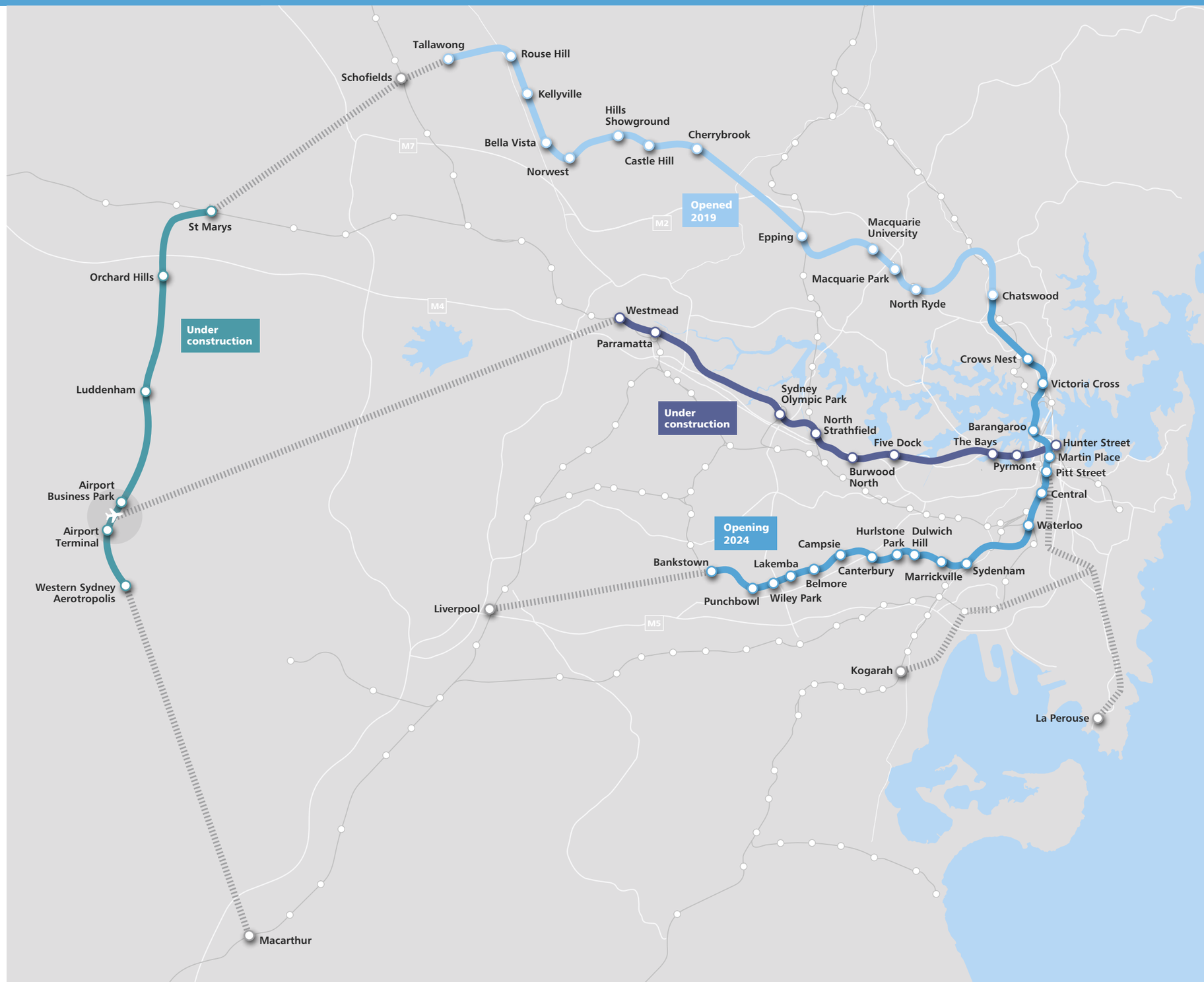
Six stations

Connecting Western Sydney International Airport to the rest of Greater Western Sydney

Servicing Greater Western Sydney

Sydney Trains suburban network

Future metro
(subject to further investigation)




LIFE IS
AWESOME

The customer is at the centre

Get where you need to go, easily and quickly.

Sydney's new metro railway is an easy part of daily journeys and will evolve with the city it will serve for generations to come.

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

Technology keeps customers connected at all stages of their journey – from smartphone travel apps on the way to stations to real-time journey information at metro stations and on board trains.

This door-to-door approach helps customers achieve their daily tasks, whether it's getting to work, meetings, school or education, sport, a day out or running errands – and, of course, getting home.

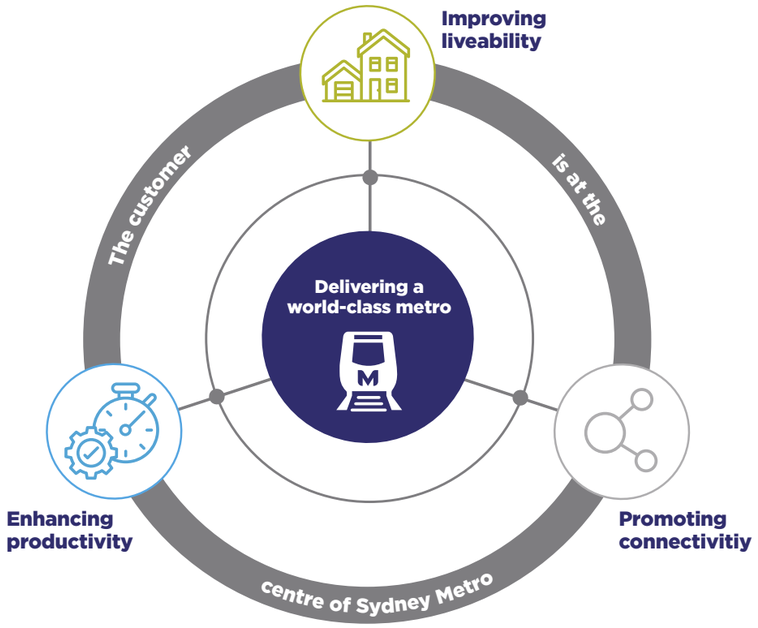
Making it easy for customers at each stage of their journey is integral to the successful delivery of Sydney Metro.

Linking communities, schools, hospitals, key destinations and businesses with the new metro system is key in attracting and keeping customers, as well as in meeting broader transport and land use objectives.

Sydney Metro is working across government and with the community to also get customers to and from metro services easily.

The metro public transport product has been designed to deliver safe, clean, comfortable services which run on time and are convenient, efficient, accessible and easy for customers to use.

Metro stations provide safe and efficient interchanges between transport modes, giving priority to pedestrians.



Customer-centred design

At Sydney Metro, we are using 'co-design' approaches, aimed at identifying factors that impact the travel experience of customers, and improving them. This is helping us to design safe, welcoming and intuitive stations, by assessing, testing and validating solutions with customers and communities.

Our stations

All stations are designed to reflect the character of the local areas they serve and, where possible, include environmentally friendly features such as solar panels, natural light and ventilation. New metro services will be integrated with other transport modes, including interchanges with Sydney suburban rail as well as buses, light rail and ferries. Customer safety is the number one priority for Australia's first fully-automated railway. Inside the station, platform screen doors, video help points and CCTV coverage ensure travel is safe and secure. At all times, a team of expert train controllers monitors the system, making sure everything runs smoothly.

Sydney Metro is Australia's first fully accessible railway

Every Sydney Metro station and interchange is fully accessible – from drop-off points, through to concourses, to platforms and onto trains. Wheelchair and pram users can access the metro train at any door, and once on board, they can move throughout the whole train.

Platform screen doors

Sydney Metro is the first railway network in Australia to use platform screen doors, which are common around the world.

Platform screen doors on all metro platforms keep people and objects away from the edge, improving customer safety and allowing trains to get in and out of stations much faster.

Community open day at Cherrybrook Station, Metro North West Line.

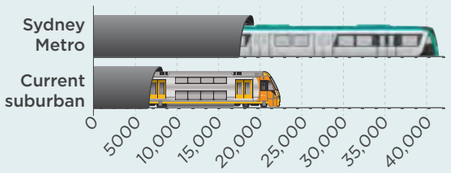
Sydney Metro West

An artist's impression of Parramatta metro station.


PARRAMATTA

A new metro railway connecting Greater Parramatta to the Sydney CBD

Doubling rail capacity between Parramatta and the Sydney CBD, moving more than 40,000 people an hour in each direction.



Maximum customers per hour per line

Sydney Metro infrastructure, like the stations, trains and railway tracks, is owned by the NSW Government.

More opportunities with faster, more frequent access to major employment and education centres like Parramatta, Sydney Olympic Park and The Bays.

A new metro station at Hunter Street in the Sydney CBD – connecting directly to Sydney's established and growing employment precincts.

A new metro station at Pyrmont – delivering major benefits to the Pyrmont community and supporting plans to transform this harbourside suburb.

Sydney Metro uses Opal ticketing and fares that are set by the NSW Government, the same as the rest of the Sydney public transport network.

All Sydney Metro stations are fully accessible, with lifts and level access between trains and platforms.

A new metro station at Westmead – one of Australia's largest health and education precincts.

Integrated with the rest of Sydney's public transport system.

Delivering rail services for the first time at Burwood North, Five Dock, The Bays and Pyrmont.

A new metro station at Sydney Olympic Park – Sydney's sporting and entertainment super-precinct.

Next generation fully air–conditioned metro trains.

Growing with the West

Supporting a 30-minute city

The Greater Sydney Commission's 'Towards our Greater Sydney 2056' outlines how the city is planning for future decades.

Consistent with the 30-minute cities concept, where people across the city can access their nearest city centre in 30 minutes by public transport, the NSW Government is investing in significant new infrastructure projects designed to deliver a renewed urban environment for Sydney that changes the patterns of where people live and work, how they enjoy their spare time and how they travel.

Sydney Metro West will support well-connected and vibrant places that re-imagine Western Sydney and reduce the traditional reliance on long-haul, peak-hour-only commutes to and from major employment centres.

Future Transport 2056

The NSW Government's 'Future Transport 2056' strategy, which sets the 40 year vision, directions and outcomes framework for customer mobility in NSW, supports the 30-minute cities concept and builds on the 2012 NSW Long Term Transport Master Plan, which has guided unprecedented investments in transport services and infrastructure across NSW.

Sydney Metro West is a critical step in the delivery of the 'Future Transport 2056' strategy, along with other initiatives like Parramatta Light Rail, and improvements to the suburban rail system through programs like 'More Trains, More Services'.

The Future Transport 2056 strategy is available at: **future.transport.nsw.gov.au**.

A focus on better connecting Western Sydney

Sydney Metro West will make it faster and easier to get to Parramatta from both the east and west.

From the east, this new stand-alone metro will become the easiest and fastest journey within the growing corridor and between the Parramatta and the Sydney CBDs, moving more than 40,000 people an hour in each direction and doubling the current rail capacity.

This frees up capacity on existing suburban rail to the west, increasing reliability of services to and from areas like Blacktown, Penrith and the Blue Mountains.

Aerial view of Parramatta.

The need for Sydney Metro West

Sydney Metro will make it easier and faster to get around, boosting economic productivity by bringing new jobs and educational opportunities closer to home. Sydney is a global city that will experience significant population and employment growth in the coming decades. Investment in public transport will play an important role in supporting this growth, ensuring Sydney's future liveability and global competitiveness.

Greater Sydney's population will pass 6 million by 2036; an extra 1.7 million people will progressively move into Australia's biggest city, which will support 840,000 more jobs.

Sydney Metro West is expected to take

tens of thousands of cars
off Sydney roads every day

including about

83,000 fewer car trips

every weekday by 2036, and about

110,000 by 2056

Pyrmont Bridge looking towards the Sydney CBD.

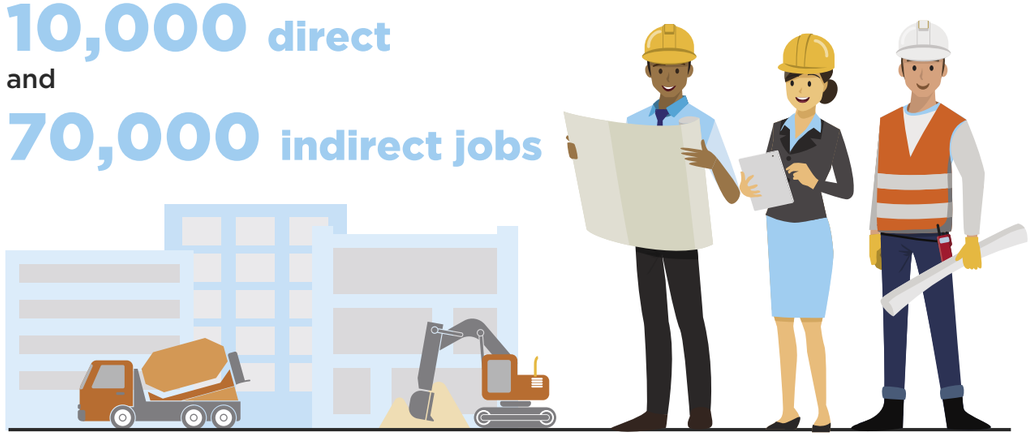
Creating new jobs

Sydney Metro West is expected to create approximately

10,000 direct

and

70,000 indirect jobs



Hunter Street Station

Busiest city-bound platform

on the Sydney train network

Demand for public transport between Greater Parramatta and the Sydney CBD by 2036

Public transport demand will

increase by 36%

in the AM peak

3.2 million people

will live in Western Sydney – that's about 50 per cent of Sydney's population

420,000 people

will move into the corridor between the two cities

New stations at Hunter Street and Pyrmont

Hunter Street Station

In the commercial heart of the Sydney CBD, the new Hunter Street Station will become the fourth Sydney Metro station in the Sydney CBD with easy connections to George Street, Light Rail, Sydney Trains services at Wynyard and Martin Place and the new Sydney Metro City & Southwest station at Martin Place. A large precinct between George, Hunter, O'Connell and Bligh streets will prioritise pedestrians and support a vibrant public domain in the heart of the Sydney CBD. Station entrances are proposed to be located on George, O'Connell, and Bligh streets. Proposed underground walkways will allow for easy transit all the way from Martin Place to Barangaroo – providing efficient links with Sydney Metro City & Southwest and Sydney Trains services. The new station is expected to have the highest numbers of city-bound customers across the entire Sydney rail network in the AM peak, taking pressure off Wynyard and Town Hall stations.

Travel time savings to and from the Sydney CBD

	Travel time on Sydney Metro West	Travel time savings*
Westmead	**22 minutes**	**7 minutes**
Parramatta	**20 minutes**	**6 minutes**
Sydney Olympic Park	**15 minutes**	**24 minutes**
Pyrmont	**2 minutes**	**12 minutes**

*Based on current public and active transport travel times between 8am and 9am on weekdays.

An artist's impression of Hunter Street Station.

Pyrmont Station

The new Pyrmont Station will be on the doorstep of Darling Harbour, Blackwattle Bay, the new Sydney Fish Market and the Sydney CBD. Station entrances are proposed to be located on Pyrmont Bridge Road and Union Street. Pyrmont Station will greatly enhance plans to revitalise this inner city precinct by encouraging jobs, investment and economic growth. The station will enable a new level of connectivity to the Pyrmont Peninsula and prioritise pedestrian movement around the station through vibrant street frontages and open public spaces. Sydney Metro will continue to work with the Department of Planning, Industry and Environment, other government stakeholders and the community to ensure Pyrmont Station supports the future vision of the Pyrmont Peninsula.

Travel time savings to and from Pyrmont

	Travel time on Sydney Metro West	Travel time savings*
Westmead	**20 minutes**	**32 minutes**
Parramatta	**18 minutes**	**30 minutes**
Sydney Olympic Park	**13 minutes**	**43 minutes**
North Strathfield	**10 minutes**	**29 minutes**
Hunter Street	**2 minutes**	**12 minutes**

*Based on current public and active transport travel times between 8am and 9am on weekdays.

An artist's impression of Pyrmont Station.

A city shaping project

Sydney Metro West will deliver more than just railway stations. Through excellence in design and delivery, new places will:

- respond to the community's needs
- be architecturally unique and easy to get around
- be intuitive and safe, and promote people's health and wellbeing.

Through urban design principles and placemaking, Sydney Metro West precincts will become the centre of communities and provide for a variety of uses.

Sydney Metro will work closely with communities on how best to integrate stations that are thriving, welcoming hubs for everyone to enjoy with new places for people to live, work, shop and play – and public spaces designed to encourage walking, cycling and social interaction. The stations will become vibrant places and landmarks in their own right, building on the local character of each area.

Creating places

Integrated station and precinct development

All Sydney Metro West stations are being designed to integrate with their surrounding areas to make vibrant and attractive places that reflect the unique context and future aspirations for each place.

Several stations are planned to include integrated station and precinct developments, comprising of new buildings within the station precinct. These could be made up of buildings above and/or around the station that could deliver a range of uses – such as community facilities, new homes and green spaces, shops, restaurants and commercial office spaces.

Where required, Sydney Metro will deliver some development at the same time as building the station. Other development will be delivered separately and will be subject to future planning approvals.

Sydney Metro will continue to work closely with the local community and stakeholders to ensure that station precincts are welcoming hubs that build on the local character.

All integrated station and precinct developments will be subject to separate planning approval processes, which will include community and stakeholder engagement.

Integrated station and precinct development may be considered above and/or around the station

Station constructed

About the Environmental Impact Statement

Aerial view of Sydney CBD.

The Environmental Impact Statement public exhibition

This document provides a summary of 'Major civil construction between The Bays and Sydney CBD Environmental Impact Statement 2021'. This EIS covers the proposed major civil construction work, including station excavation and tunnelling, between The Bays and Sydney CBD. Sydney Metro is ensuring that the EIS and supporting materials are as clear and easy to access as possible.

The Sydney Metro team, including our team of project experts, is here to provide you with information about Sydney Metro, and to help you find out more about this EIS. If you are having difficulty accessing any of the information available, please contact us and we'll make arrangements to assist you.

Visit **planningportal.nsw.gov.au/major-projects/project/41851** to view the full Environmental Impact Statement.

Visit **sydneymetro.info** to learn more about Sydney Metro and sign up for email alerts.

Visit **sydneymetro.info/metrowest** to view an interactive map of the project, find out what you can expect in your area and learn from expert members of the project team.

Call us on **1800 612 173** to talk to one of our dedicated place managers.

Email your queries to **sydneymetrowest@transport.nsw.gov.au** and we'll get back to you.

Customers enjoy the cafes along Union Street, Pyrmont.

‘Major civil construction between The Bays and Sydney CBD Environmental Impact Statement 2021’ will be assessed under the *Environmental Planning and Assessment Act 1979* (EP&A Act) before any major construction can start on this portion of the project.

This EIS identifies strategies to avoid, mitigate and manage potential impacts to the environment and the community.

We will continue to work with local communities, businesses and stakeholders to help determine appropriate mitigation measures that could be adopted where feasible and reasonable to further minimise impacts.

This EIS is available for public comment until **15 December 2021**.

During the exhibition period, anyone may make a submission directly to the Department of Planning, Industry and Environment (DPIE), in any language. These submissions will be considered in the Department’s assessment of the project. For more information on how to make your submission, see page 74.

The DPIE will provide Sydney Metro with a copy of all submissions received during the exhibition period.

Sydney Metro will review all the submissions received and prepare a Submissions Report to respond to issues raised. If changes to plans are required as a result of the issues raised, an Amendment Report may also be prepared.

Approval from the Minister for Planning and Public Spaces is required before Sydney Metro can progress with major civil construction work between The Bays and Sydney CBD.

Minimising environmental issues through design development and community and stakeholder engagement

Early community and stakeholder input has been key to identifying potential impacts. By examining potential environmental issues as part of early design development, we have avoided or minimised impacts where possible.

For example, early design development identified that locating the railway underground will substantially avoid or reduce a number of impacts – including noise, traffic, property and land use, biodiversity and social.

Design development is an ongoing process, with continued community and stakeholder input. A number of investigations to be carried out before any construction begins will result in some design adjustments and improvements.

Traffic and transport

Keeping local areas moving

Sydney Metro will keep the road network moving during construction by adopting site-specific traffic management plans to minimise temporary impacts. This may include adjusting haulage routes and timing truck movements to minimise congestion during peak times. We will coordinate and agree to traffic management plans in consultation with the relevant road authorities.

Specific traffic management plans will be applied during large or special events. This may include temporary adjustments to haulage routes and working hours, or temporarily stopping work in some cases.

Measuring traffic and transport flow

An assessment was carried out for all sites between The Bays and Sydney CBD to measure existing traffic levels with the addition of proposed construction traffic and the effects that traffic changes – like temporary parking lane closures and detours – will have on the traffic network. The assessment considered the existing road network, including bus, pedestrian and cycle routes.

The road network and public transport

Our assessment concluded that construction work will not result in any significant impacts to local or arterial road networks. However, in some areas, additional traffic and road changes could potentially result in more congestion and longer wait times at intersections. This will be temporary and mostly in areas that have existing high traffic volumes.

The project is not anticipated to have any significant impact on existing public transport around our sites, including Sydney Light Rail, Sydney Trains and buses.

Pedestrians and cyclists

Changes to pedestrian routes will generally be restricted to temporary closures of footpaths near construction sites. At Pyrmont, the footpath on the southern side of Union Street, between Edward Street and Pyrmont Bridge Road, will be temporarily closed during construction to allow safe site access. Alternative arrangements will be made during construction, such as diversions onto footpaths to maintain access.

The underground pedestrian route from Wynyard to the Hunter Connection in the CBD will also be closed during construction. Pedestrians will be diverted to the surface, which will remain open. The underground route will re-open when Hunter Street Station opens, to facilitate transit between Martin Place and Barangaroo.

Existing cycle routes on Union Street in Pyrmont and Pitt Street in the Sydney CBD will be unaffected by our works.

Traffic and pedestrian safety

Safety is our number one priority at Sydney Metro and appropriate controls will be established around our construction sites to ensure the safety of local communities. Where vehicles will be required to cross footpaths to access construction sites, manual supervision, physical barriers or temporary traffic lights will be used as required.

Haulage routes

Designated haulage routes will be used by trucks to transport materials to and from construction sites. The proposed routes have been designed in consultation with relevant road authorities using the following principles:

- minimising the use of local and residential streets and maximising the use of arterial roads where possible
- minimising potential interfaces with pedestrians, cyclists and other road users as much as possible.

More information about traffic and transport

Site-specific details are outlined in ‘Stations and sites’, in the tables on pages 53 to 57, and you can find further information about traffic and transport at **sydneymetro.info/metrowest** or in Chapter 6 of the ‘Major civil construction between The Bays and Sydney CBD Environmental Impact Statement 2021’.

Intersection of Hunter Street and Bligh Street, Sydney CBD.


NO
LEFT
TURN
66
ROCKPOOL

Noise and vibration

Managing noise and vibration

Understanding potential noise and vibration levels from our construction sites means we can implement measures aimed at reducing impacts on the community during construction.

Common mitigation measures for noise and vibration can include:

- providing scheduled respite periods during which high noise or vibration activities are avoided
- using physical barriers to dampen noise
- adopting alternative construction methodology where possible.

Sydney Metro will manage temporary vibration impacts by ensuring vibration levels from excavation and tunnelling are within the limits identified as appropriate for properties and structures above the tunnel alignment and around stations and construction sites.

We do this by conducting a detailed and ongoing assessment of the ground conditions and engaging structural engineers and heritage specialists as required to assess the condition of buildings. Specific assessments can also be carried out for buildings with specialised uses, like those that contain sensitive medical equipment.

Property condition surveys will be offered to properties neighbouring construction sites or above the tunnel alignment, to identify any pre-existing conditions prior to construction or tunnelling works. We strongly encourage people offered a survey to take up this offer.

It is possible that people who live or work near construction sites, or are above the tunnel alignment, will feel vibration when vibration-intensive equipment is in use during construction, even when levels are within appropriate limits. To manage this impact, we will work with local communities to provide suitable respite periods.

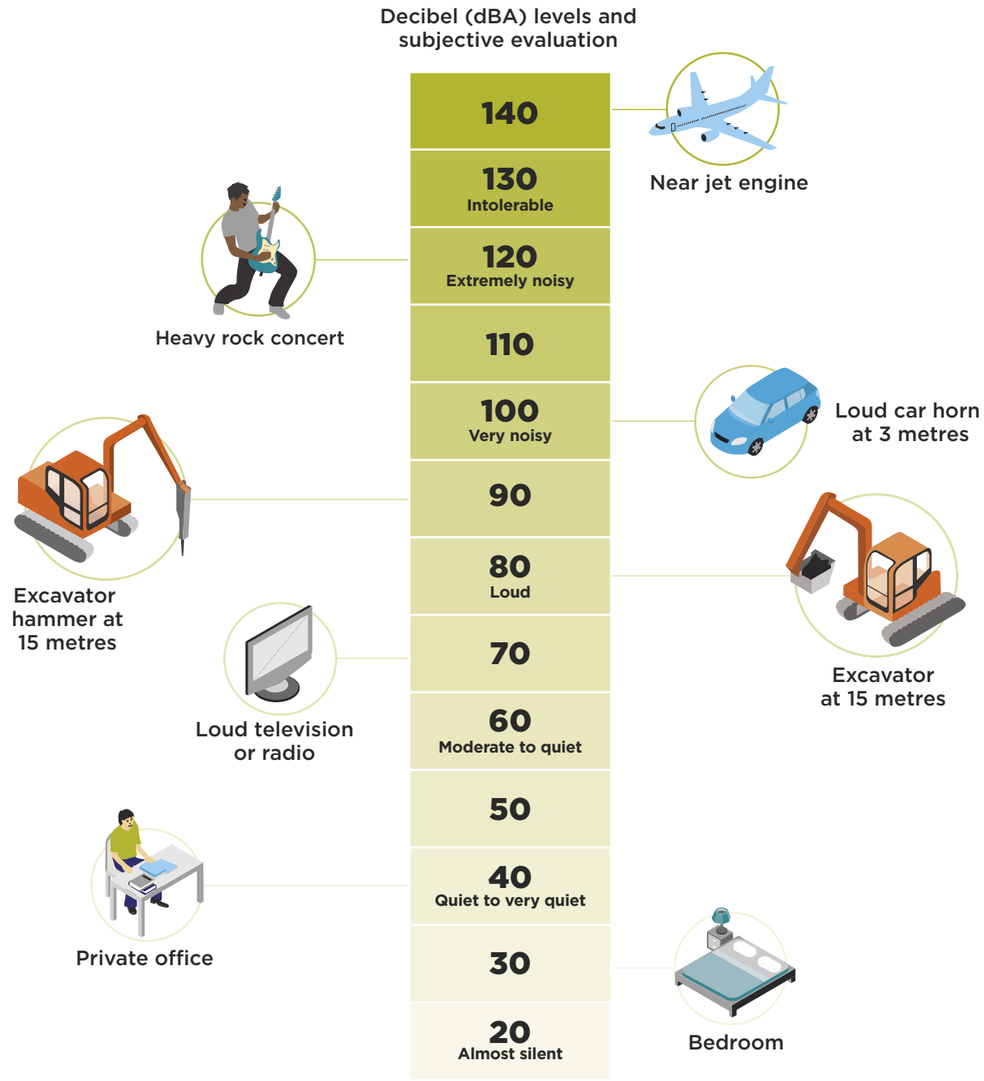
Assessing noise and vibration

We assessed potential temporary noise and vibration impacts for a number of proposed construction activities associated with the proposed tunnel alignment at each construction site between The Bays and Sydney CBD. This assessment used a model to predict how construction noise and vibration levels will compare with existing background or guideline levels. Predictions were made across the day, evening and night.

Site establishment

Site establishment will include installing hoarding; demolishing buildings; protecting and/or relocating utilities; transport network modifications; conducting investigations; and installing acoustic sheds, staff facilities and services to the construction site.

Most of these works will be carried out during the day. However, in some cases, works to relocate utilities and modify the local transport network can only be done in the evening or at night, when there is less traffic. These types of works are expected to have short-term and intermittent high-noise impacts, with some potentially requiring the temporary use of saw cutters or rock hammers. Noisier works will be planned for as early as possible in the evening to minimise impacts on the local community.



Note:

- A change of 1 dBA or 2 dBA in the level of a sound is difficult for most people to detect.
- A 3–5 dBA change corresponds to a small but noticeable change in loudness.
- A 10 dBA change corresponds to an approximate doubling or halving in loudness.

Excavation of stations or shafts

Excavation works to dig the stations or shafts will be undertaken once construction sites have been prepared. Excavation works will require the use of some noisy and vibration-intensive equipment, like rock hammers.

The project team may also consider other methods of construction that could help to minimise the intensity and/or duration of community impacts.

Tunnelling

The Sydney Metro West tunnels will be about 38 metres deep on average – that's about 13 storeys below ground. As the tunnels reach the stations, they generally need to be more shallow, with deeper sections required under the major water bodies of Johnstons Bay and Darling Harbour.

Two TBMs will be launched from The Bays tunnel launch and support site and eventually retrieved at the Hunter Street Station eastern construction site.

The TBMs need to operate continuously so tunnelling works will occur 24 hours a day, seven days a week and could be a temporary source of ground-borne noise and vibration for a few days as they pass by deep underground.

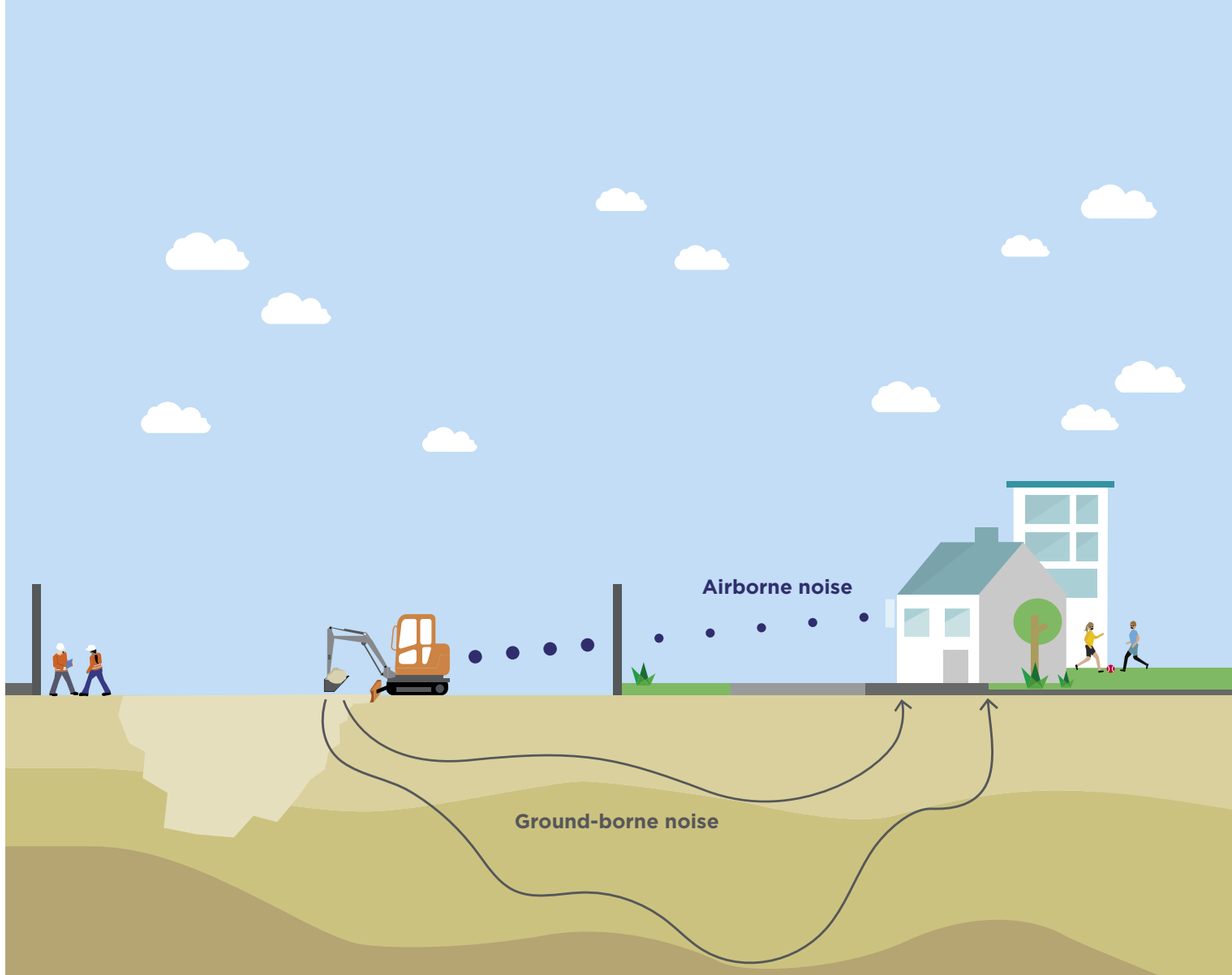
This could be more noticeable at night when other noise and vibration levels are reduced.

These works are predicted to be more noticeable near stations and sites where the tunnel will generally be more shallow than elsewhere.

Roadheaders and/or rock hammers will also be used underground to dig crossover caverns and passages between the tunnels, and also a turnback cavern east of Hunter Street Station. This work is planned to be undertaken 24 hours a day, seven days a week. Works requiring the use of rock breakers will be planned to occur during the day and as early as possible in the evening to minimise impacts on the local community.

More information about noise and vibration

Site-specific potential impacts are outlined in 'Stations and sites', in the tables on pages 53 to 57, and you can find further information about noise and vibration at **sydneymetro.info/metrowest** or in Chapter 7 of 'Major civil construction between The Bays and Sydney CBD Environmental Impact Statement 2021'.



How does airborne and ground-borne noise differ?

Airborne noise travels through the air and can be dampened by physical structures like buildings, hoarding and sheds.

Ground-borne noise travels through the ground before reaching the surface and its pathway is influenced by the type of rock, sediment and water in the ground. Ground-borne noise can vary depending on the rock conditions and the types of buildings above.

Heritage

Where possible, the project is designed to protect items of heritage significance.

Heritage assessments were conducted as part of preparing the EIS. This included consultation with heritage specialists to identify local and State heritage listed items in proximity to the project.

Management and mitigation measures will be used where impacts to heritage items have been identified. This may include conservation and re-use of heritage fabric, and archiving and recording the item for future generations.

Any potential archaeological investigations will be undertaken as required in accordance with Heritage Council guidelines.

Aboriginal heritage

Due to highly urbanised environments it is unlikely that Aboriginal archaeological remains will be found. However any potential Aboriginal archaeological remains found will be interpreted by an Aboriginal heritage specialist in consultation with registered Aboriginal parties.

More about heritage site-specific potential impacts are outlined in 'Stations and sites', in the tables on pages 53 to 57, and you can find further information about heritage at **sydneymetro.info/metrowest** or in chapters 8 and 9 of the 'Major civil construction between The Bays and Sydney CBD Environmental Impact Statement 2021'.

Non-Aboriginal heritage

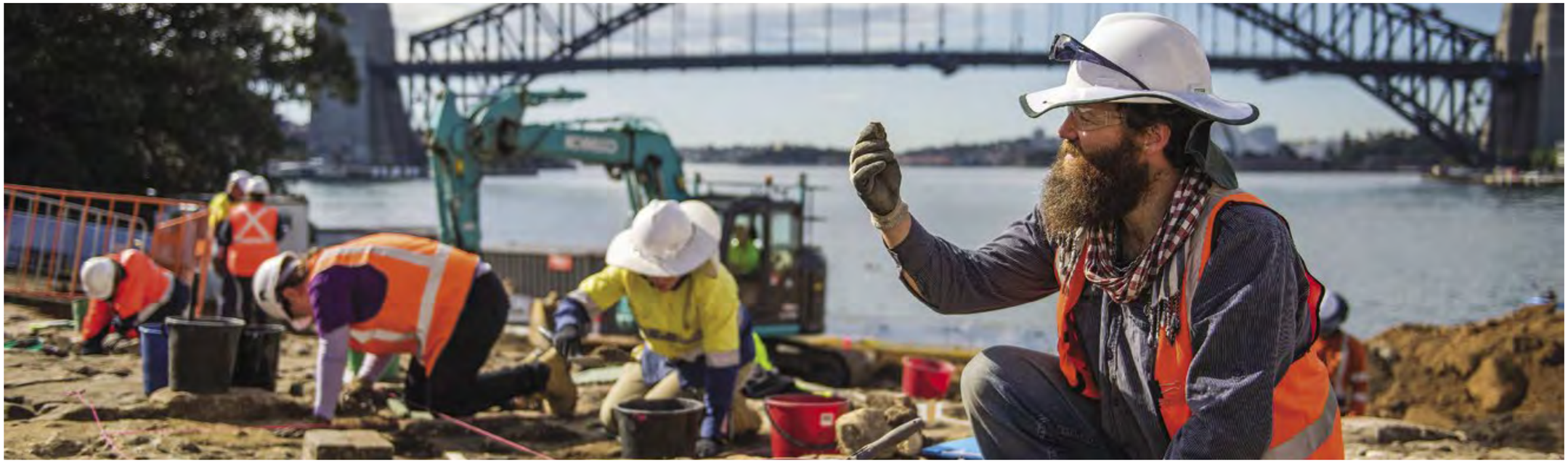
The section of Sydney Metro West between The Bays and Hunter Street Station in the Sydney CBD contains several items of local, State and national heritage significance, which have been identified in the EIS. It is important to identify these items and potential impacts so that the detailed design can make provisions to protect them. This includes using vibration monitoring where needed.

Minimising impacts to non-Aboriginal heritage has been achieved through:

- selecting construction sites that avoid direct impacts to local and State-listed heritage items where possible
- protecting and retaining heritage listed items within and adjacent to sites such as the Bennelong Sewer, the Tank Stream and the Former Skinners Family Hotel on Hunter Street.

The works may also potentially result in temporary and indirect impacts to heritage items near to construction sites, including changes to visibility – such as views becoming partially obscured as a result of construction equipment. Throughout design development and construction planning, the project team will look for opportunities to further minimise impacts to known heritage items.

Due to highly urbanised environments it is unlikely that archaeological remains associated with the earliest phases of European settlement will be found.



Uncovering heritage artefacts at Blues Point on the Sydney Metro City & Southwest project.

Nearby projects

Sydney is expanding and the NSW Government is working hard to deliver an integrated transport system that meets the needs of customers now and into the future.

Sydney Metro is committed to working closely with other nearby projects, local councils, NSW Government agencies and stakeholders to manage and coordinate construction activities and traffic, to help minimise impacts on the community. The EIS identifies a number of projects near to the proposed Sydney Metro West construction sites and considers coordination measures like traffic and construction management forums focussed on reducing cumulative impacts on the community.

Other projects identified near Sydney Metro West construction sites are outlined in 'Stations and sites', in the tables on pages 53 to 57, and you can also find these at **sydneymetro.info/metrowest** and in chapters 6–22 of 'Major civil construction between The Bays and Sydney CBD Environmental Impact Statement 2021'.

Local landscape and character

The new stations will be designed to reinforce their role as vibrant new spaces and destinations within the communities that they serve. The stations will provide a catalyst for the regeneration of the surrounding neighbourhoods and will integrate with the surrounding urban fabric, bringing to life local place-making.

During construction, there will be temporary visual changes near worksites and compounds. These changes may include the removal of buildings within construction sites to make way for new metro stations and facilities, new site hoardings or sealed acoustic sheds around construction sites.

Where possible, the sites will be arranged to minimise visual impacts from construction to the local community, like locating construction equipment behind hoardings.

Opportunities for the retention and protection of existing street trees will be identified prior to construction. However, some trees will need to be removed to facilitate the works.

Site-specific potential impacts are outlined in 'Stations and sites', in the tables on pages 53 to 57, and you can find further information about landscape and visual amenity in Chapter 11 of the 'Major civil construction between The Bays and Sydney CBD Environmental Impact Statement 2021'.

Property acquisition

In designing major infrastructure projects, Sydney Metro makes every possible effort to avoid the need to acquire private property. In some cases, however, there is no alternative but to purchase properties to allow for construction of a project. Sydney Metro is committed to working closely with affected property owners and tenants during property acquisition to provide support, and to make sure the process is as easy as possible.

Our personal and acquisition managers have made contact with any owner or tenant whose property is directly affected by the project, to answer any questions and provide a point of contact throughout the process.

There are a number of places where you can find out more about the Sydney Metro West project and property acquisition process, including **sydneymetro.info** and **propertyacquisition.nsw.gov.au**.

Mitigation measures

Specific measures to manage and mitigate potential environmental impacts have been identified as part of preparing the EIS. In addition to these, a number of plans and strategies will be implemented to manage potential site impacts.

These will include the:

- **Construction Environmental Management Framework** – detailing the approach to environmental management and monitoring during construction
- **Construction Noise and Vibration Standard** – detailing how construction noise and vibration will be managed across Sydney Metro West
- **Construction Traffic Management Framework** – providing an overall strategy and approach for construction traffic management, including coordination across projects and NSW Government agencies.

Mitigation in action

Sydney Metro is committed to thinking ‘outside the box’ in managing construction impacts and implementing unique and tailored mitigation measures to meet the needs of the community.

Sealed acoustic sheds

Sealed acoustic sheds can be installed over noisy construction activities where the site allows and where works are likely to be required in the evening or night. Sealed acoustic sheds are planned at The Bays, Pyrmont and the eastern construction site at Hunter Street.

Sealed acoustic sheds have been used on the Sydney Metro City & Southwest project to successfully dampen noise levels experienced by communities close to construction sites. Sealed acoustic sheds will generally be constructed as early as possible to provide maximum benefit throughout the work.

Some activities cannot be undertaken inside the acoustic sheds – like demolition of buildings, loading and unloading major items of plant and equipment, and operating ventilation systems. Fast opening and closing door shutters are used to minimise the temporary impact when acoustic shed doors need to be opened to let materials or machinery inside.

An acoustic shed used on the Sydney Metro City & Southwest project.


HIGH PEDESTRIAN ACTIVITY
40
KEEP LEFT

Tunnelling and excavation

Station excavation work for Pitt Street Station
on the Sydney Metro City & Southwest project.


Brefni
VOLVO
ECR305C
DIESEL
KUBOTA

The Bays to Sydney CBD

Work started on this city shaping project at The Bays in 2020, with TBMs set to be in the ground in 2022 to undertake tunnelling between Westmead and The Bays. In March 2021 the project received its first major planning approval for the project concept between Westmead and Sydney CBD and station excavation and tunnelling between Westmead and The Bays.

Station excavation and tunnelling works between The Bays and Sydney CBD is the next critical step in the planning process.

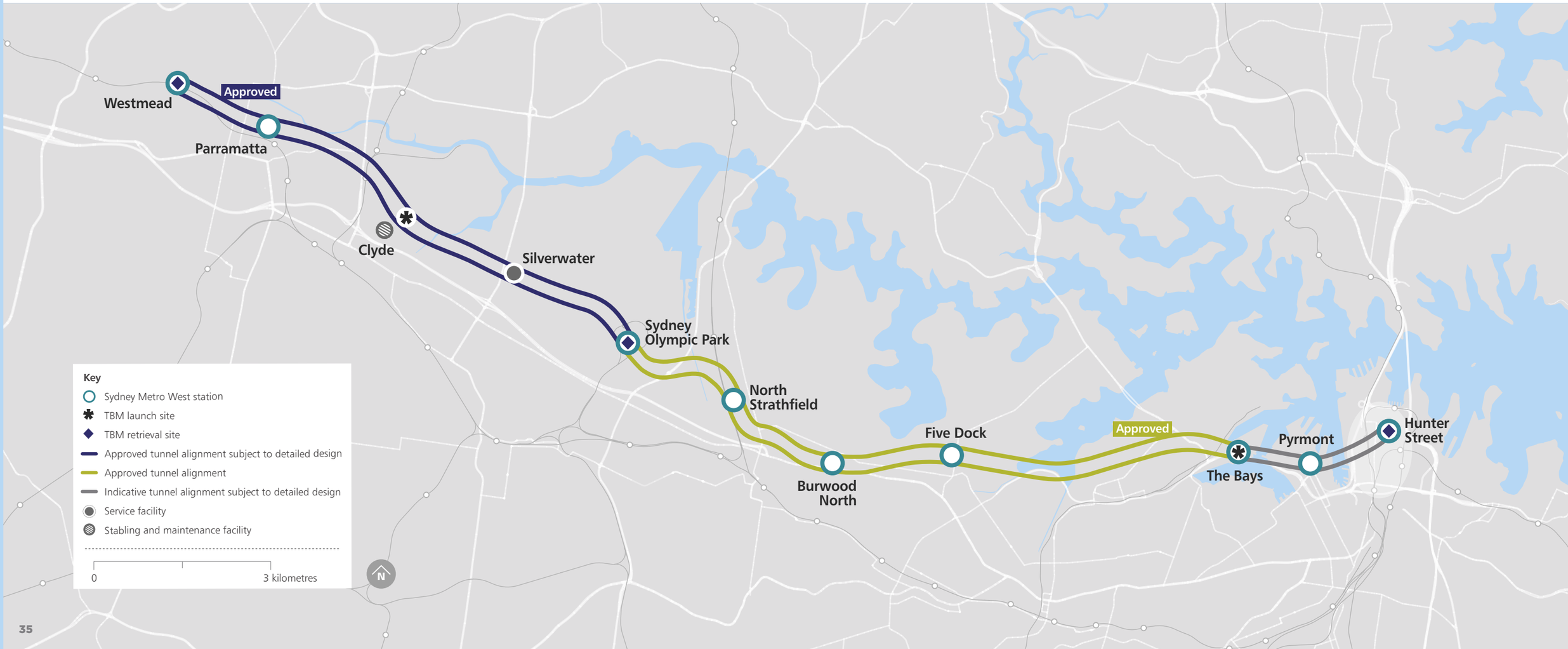
Tunnelling

Sydney Metro is proud to have delivered more than 60 kilometres of tunnels for the Metro North West Line and City & Southwest project.

Sydney Metro uses advanced tunnelling technology and adheres to stringent conditions to ensure that tunnels are built safely.

Our track record over the past seven years has confirmed that tunnelling is a very safe and efficient method of construction, especially in Sydney sandstone, and works are unlikely to cause damage to buildings or infrastructure.

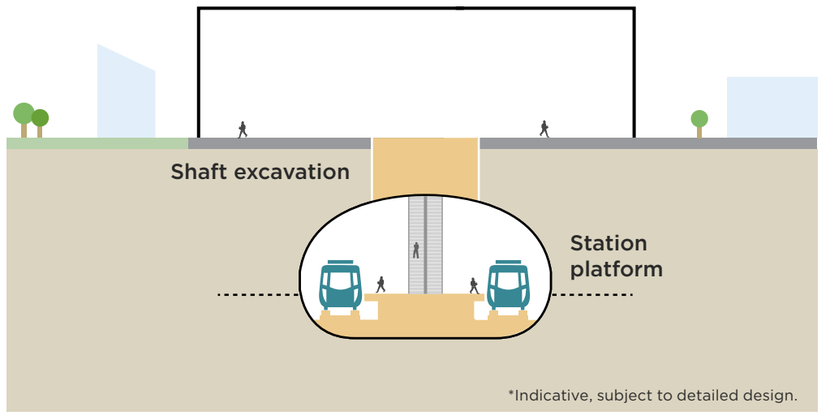
Two TBMs will be required to carry out the tunnelling between The Bays and Hunter Street and will be launched from The Bays. The TBMs will excavate twin tunnels under the harbour at Johnstons Bay and Darling Harbour, before reaching Hunter Street. The Sydney Metro West tunnels will be 38 metres deep on average – that's about 13 storeys below ground.



Station excavations

New station caverns will be excavated at Pyrmont and Hunter Street.

Pyrmont and Hunter Street stations are both single-span caverns, which means both tunnels enter the same cavern with a single central platform. The method of station excavation is determined by the unique conditions of the site, including where the tunnels are planned to go, existing building basements and other underground structures.



Single-span mined cavern

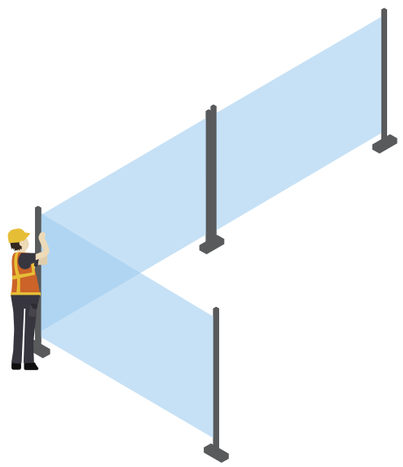
Cavern on the Sydney Metro City & Southwest project.

Station excavation and tunnelling staging

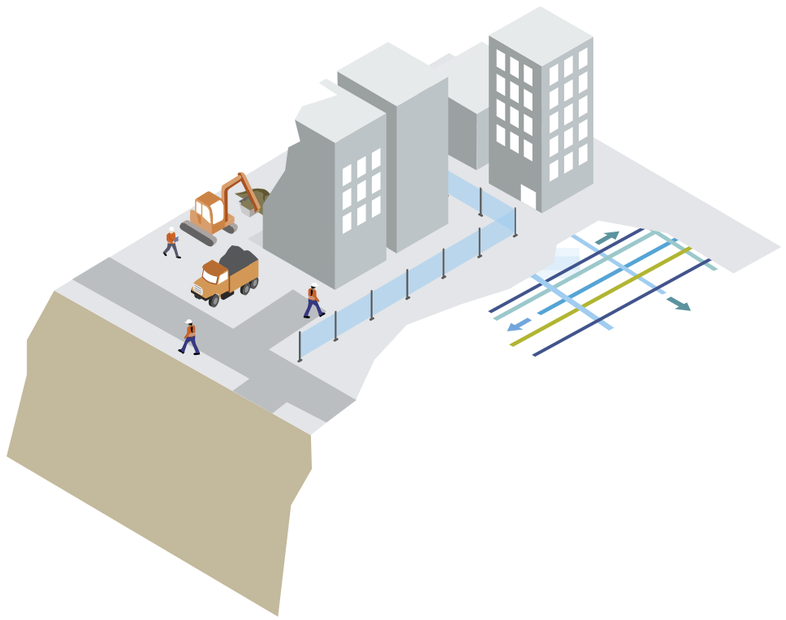
Each of the two TBMs will be lowered piece by piece into the excavated station box at The Bays and then assembled. The TBMs will then slowly make their way underground to Hunter Street, excavating the tunnels as they go. Once their journey is finished, the TBMs will be dismantled piece by piece and lifted out.

Building Pyrmont and Hunter Street stations

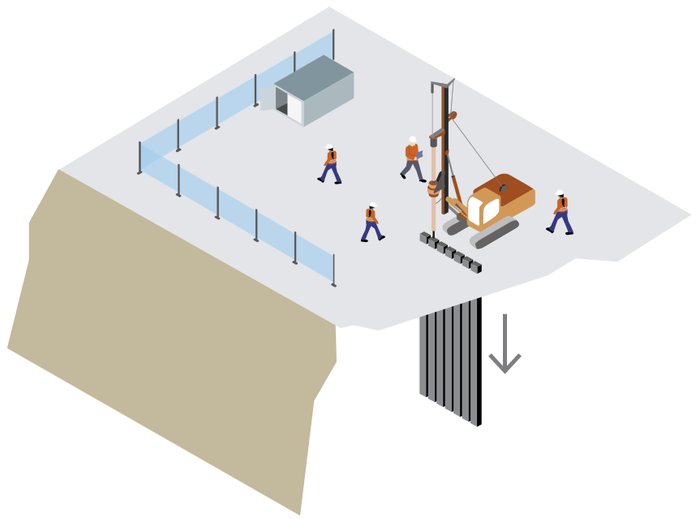
1 Set up site fencing and hoarding*



2 Demolish existing buildings and divert utilities*

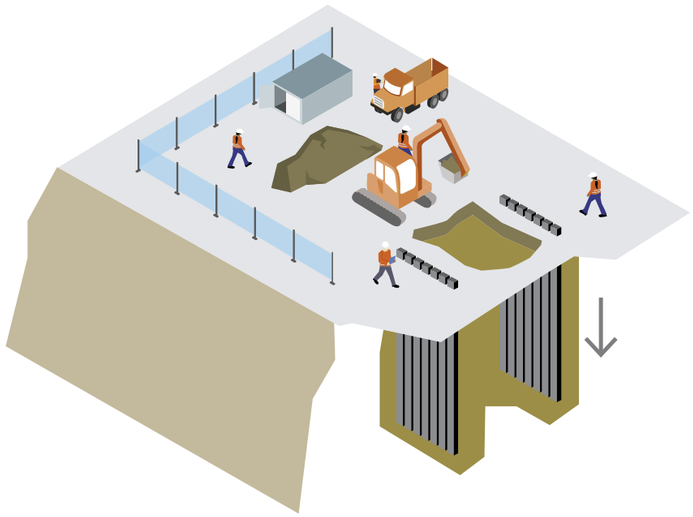


3 Install support piles

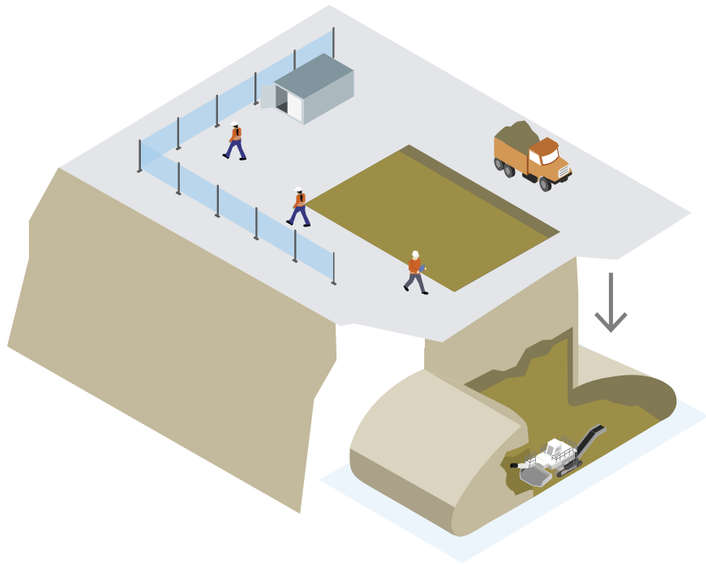


*Already completed at Hunter Street eastern construction site.

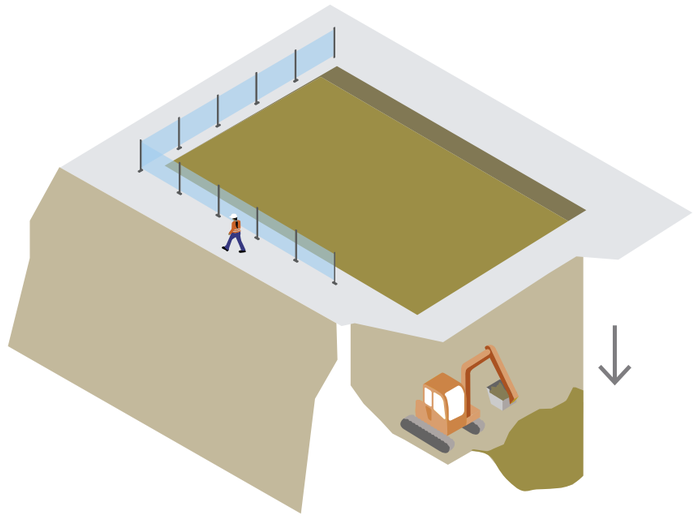
4 Begin initial excavation



5 Cavern construction (Hunter Street and Pyrmont eastern construction sites)



6 Excavate shaft (Hunter Street and Pyrmont western construction sites)

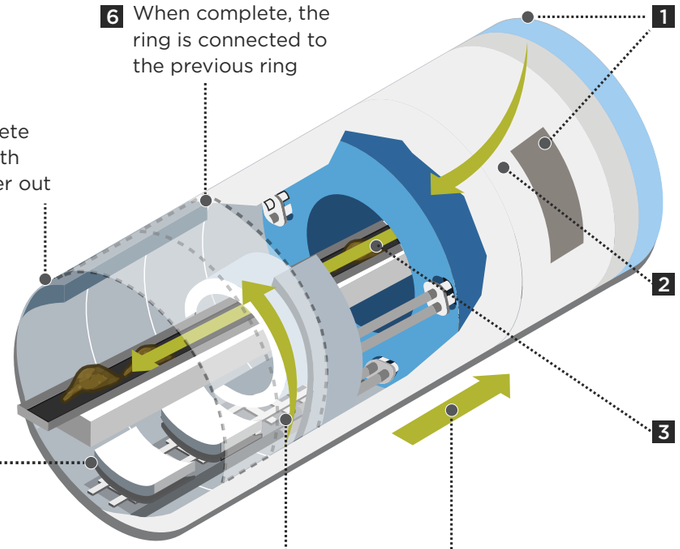


Indicative only.

The east and west sites at each location will be connected via mined underground caverns that will house the underground metro platforms.

Not all steps shown are required at each location, based on existing site layouts, ground conditions and proposed construction methodology.

How a tunnel boring machine works



6 When complete, the ring is connected to the previous ring

7 The gap between the concrete ring and the rock is filled with grout – this helps keep water out of the tunnel

4 Concrete ring segments are delivered to the ring building area

5 Concrete ring is built by putting together the segments using a special vacuum lifting device

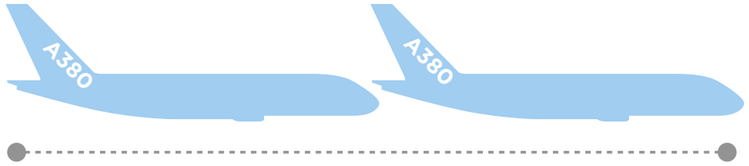
1 Grippers extend out to the rock surface. Rock is crushed by high-strength alloy steel discs on the cutterhead

2 Crushed rock is scooped into the machine's head and onto a conveyor belt

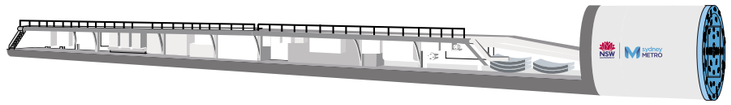
3 Conveyor moves rock through the machine and out of the tunnel behind it

8 The machine moves forward about 1.7 metres, then the process starts again

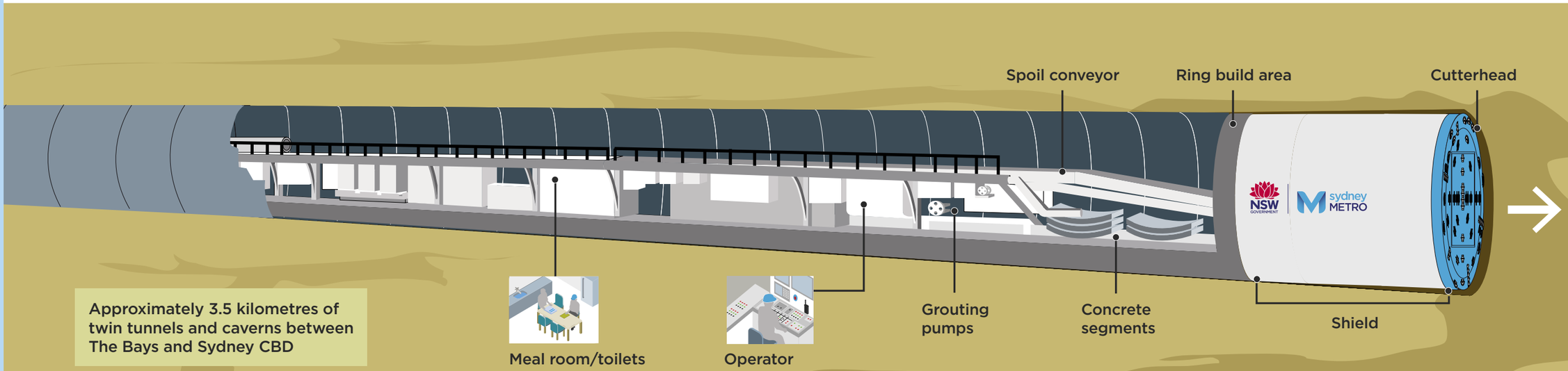
How does a TBM measure up?



Length: up to 120 metres



>900 tonnes weight = **570** V8 cars



Approximately 3.5 kilometres of twin tunnels and caverns between The Bays and Sydney CBD

Right: TBM Kathleen breaking through at Blues Point on the Sydney Metro City & Southwest project.

Surface level

27 metres
(approximately 9 storeys)
Average tunnel depth, **North West**

35 metres
(approximately 12 storeys)
Average tunnel depth, **City & Southwest**

38 metres
(approximately 13 storeys)
Average tunnel depth, **West**

Tunnelling

The TBMs would work underground 24 hours a day, seven days a week.

Residents and businesses along the alignment may be aware of the TBMs for a few days as they pass by underground. How noticeable the TBMs are would vary depending on ground conditions, how deep the tunnel is and the types of buildings above.

Movement of the TBM could be more noticeable at night when other noise and movement levels are lower.

Property condition surveys would also be offered to properties neighbouring construction sites or above the tunnel alignment to identify any pre-existing conditions prior to construction or tunnelling works.

Crossing between tunnels

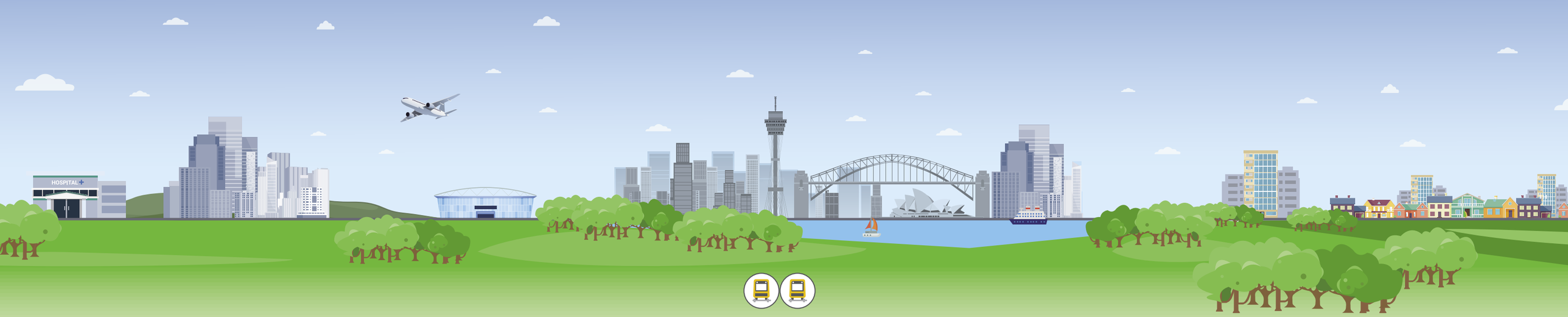
A crossover cavern next to The Bays Station would be required to allow trains to pass from one track to another. Crossover caverns are important for the safety and reliability of the metro line, enabling trains to move from one tunnel to another in the case of a disruption, ensuring trains can keep moving.

Roadheaders and rock hammers

Roadheaders would be used underground to dig crossover caverns and passages between the tunnels. This work is for short sections only and is planned to be undertaken 24 hours a day, seven days a week. Works requiring the use of rock hammers would be planned to occur during the day and as early as possible in the evening to minimise impacts on the local community.

Sydney Metro's crossover cavern at Barangaroo.

A video of Sydney Metro historic harbour crossing.



1 metre
(less than 1 storey)
City Circle
York Street / Wynyard rail tunnel

21 metres
(approximately 7 storeys)
Cross City Tunnel
Outside Town Hall

25 metres
(approximately 8 storeys)
Sydney Harbour Tunnel
Average depth

25 metres
(approximately 8 storeys)
Lane Cove Tunnel
Average depth

27 metres
(approximately 9 storeys)
Metro North West Line
Average depth

32 metres
(approximately 11 storeys)
Eastern Distributor
Average depth

38 metres
(approximately 13 storeys)
Sydney Metro West
Average depth

35 metres
(approximately 12 storeys)
WestConnex (New M5)
Average depth

35 metres
(approximately 12 storeys)
M4–M5 Link
Rozelle Interchange
Average depth

35 metres
(approximately 12 storeys)
Sydney Metro City & Southwest
(Chatswood to Sydenham)
Average depth

83 metres
(approximately 28 storeys)
Western Harbour Tunnel
Maximum depth

90 metres
(approximately 30 storeys)
NorthConnex
Maximum depth

Tunnel boring machine launch sites

The TBM launch sites at The Bays would provide support for tunnelling operations including:

- spoil storage and removal – for materials removed from the tunnels, like crushed rock
- power supply – installed via underground cable connections
- ventilation – allowing fresh air flow into and out of the metro train tunnels
- grout batching – to mix a type of cement that can be used to seal between the tunnels and the surrounding rock
- water treatment – to treat water from the tunnels that can then largely be reused on site
- materials storage – for construction materials required for tunnelling
- office facilities, amenities and construction worker parking – for the tunnel construction team.

A TBM being assembled on the Sydney Metro City & Southwest project.


coateshire
13 15 52

Inside the tunnel

Lining the tunnels

Precast concrete segments to line the metro tunnels would be manufactured at purpose built precast facilities in Eastern Creek. Concrete segments would be made on site and then be transported to The Bays and stored until required.

Safety inside the tunnels

Cross passages would also be built at regular intervals to allow customers to move from one tunnel to another in the event of an incident.

Tracks

Continuously welded rail tracks would sit inside the tunnels on top of a fixed concrete slab to provide a smooth surface for the metro trains, minimising noise inside the tunnels.

2 new factories
at Eastern Creek

240
local jobs

manufacture 148,000
precast concrete segments

for the
24-kilometre twin tunnels
that stretch from Westmead to Sydney CBD

A video of how we tunnelled under central Sydney as part of the Sydney Metro City & Southwest project.

Precast concrete segments prepared for the Sydney Metro City & Southwest project.

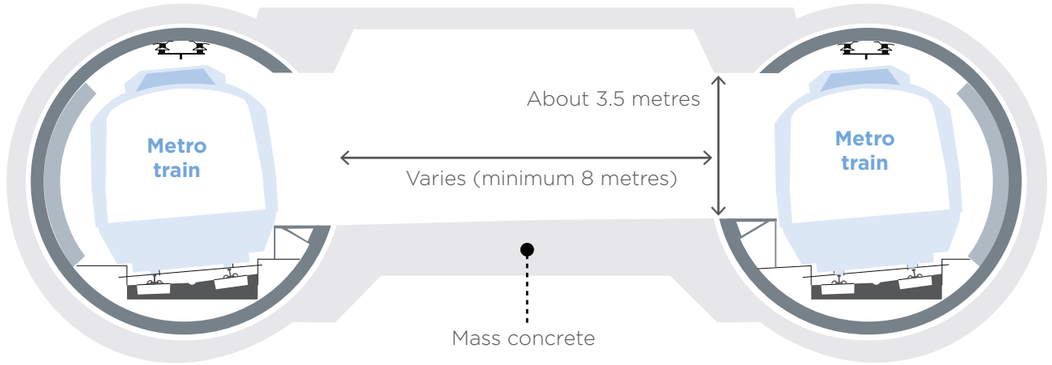

SAMBAR

Tunnel equipment and services

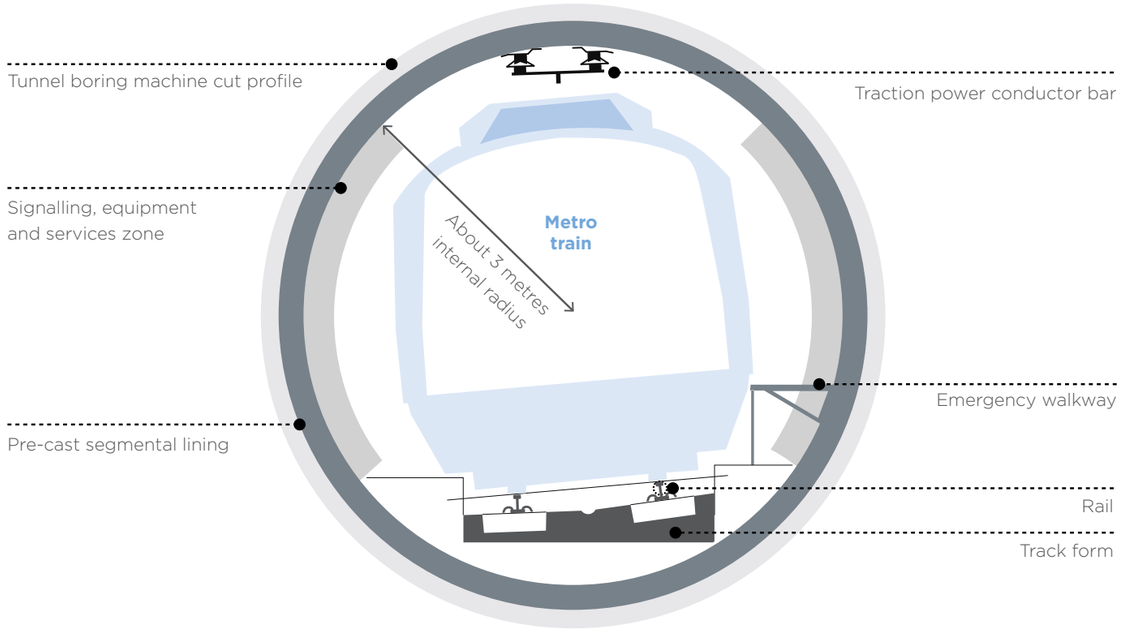
The tunnels would be fitted with rail signalling, controls and communication, overhead traction power, fresh air ventilation, fire and life safety systems, and lighting. Drainage would be incorporated into the concrete slab under the railway tracks and wastewater from the tunnels, stations and other underground facilities is planned to be pumped to a water treatment plant at Clyde.

The installation of tracks and tunnel equipment and services would be completed after the tunnelling work and would be subject to a separate environmental planning assessment.

Indicative cross-section of a tunnel cross passage



Indicative cross-section of a metro tunnel



Roadheader inside a metro tunnel on the Sydney Metro City & Southwest project.

Stations and sites

An artist's impression of The Bays Station.


THE BAYS

The planning process

Sydney Metro West is being assessed as a staged infrastructure application under section 5.20 of the EP&A Act.

Future integrated station and precinct developments at The Bays, Pyrmont and Hunter Street will be subject to separate planning approval processes and will include community and stakeholder engagement.

The Sydney Metro team will keep you updated every step of the way and let you know when it's time to have your say. Sydney Metro West planning documents and further information are available at: **sydneymetro.info/metrowest** or **planningportal.nsw.gov.au/major-projects/project/41851**.

Sydney Metro West planning approvals

The Sydney Metro West project concept — Approved

Major civil construction Westmead to The Bays — Approved

Major civil construction The Bays to Sydney CBD — We are here

Rail infrastructure, stations, precincts and operations – Westmead to Sydney CBD

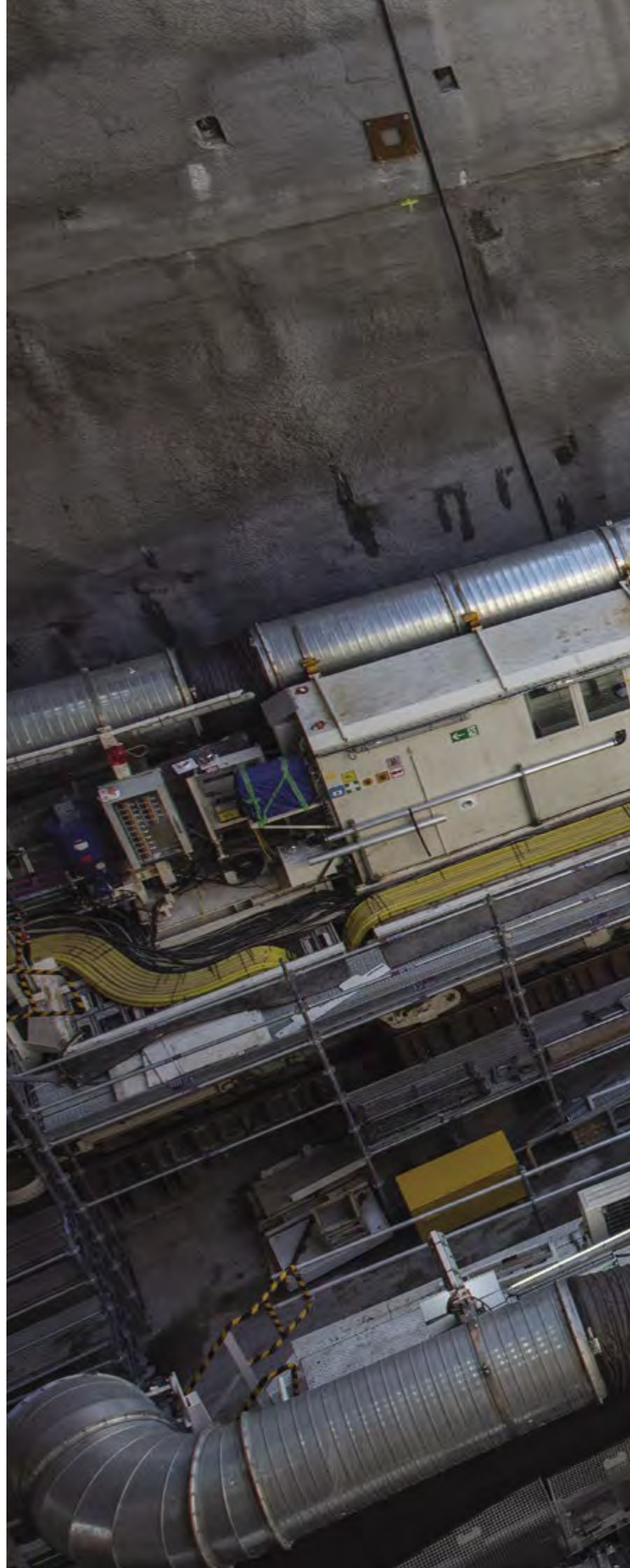
The planning process for each project phase

Early consultation

- Prepare and submit Scoping Report, and request Secretary's Environmental Assessment Requirements (SEARs)
- Receive SEARs

Formal consultation

- Prepare and exhibit Environmental Impact Statement – minimum 28 days — We are here
- Prepare and submit Submissions and Amendment Report
- Receive project determination
- Start construction
- Open to passengers



Two tunnel boring machines at the Chatswood dive site on the Sydney Metro City and Southwest project.


NSW GOVERNMENT
Sydney METRO
Wendy
HIRE ME

The Bays tunnel launch and support site

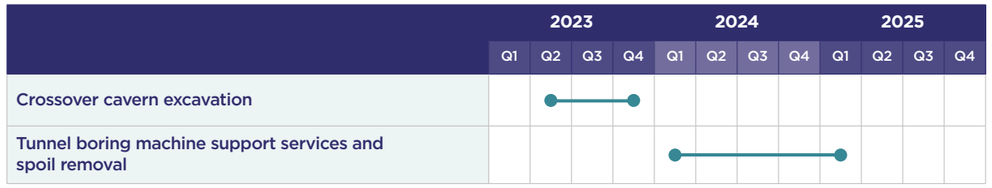
The station at The Bays will be located between Glebe Island and White Bay Power Station with an entrance to the south of White Bay. It will provide direct access to the proposed future Bays Waterfront Promenade. The Bays Station will be the main transport link into this new precinct, as well as serving the communities of Balmain, Rozelle and Blackwattle Bay.

The decision to locate a station at The Bays will be the first step to unlocking the area's potential and to ensure access for all. Sydney Metro is working with the Department of Planning, Industry and Environment to finalise a place strategy to guide the transformation of Bays West into the future.

Work started on this city shaping project at The Bays in 2020, with tunnel boring machines (TBMs) set to be in the ground in 2022. In March 2021, the project received its first major planning approval which includes work to tunnel between The Bays and Westmead.

This proposal will involve additional work within the existing construction site footprint at The Bays.

Indicative construction timeframe for work proposed at The Bays*

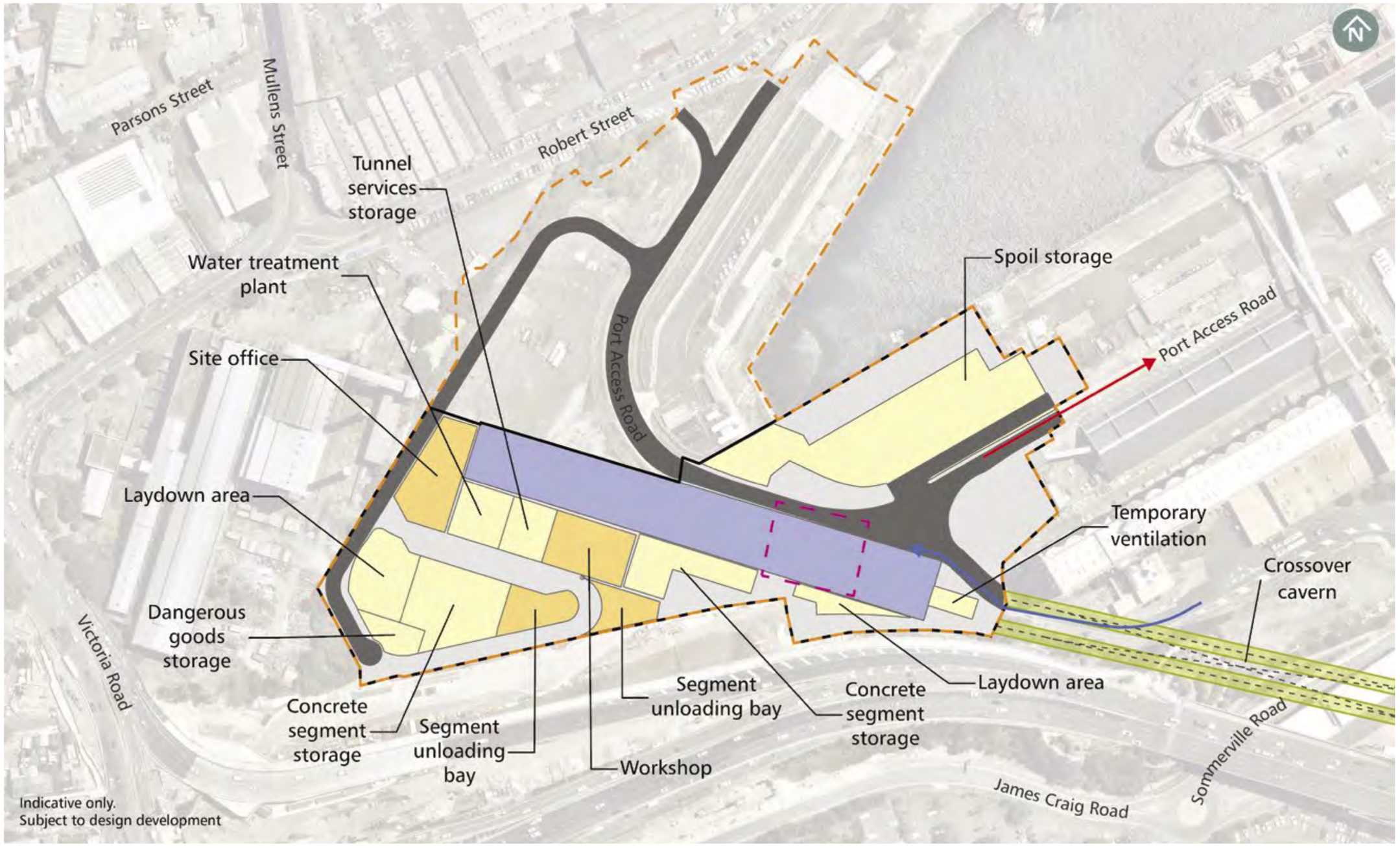


*Indicative construction timeframes for further work for stations, depots and rail systems will be subject to future design development and the environmental assessment process.

Construction at a glance

Feature	Description
Area	25,000–35,000 square metres
Site access	James Craig Road via the Port Access Road, Sommerville Road and Solomons Way
Proposed construction hours	Tunnelling: 24 hours a day Spoil removal: 24 hours a day The community will be provided with advanced notice of planned construction hours and work
Proposed peak truck movements	156 per day
Proposed demolition	One building
Indicative heritage impacts	No additional impacts identified (in reference to approved Sydney Metro work at The Bays)
Proposed landscape changes	No additional impacts identified (in reference to approved Sydney Metro work at The Bays)
Proposed excavation	A new mined crossover cavern will be excavated to the east of The Bays Station box (in addition to previously approved Sydney Metro work at The Bays)
Indicative spoil removal	220,000 cubic metres
Proposed activities	• TBM launch and support • Roadheader work and support • Spoil removal • Cavern concrete lining works • Concrete segment storage
Proposed staff facilities	Offices, lunch rooms and amenities
Proposed staff parking	A small number of parking spaces for use by engineers and other management staff on site Contractors may consider 'park and shuttle' services to transfer workers to this site
Indicative power supply works	No additional power supply work is required
Indicative utility works	No additional utility work is required.
Indicative plant and equipment	• Roadheaders • TBM • Excavators • Articulated dump trucks • Front-end loader • Crawler crane • Rock saw • Concrete pump • Sprayed concrete robots • Rock drills • Grouting equipment • Compressors • Ventilation equipment and fans • Pumps • Elevated work platforms • Conveyors • Water treatment plant • Dust suppression system • Spoil removal system • Rigid truck and trailer • Road sweeper • Tele-handler • Water cart • Hand tools
Proposed public transport changes	No changes
Proposed street parking changes	No changes
Proposed noise management	An acoustic shed and/or other measures will be maintained, including Sydney Metro branded hoarding around the perimeter of the construction site
Indicative pedestrian and cyclist changes	No changes
Other projects and plans in the local area	• Bays West Place Strategy • Rozelle Interchange and the delivery of the future Rozelle Parklands • Western Harbour Tunnel • Glebe Island multi-user facility

Construction site map



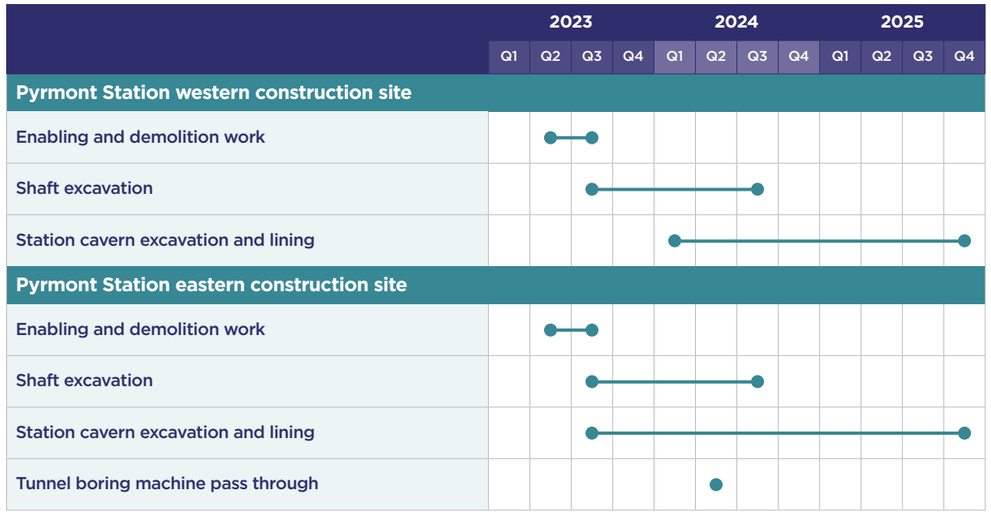
Pyrmont Station

The new Pyrmont Station will be on the doorstep of Darling Harbour, Blackwattle Bay, the new Sydney Fish Market and the Sydney CBD. Station entrances are proposed to be located on Pyrmont Bridge Road and Union Street. Pyrmont Station will greatly enhance plans to revitalise this inner-city precinct by encouraging jobs, investment and economic growth.

The station will enable a new level of connectivity to the Pyrmont Peninsula and will prioritise pedestrian movement around the station through vibrant street frontages and open public spaces. Sydney Metro will continue to work with the Department of Planning, Industry and Environment, other government stakeholders and the community to ensure Pyrmont Station supports the future vision of the Pyrmont Peninsula.

Pyrmont Station will require two construction sites – a western construction site and an eastern construction site.

Indicative construction timeframe for work proposed at Pyrmont*

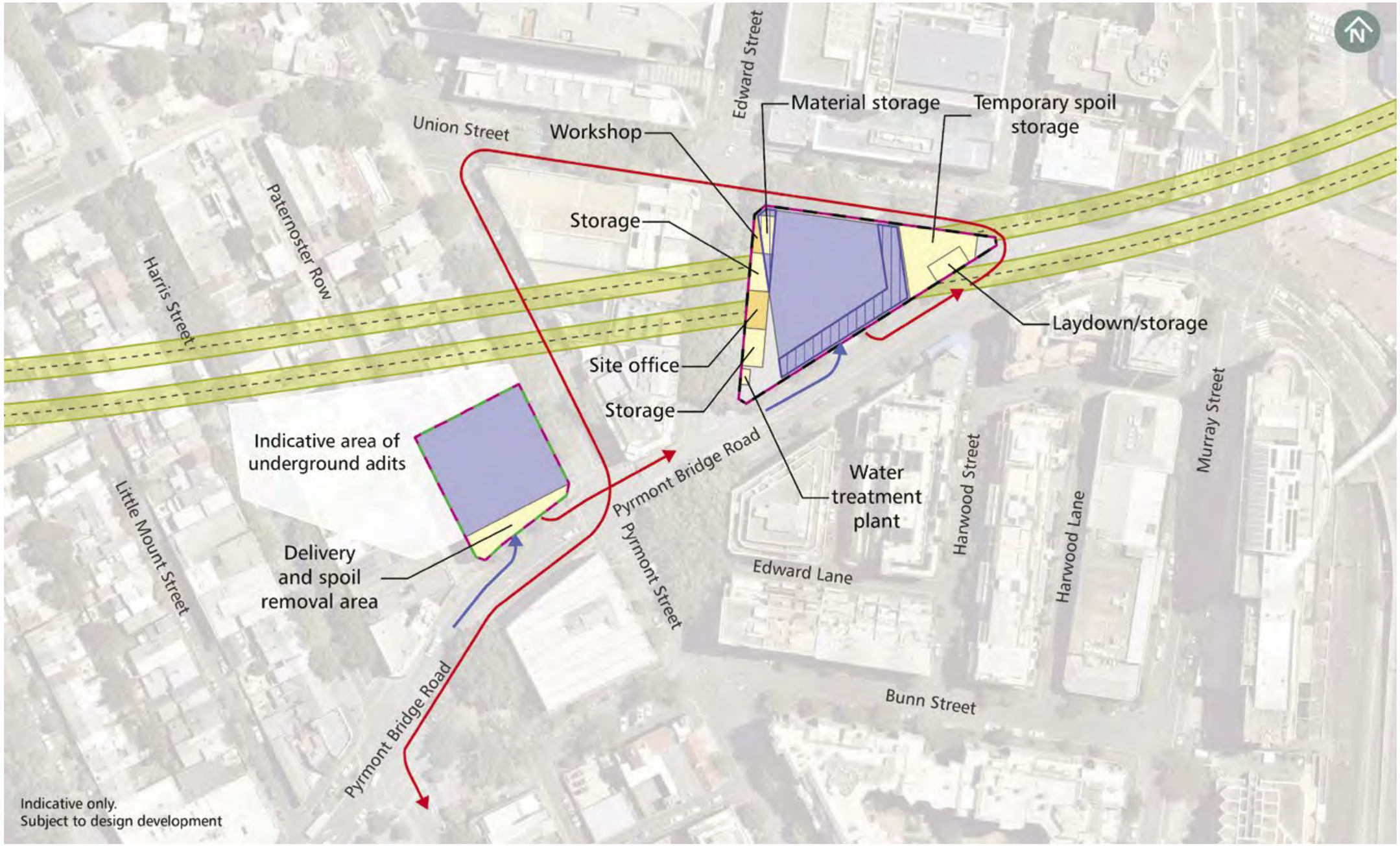


*Indicative construction timeframes for further work for stations, depots and rail systems will be subject to future design development and the environmental assessment process.

Construction at a glance

Feature	Description
Area	3850 square metres
Site access	Pyrmont Station western construction site – access from Pyrmont Bridge Road Pyrmont Station eastern construction site – access from Pyrmont Bridge Road, Union Street and/or Edward Street
Proposed construction hours	**Site establishment:** Monday to Friday 7am–6pm, and Saturday 8am–6pm. Occasionally work may be required outside of standard construction hours **Demolition:** Monday to Friday 7am–6pm, and Saturday 8am–6pm **Excavation:** 24 hours per day **Spoil removal:** 24 hours The community will be provided with advanced notice of planned construction hours and work
Proposed peak truck movements	140 per day
Proposed demolition	Two buildings
Indicative heritage impacts	A building of potential local heritage significance within the western site will require demolition to facilitate construction. Archival reporting and recording will occur before construction
Proposed landscape changes	Some trees and other vegetation will be removed around the construction sites Opportunities for the retention and protection of existing street trees will be identified prior to construction
Proposed excavation	Mined single-span cavern
Indicative spoil removal	280,000 cubic metres
Proposed activities	• Site establishment and demolition – installing hoarding; demolishing buildings; protecting and/or relocating utilities; transport network modifications; conducting investigations; installing acoustic sheds, staff facilities and services to the construction site • Underground roadheader work and support • Excavation of station shafts to an indicative depth of approximately 35 metres • Cavern concrete lining works • Spoil removal
Proposed staff facilities	Offices, lunchrooms and amenities
Proposed staff parking	No staff parking facilities. Contractors may consider 'park and shuttle' services to transfer workers to this site
Indicative power supply works	A new power supply route will be installed between Harris Street substation and the construction sites
Indicative utility works	No significant utility works are anticipated. Minor works may be required to relocate and/or protect power, communications, gas, stormwater, water and sewer systems
Indicative plant and equipment	• Roadheader • Piling rig • Hydraulic rock breakers • Articulated dump trucks • Front-end loader • Crawler and/or gantry cranes • Rock saw • Concrete pump • Sprayed concrete robots • Rock drills • Grouting equipment • Compressors • Pumps • Ventilation equipment and fans • Elevated work platforms • Water treatment plant • Dust suppression system • Rigid trucks • Spoil removal system • Concrete trucks • Road sweeper • Tele-handler • Water cart • Hand tools • Excavator
Proposed traffic changes	No anticipated changes
Proposed public transport changes	One bus stop on Pyrmont Bridge Road adjacent to the Pyrmont Station western construction site, not used by regular services, will be temporarily relocated
Proposed street parking changes	Temporary removal of both parking lanes along Union Street between Edward Street and Pyrmont Bridge Road
Proposed noise management	During major civil construction works, an acoustic shed and/or other acoustic measures will be in place around both Pyrmont Station construction sites
Indicative pedestrian and cyclist changes	Temporary diversion of the pedestrian footpath on the south side of Union Street between Edward Street and Pyrmont Bridge Road. The existing cycle route on Union Street will be unaffected by our works
Other projects and plans in the local area	• Pyrmont Peninsula Place Strategy • Blackwattle Bay Renewal • The new Sydney Fish Market

Construction site map



Hunter Street Station

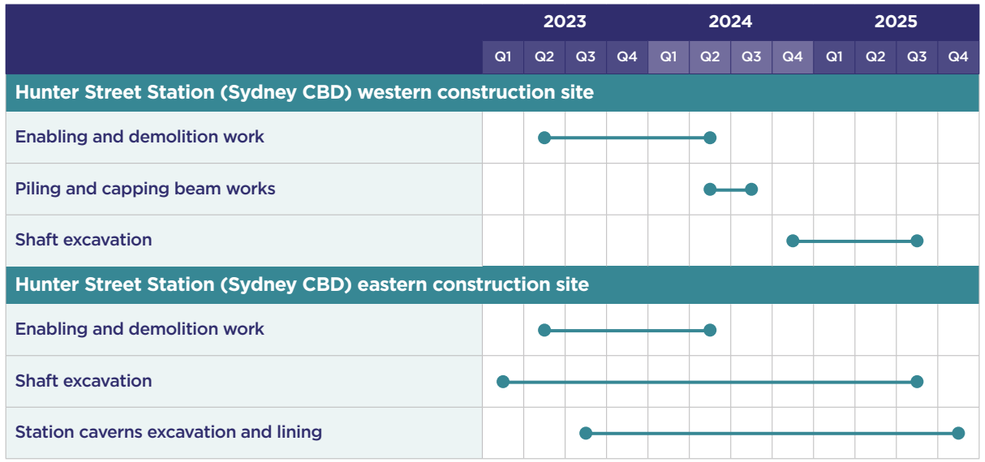
In the commercial heart of the Sydney CBD, the Hunter Street Station will become a new hub with easy connections to George Street, light rail, Sydney Trains services at Wynyard and Martin Place and the new Sydney Metro City & Southwest station at Martin Place. A large busy precinct between George, Hunter, O'Connell and Bligh streets will prioritise pedestrians and support a vibrant public domain in the heart of the Sydney CBD.

Station entrances are proposed to be located on George, O'Connell and Bligh streets. Proposed underground walkways will allow for easy transit all the way from Martin Place to Barangaroo, providing efficient links with Sydney Metro City & Southwest and Sydney Trains services.

The new station is expected to have the busiest city-bound platform across the entire Sydney rail network in the AM peak, taking pressure off Wynyard and Town Hall stations.

The excavation of Hunter Street Station will require two construction sites – a western construction site and an eastern construction site.

Indicative construction timeframe for work proposed at Hunter Street*



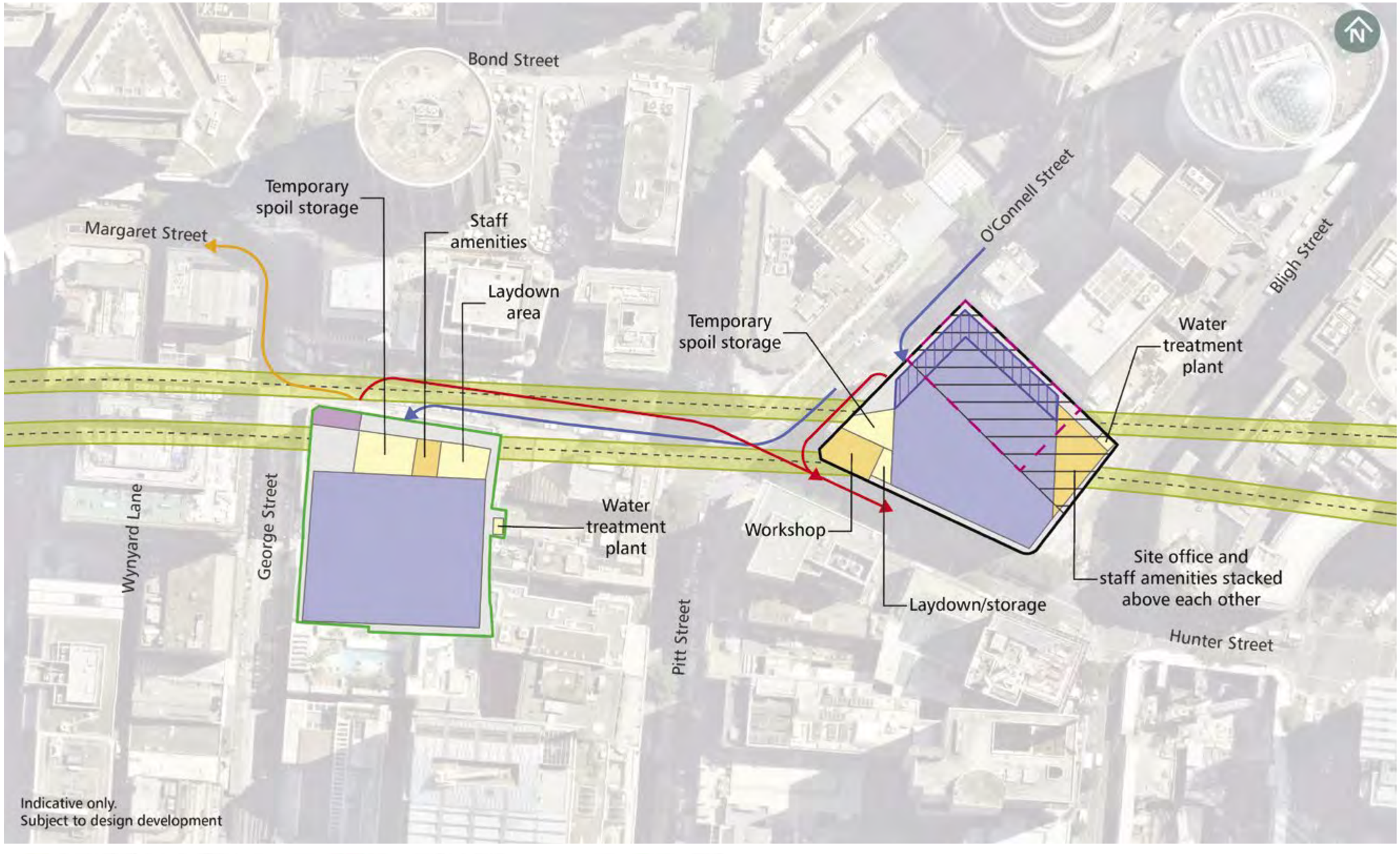
*Indicative construction timeframes for further work for stations, depots and rail systems will be subject to future design development and the environmental assessment process.

Construction at a glance

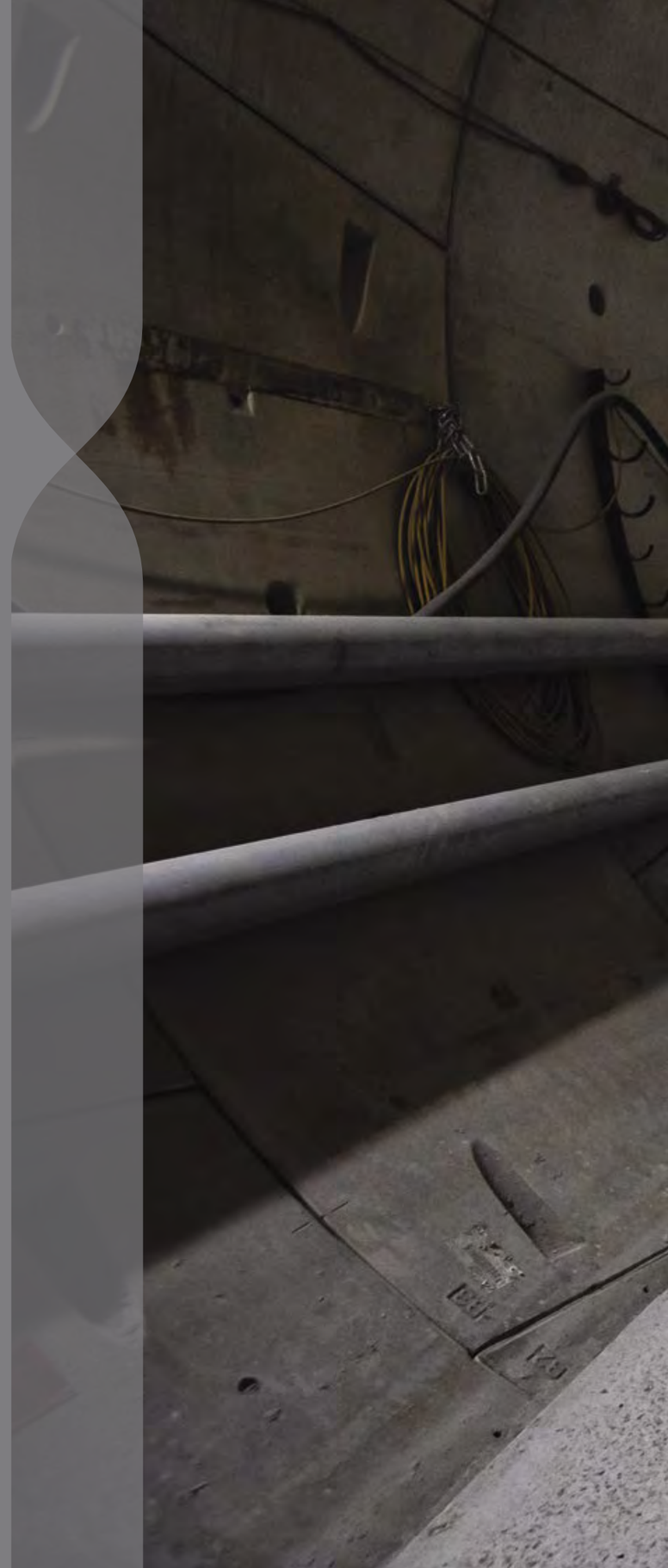
Feature	Description
Area	3700 square metres per site
Site access	Hunter Street Station western construction site – access from Hunter Street Hunter Street Station eastern construction site – access from O'Connell Street
Proposed construction hours	**Site establishment:** Monday to Friday 7am–6pm and Saturday 8am–6pm, occasionally work may be required outside of standard construction hours **Demolition:** Monday to Friday 7am–6pm and Saturday 8am–6pm **Excavation and tunnelling:** 24 hours a day **Spoil removal:** 24 hours a day The community will be provided with advanced notice of planned construction hours and work
Proposed truck movements	162 per day

Feature	Description
Proposed demolition	11 buildings
Indicative heritage impacts	Heritage listed items within or directly adjacent to sites such as the Bennelong Sewer, the Tank Stream and the Former Skinners Family Hotel at Hunter Street will be retained and protected during construction
Proposed landscape changes	Some street trees will be removed around the construction sites Opportunities for the retention and protection of existing street trees will be identified prior to construction
Proposed excavation	Mined single-span cavern
Indicative spoil removal	505,000 cubic metres
Proposed activities	• Site establishment and demolition – installing hoarding; demolishing buildings; protecting and/or relocating utilities; transport network modifications; conducting investigations; installing acoustic sheds, staff facilities and services to the construction site • Underground road header work and support • Excavation of station shafts to an indicative depth of approximately 27 metres • Cavern concrete lining works • Spoil removal • TBM retrieval from the excavated station shafts
Proposed staff facilities	Offices, lunchrooms and amenities
Proposed staff parking	No staff parking facilities. Contractors may consider 'park and shuttle' services to transfer workers to this site
Indicative power supply works	No additional power supply work is required
Indicative utility works	No significant utility works are anticipated. Minor works to relocate and/or protect power, communications, communication towers, gas, stormwater, water and sewer systems may be required
Indicative plant and equipment	• Roadheader • Piling rig • Excavator • Hydraulic rock breakers • Articulated dump trucks • Front-end loader • Crawler crane • Rock saw • Concrete pump • Sprayed concrete robots • Rock drills • Grouting equipment • Compressors • Pumps • Ventilation equipment and fans • Elevated work platforms • Water treatment plant • Dust suppression system • Hand tools • Spoil removal system • Rigid trucks • Concrete trucks • Road sweeper • Tele-handler • Water cart
Proposed traffic changes	Permanent full closure of De Mestre Place
Proposed public transport changes	No changes are proposed
Proposed street parking changes	Temporary removal of parking spaces on the south side of Hunter Street between George Street and Pitt Street adjacent to the Hunter Street western construction site and on the eastern side of O'Connell Street adjacent to the Hunter Street eastern construction site
Proposed noise management	Sydney Metro branded hoarding will be erected around the perimeter of the construction site The existing Sydney Metro acoustic shed on the eastern site will be retained for station cavern excavation works
Indicative pedestrian and cyclist changes	The underground pedestrian route from Wynyard to the Hunter Connection in the CBD will also be closed during construction. Pedestrians will be diverted to the surface, which will remain open. The underground route will re-open when Hunter Street Station opens, to facilitate transit between Martin Place and Barangaroo. The cycle route on Pitt Street will be unaffected by our works
Other projects and plans in the local area	• Sydney Metro City & Southwest Martin Place Integrated Station Development • Wynyard Place Redevelopment • Circular Quay Renewal

Construction site map



Project corridor and tunnel alignment



John Holland CPB Ghella (JHCPBG) senior project engineer Sam Godden inspects tunnel RTO 1 at Waterloo Station.

Tunnel corridor and alignment

Tunnel alignment

Just as a railway line on the surface follows a preserved and approved corridor, the tunnels for Sydney Metro West will run through a reserved underground rail corridor – also known as a substratum corridor.

Where possible, the underground corridor runs beneath major roads, open space or public buildings. However, in some cases where this is not feasible the underground corridor runs beneath private property.

Sydney Metro needs to acquire land deep under the surface of property to build the tunnels, including private property.

On average, the tunnels required for Sydney Metro West will be about 38 metres (or 13 storeys) below ground.

At these depths, the tunnel alignment will not affect the enjoyment of properties located above. Property owners will likely still be able to carry out property improvements such as installing a swimming pool, adding a storey to a property or excavating for a basement (as long as the usual relevant approvals are sought).

Sydney Metro will only acquire the amount of substratum land needed to safely construct and provide long-term protection for the tunnels – which is typically seven metres above, below and either side of the tunnels. In some instances these measurements will vary to account for other underground infrastructure like cross passages.

Properties above the confirmed tunnel alignment

Sydney Metro will conduct a formal process to acquire underground land for the tunnel alignment once the tunnel alignment design is confirmed. The project team will contact all affected property owners directly. Sydney Metro will only acquire the land it needs to safely construct the tunnels and provide for their long-term protection.

Tunnel corridor

Sydney Metro is also seeking an amendment to the State Environmental Planning Policy (infrastructure) to protect a tunnel corridor of approximately 25 metres from the proposed tunnel alignment to provide for protection of the tunnels.

A protected corridor would mean that any development application lodged for a property located within the corridor would need to be referred to Sydney Metro to assess for any potential impact of underground structures to the tunnels.

A development application may be required to be altered if it is deemed to affect the proposed Sydney Metro West tunnel alignment. This may include restrictions to underground structures like basements and car parks.

Sydney CBD a turnback cavern

The alignment extends to the east of Hunter Street for turnback tunnels and caverns to allow metro trains arriving in the CBD to change tracks and head back to Westmead.

These tunnels are proposed to be located about 45 metres below ground to the east of Hunter Street, and will not impact the surface.

The proposal also safeguards any future potential extensions towards the south-east as part of Sydney Metro West.

The proposed tunnel alignment and corridor is shown on pages 63 and 64.

Process for confirming the tunnel alignment between The Bays and Hunter Street

2021/2022

1. **Proposed tunnel alignment is assessed as part of the EIS and corridor protection is sought**

2023

2. **Tunnel alignment is confirmed and property owners above the tunnel alignment are contacted by the project team**

Cavern view of progress works on the Sydney Metro City & Southwest project.

How we choose the tunnel alignment

- **The location, depth and structure of the stations**
- **Maintaining an appropriate vertical grade range and curve to allow for reliable train speed**
- **Underground rock and ground conditions**
- **Avoiding existing structures like building basements, heritage items, utilities and other tunnels**

Tunnel corridor and alignment

The Bays to Pyrmont proposed tunnel alignment and corridor

Note: Tunnel alignment is subject to change through detailed design.

Pyrmont to the Sydney CBD proposed tunnel alignment and corridor

Note: Tunnel alignment is subject to change through detailed design.

Working with the community and stakeholders

Wynyard Station.


BROOKFIELD
PLACE

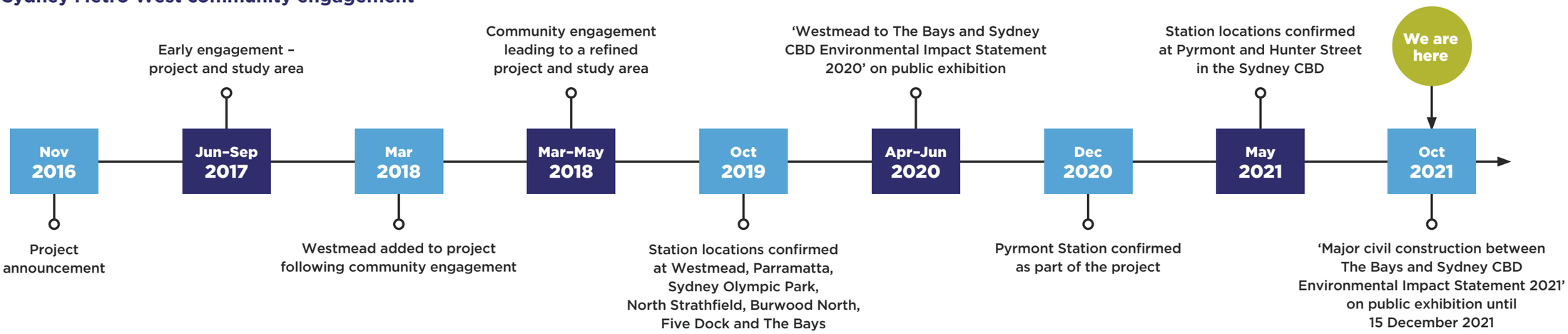
Working with the community and stakeholders

The Sydney Metro West project team has been engaging with the community, stakeholders and industry since 2017. Feedback gathered has helped shape the project, including determining station locations.

Sydney Metro engaged with more than 15,000 people during the eight-week exhibition in April to June 2020 for the 'Westmead to The Bays and Sydney CBD Environmental Impact Statement 2020'. This was the EIS for the project concept between Westmead and Sydney CBD and major civil construction work between Westmead and The Bays. A total of 188 submissions were received from stakeholders and the community. These were considered in the project's assessment.

With planning for the next stage of the project underway, with the release of 'Major civil construction between The Bays and Sydney CBD Environmental Impact Statement 2021', Sydney Metro will continue to work with the community and stakeholders to receive further feedback about the project. Formal submissions can be made to the Department of Planning, Industry and Environment during exhibition phases of the project (see page 74).

Sydney Metro West community engagement



Engagement during the 2020 public exhibition for '**Westmead to The Bays and the Sydney CBD Environmental Impact Statement 2020**'

15,000 people engaged during the eight-week exhibition.

188 submissions were received.

Make a submission

Click on the tiles below to learn how to make a submission.

Environmental Impact Statement

Interim Corridor Protection

A new accessible **multimedia interactive portal** was launched.

Place managers

Sydney Metro West has dedicated community relations specialists called place managers who can be contacted for further information about the project. Their role is to act as a single, direct contact between members of the community and the project team. They can be contacted on **1800 612 173** or via the project email **sydneymetrowest@transport.nsw.gov.au**.

How we connected with you

- held local community information sessions
- met with local community groups
- delivered project information to letterboxes
- placed project advertisements in local and culturally and linguistically diverse newspapers
- sent email updates to our registered database
- posted information on social media
- undertook surveys seeking feedback
- provided information on the project website

What you have told us

Ensure easy interchange with other public transport modes

Make safety a priority for construction workers and pedestrians

Maintain the character, when designing the station

Preserve and improve walking and cycle routes

I want to know how you will minimise noise

Work with local business to minimise impacts

Stations should be fully accessible

Work with other projects to minimise disruption

I want to be able to contact you easily if I have a concern

I want to see future connections, including an extension from Sydney CBD

Ensure you promote sustainability

Heritage is important to me

Community open day at Rouse Hill Station, Metro Northwest Line.

Have your say

Sydney Metro West's virtual engagement room.

NSW GOVERNMENT | sydney METRO

Sydney Metro West

A new metro railway connecting Greater Parramatta to the Sydney CBD

About Sydney Metro

The biggest urban rail project in Australian history

Station excavation and tunnelling map

More about the Environmental Impact Statement

This document is a summary of the Sydney Metro West project 'Major civil construction between The Bays and Sydney CBD Environmental Impact Statement 2021'.

Sydney Metro is making the EIS and supporting materials as easy to access as possible.

Visit **planningportal.nsw.gov.au/major-projects/project/41851** to view the full EIS.

Visit **sydneymetro.info** to learn more about Sydney Metro and sign up for email alerts.

Visit **sydneymetro.info/metrowest** to view an interactive map of the project, find out what you can expect in your area and learn from expert members of the project team.

Call us on **1800 612 173** to talk to one of our dedicated place managers.

Email your queries to **sydneymetrowest@transport.nsw.gov.au** and we'll get back to you.

The Sydney Metro team, including our team of project experts, is available to provide you with information about Sydney Metro, and to help you find out more about the EIS. If you are having difficulty accessing any of the information available please contact us and we'll make arrangements to assist you.

The Bays to Sydney CBD virtual engagement room.

The Sydney Metro team is available to answer any questions you may have.

Have your say

The Environmental Impact Statement

The 'Major civil construction between The Bays and Sydney CBD Environmental Impact Statement 2021' is on public exhibition until **15 December 2021**.

Anyone can make a submission in any language about the Environmental Impact Statement to the Department of Planning, Industry and Environment.

The Department will then collate submissions and publish them on their website. Sydney Metro will review all the submissions and prepare a Submissions Report to respond to issues raised.

If changes are required as a result of the issues raised, an Amendment Report or Preferred Infrastructure Report may also be prepared. Approval from the Minister for Planning and Public Spaces is required before Sydney Metro can proceed with the project.

Your submission much reach the Department by 15 December 2021.

How to make a submission

Online: visit **planningportal.nsw.gov.au/major-projects** and follow the 'on exhibition' links

Write a letter to:

Planning and Assessment
Department of Planning, Industry and Environment
Locked Bag 5022
Parramatta NSW 2124

Your letter must include:

1. Your name and address, at the top of the letter only (or in a separate cover letter if you want your personal details to be withheld from publication)
2. The name of the application and the application number (SSI-19238057)
3. A statement on whether you support or object to the proposal
4. The reasons why you support or object to the proposal
5. A declaration of any reportable political donations made in the previous two years.

If you have any questions about this process you can contact the NSW Department of Planning, Industry and Environment.

Call: **1300 305 695**

Email: **majorprojectssupport@planning.nsw.gov.au**

The Department may publish any personal information you have included in your submission on a proposal. Do not include any personal information in your submission that you do not want published.

For more information, view the Department's Privacy Statement at: **planning.nsw.gov.au/privacy**.

Translating and Interpreting Service

If you require the services of an interpreter, please contact the **Translating and Interpreting Service** on **131 450** and ask them to call **Sydney Metro** on **1800 612 173**. The interpreter will then assist you with translation.

Se avete bisogno dell'ausilio di un interprete, vi preghiamo di contattare il **Servizio di Traduzione ed Interpretariato** al numero **131 450** e chiedere di chiamare **Sydney Metro** al numero **1800 612 173**. L'interprete vi assisterà nella traduzione.

আপনার, একজন দোভাষীর (ইন্টারপ্রেটার) সেবা-সাহায্য আবশ্যক **হলে**, অনুগ্রহ **করে** **131 450** নং এ **ট্রান্সলেটিং এন্ড ইন্টারপ্রেটিং সার্ভিস** এর সাথে যোগাযোগ করুন, এবং **1800 612 173** নং এ **সিডনী মেট্রো** কে কল করতে **তাদের বলুন**। **তখন অনুবাদ**/ভাষান্তরে, দোভাষী আপনাকে সাহায্য করবে।

如果您需要翻译服务，请致电**131 450** 翻译和口译服务，让他们打 **1800 612 173**给悉尼地铁， 翻译员然后将帮助您进行翻译。

إذا كنتم بحاجة إلى خدمات مترجم، يرجى **الاتصال بخدمة الترجمة الكتابية والشفهية** على الرقم **131 450** واطلبوا منهم الاتصال **بمترو سيدني على الرقم 1800 612 173**. وبعد ذلك سيقوم المترجم بمساعدتكم في الترجمة.

Jika anda memerlukan khidmat jurubahasa, sila hubungi **Translating dan Interpreting Services [Perkhidmatan Penterjamahan dan Jurubahasa] 131 450** dan minta mereka menyambung ke **Sydney Metro, nombor telefon 1800 612 173**. Jurubahasa akan membantu menterjemah untuk anda.

통역서비스가 필요하시면, 번역 및 통역 서비스 **(Translating and Interpreting Service)** 전화 **131 450** 에 연락하시어 **Sydney Metro** 전화 **1800 612 173** 에 연결해달라고 요청하십시오. 통역관이 통역을 도와 드릴 것입니다.

Nếu quý vị cần dịch vụ thông dịch viên, xin liên lạc **Dịch vụ Thông Phiên Dịch (Translating and Interpreting)** ở số **131 450** và yêu cầu gọi **Sydney Metro** ở số **1800 612 173**. Sẽ có thông dịch viên giúp cho quý vị việc thông dịch.

यदि आपको दुभाषिए की सेवाओं की ज़रूरत है, तो कृपया अनुवाद एवं दुभाषिया सेवा **(Translating and Interpreting Service)** से **131 450** पर संपर्क करें और उन्हें सिडनी मेट्रो **1800 612 173** पर को फोन करने का निवेदन करें। फिर दुभाषिया अनुवाद में आपकी मदद करेगा।

通訳サービスが必要な場合は、**Translating and Interpreting Service 131 450** に連絡し、**Sydney Metro 1800 612 173** に電話するようお伝えください。通訳者が 訳をお手伝いします。

หากท่านจำเป็นต้องใช้บริการล่าม โปรดติดต่อบริการแปลและล่าม Translating and Interpreting Service ที่ 131 450 และขอให้หน่วยงานดังกล่าวโทรหา Sydney Metro ที่ 1800 612 173 หลังจากนั้ นล่ามจะช่วยท่านเกี่ยวกับการแปล

如果您需要口譯員的服務，請致電**131 450**聯絡翻譯和口譯服務，要求他們致電 **1800 612 173**給悉尼地鐵 **(Sydney Metro)**。然後口譯員將會協助您翻譯。