

Rail infrastructure, stations, precincts and operations

Environmental Impact Statement

March 2022



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Cover: An artist impression of The Bays Station.



Certification

This Environmental Impact Statement has been prepared under Division 5.2 of the *Environmental Planning and Assessment Act 1979* (NSW) and in accordance with Division 5 of Part 8 of the Environmental Planning and Assessment Regulation 2021.

Environmental Impact Statement prepared by:

| | | |
|---------------------------------------|---|---|
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| Qualifications | BEnvSc, CEnvP | BEnvMgt |
| Position | Associate Director - Environment | Principal - Environment |
| Address | AECOM Australia Pty Ltd Level 21, 420 George Street, Sydney 2000 NSW | bd infrastructure Pty Ltd Level 10, 66 Clarence Street, Sydney 2000 NSW |
| In respect of | Sydney Metro West Environmental Impact Statement - Rail infrastructure, stations, precincts and operations | |
| Applicant Name | Sydney Metro | |
| Applicant Address | Level 43, 680 George Street, Sydney NSW 2000 PO Box K659, Haymarket NSW 1240 | |
| Proposed development | <p>Sydney Metro West is a new 24-kilometre metro line between Westmead and the Sydney CBD. Sydney Metro West is being assessed as a staged infrastructure application. The previous Sydney Metro West planning applications included:</p> <ul style="list-style-type: none"> The Concept and major civil construction work for Sydney Metro West between Westmead and The Bays (Stage 1 of the planning approval process, application number SSI-10038), was approved by the Minister for Planning and Public Places on 11 March 2021. Stage 2 of the planning approval process includes all major civil construction between The Bays and Sydney CBD. An Environmental Impact Statement for major civil construction between The Bays and Sydney CBD was exhibited between 3 November 2021 and 15 December 2021. <p>Stage 3 of the planning approval process is seeking planning approval to enable the approved Concept to be realised by carrying out the tunnel fit-out, construction of stations, ancillary facilities and station precincts, and operation and maintenance of the Sydney Metro West line (this proposal).</p> | |
| Land to be developed | <p>This proposal would be carried out on land in the local government areas of Cumberland City Council, City of Parramatta, Burwood Council, Strathfield Council, City of Canada Bay, Inner West Council and the City of Sydney. The location and land required for the proposed construction sites and for the permanent features required for operation would generally be consistent with the locations identified and established as part of the work carried out under the previous Sydney Metro West planning applications. However, some additional land would be required for construction of this proposal at Westmead, Sydney Olympic Park, North Strathfield and The Bays.</p> | |
| Environmental Impact Statement | <p>An Environmental Impact Statement is attached that assesses all matters specified in the Secretary's environmental assessment requirements dated 16 August 2021, in accordance with Division 5.2 of the NSW <i>Environmental Planning and Assessment Act 1979</i> and other relevant legislation.</p> | |
| Declaration | <p>I certify that I have prepared the contents of this Environmental Impact Statement in accordance with Part 8 of the Environmental Planning and Assessment Regulation 2021 and the Secretary's environmental assessment requirements dated 16 August 2021, and that, to the best of my knowledge the information contained in the Environmental Impact Statement is not false or misleading.</p> | |
| Signature |  |  |
| Name | Rachel O'Hara | Todd Brookes |
| Date | 18 March 2022 | |

Executive summary

Executive summary

Overview

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

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

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

- Sydney Metro North West – opened in May 2019
- Sydney Metro City & Southwest – currently under construction with services to begin in 2024
- Sydney Metro West (this project) – currently under construction and due to open in 2030
- Sydney Metro – Western Sydney Airport – currently under construction and due to open when the airport opens for passenger services.

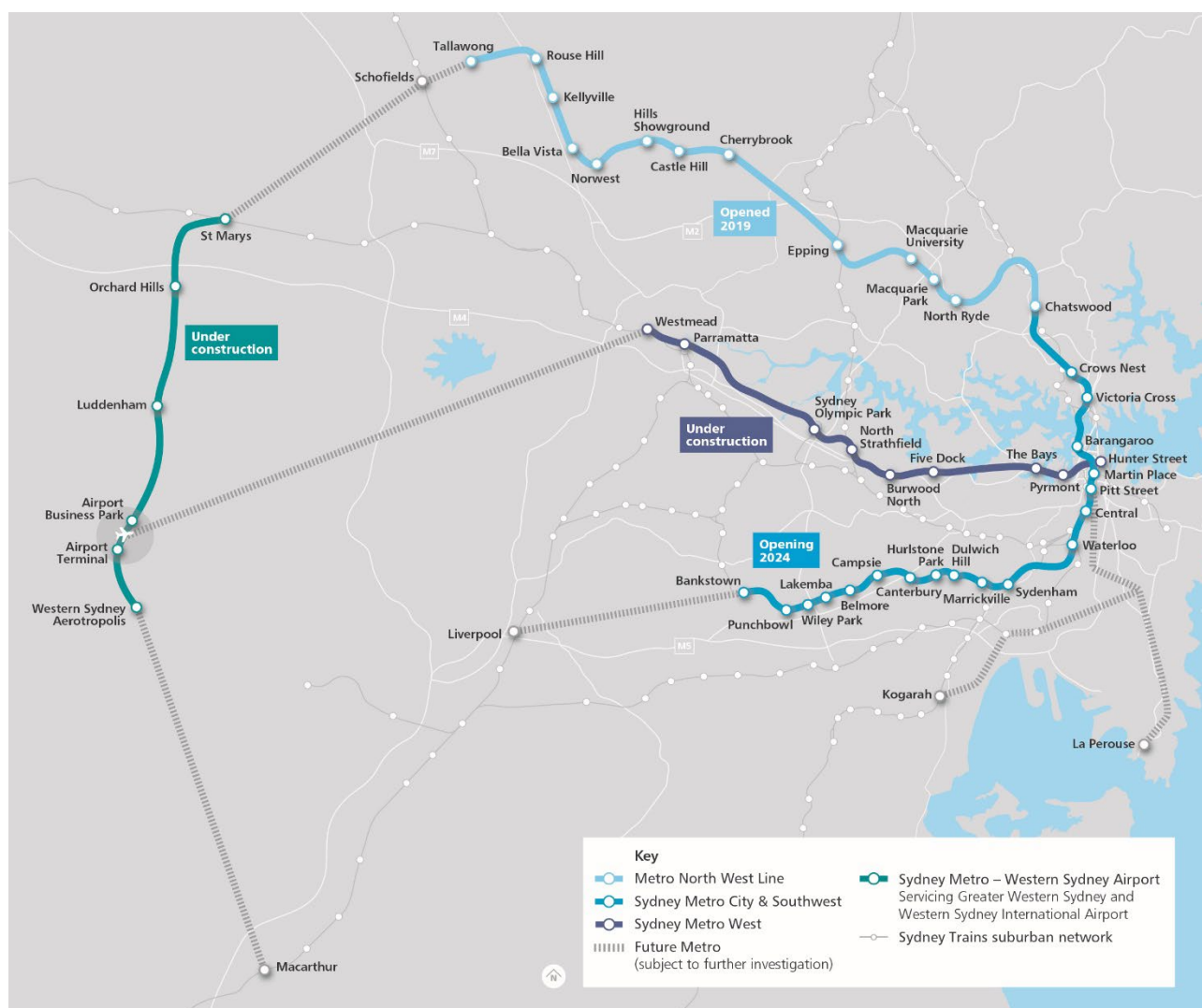


Figure ES-1 Sydney Metro network

The delivery of Sydney Metro West is critical to keeping Sydney moving, and will:

- comprise a new 24-kilometre metro line with stations confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pyrmont and Hunter Street (Sydney CBD)
- 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.

Sydney Metro West will also:

- relieve the congested T1 Western Line, T9 Northern Line, and T2 Inner West & Leppington Line
- double the rail capacity between Parramatta and the Sydney CBDs
- significantly boost economic opportunities for Greater Parramatta
- support new residential and employment zones along the Greater Parramatta to Sydney CBD corridor, including at Sydney Olympic Park and The Bays – providing improved transport for the additional 420,000 new residents and 300,000 new workers forecast to be located within the corridor over the next 20 years
- allow customers fast and easy transfers with the T1 Western Line at Westmead, T9 Northern Line at North Strathfield, and the Sydney Trains suburban rail network and Sydney Metro in the Sydney CBD
- allow for transfers with the future Parramatta Light Rail Stage 1 at Westmead and Parramatta, as well as the planned Parramatta Light Rail Stage 2 at Sydney Olympic Park
- create an anticipated 10,000 direct and 70,000 indirect jobs during construction (based on Sydney Metro analysis).

The main elements of Sydney Metro West are shown in Figure ES-2.

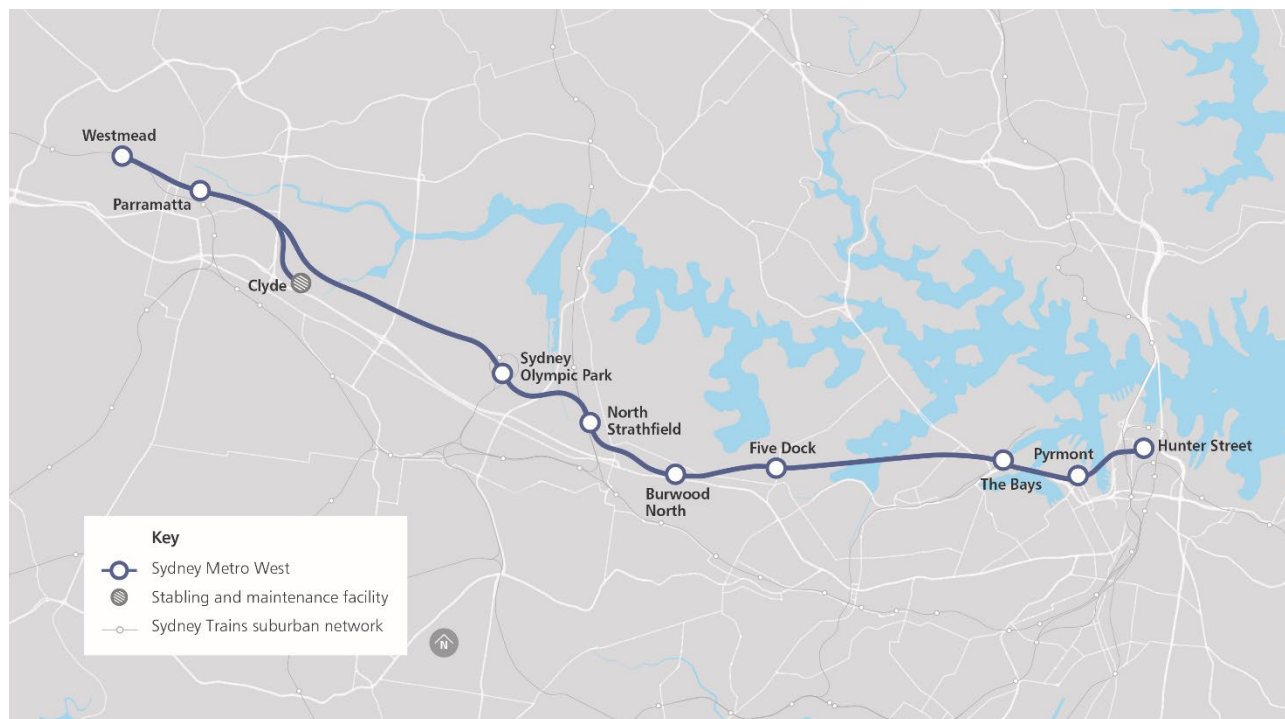


Figure ES-2 Sydney Metro West

Planning approval approach

The planning process for Sydney Metro West is being assessed as a staged infrastructure application under section 5.20 of the *Environment Planning and Assessment Act 1979*. The Sydney Metro West Concept and Stage 1 of the planning approval process – *Sydney Metro West Environmental Impact Statement – Westmead to The Bays and Sydney CBD* (Sydney Metro, 2020a) – which includes major civil construction for Sydney Metro West between Westmead and The Bays, was approved on 11 March 2021. Stage 2 of the planning approval process – *Sydney Metro West Environmental Impact Statement – Major civil construction between The Bays and Sydney CBD* (Sydney Metro, 2021a) – included all major civil construction including station excavation and tunnelling between The Bays and Sydney CBD. This was exhibited in November and December 2021 and is currently under assessment.

Stage 3 of the planning approval process, the subject of this Environmental Impact Statement, includes tunnel fit-out, construction of stations, ancillary facilities and station precincts, and operation and maintenance of the Sydney Metro West line (this proposal).

Key features

This proposal would involve:

- fit-out of tunnels including rail systems for metro train operations
- construction, fit-out and operation of:
 - metro station buildings and the surrounding metro precincts
 - a services facility and traction substations
 - a control centre, test track and stabling and maintenance facility at Clyde
- space for non-station uses at metro stations (e.g. retail, commercial and/or community facilities)
- provisions for over and/or adjacent station development within metro precincts
- rail interchange support works, including work to the existing T1 Western Line at Westmead and T9 Northern Line at North Strathfield
- transport network modifications, such as new interchange facilities and changes to public transport networks to serve metro stations
- subdivision of sites
- operation and maintenance of the Sydney Metro West line.

All operation and construction components may be subject to further design development and further changes may be made during ongoing design refinement to take into account the outcomes of community and stakeholder engagement and environmental investigations.

The potential impacts of this proposal would mainly relate to the continuation of construction activities carried out under previous Sydney Metro West planning applications. However, the construction impacts associated with this proposal would be generally more confined and of a less intensive nature.

Need for and benefits of Sydney Metro West

The approved Concept was developed within the framework of the transport and planning strategies identified in State government policies. In particular, this includes the *Greater Sydney Region Plan: A Metropolis of Three Cities – connecting people* (Greater Sydney Commission, 2018a), *Building Momentum: State Infrastructure Strategy 2018-2038* (Infrastructure NSW, 2018), and *Future Transport Strategy 2056* (Transport for NSW, 2020a).

Need for Sydney Metro West

Sydney is Australia's financial and economic capital, housing half of the country's globally competitive service sector jobs. The Greater Parramatta to Sydney CBD corridor is one of the city-shaping transport corridors nominated in the Greater Sydney Region Plan. The corridor is of national economic significance and contains nearly 620,000 high productivity jobs, which is around 20 per cent of the jobs in Greater Sydney and generates eight per cent of the nation's Gross Domestic Product per year.

Recognising the importance of the corridor, several land use planning and development initiatives have commenced in Westmead, Parramatta, Sydney Olympic Park, The Bays and the Sydney CBD. These initiatives are expected to account for more than 60 per cent of forecast population growth and more than 80 per cent of forecast jobs growth in the corridor by 2036.

Sydney's growing population will continue to increase demand on the existing transport network. Despite planned upgrades and additional services that will provide some short-term relief, the T1 Western Line is expected to reach capacity in 2024 and the T9 Northern Line is expected to reach capacity in 2027. Reliability impacts in the Sydney CBD can cause network-wide impacts, reducing network capacity and increasing crowding on trains and platforms.

Benefits of Sydney Metro West

Sydney Metro West would double rail capacity from Parramatta to the Sydney CBD with the delivery of a new high-capacity rail connection. At ultimate capacity, Sydney Metro West would be able to move more than 40,000 people an hour in each direction and complement the suburban and intercity services between Parramatta and the Sydney CBD.

Sydney Metro West would result in numerous benefits, including:

- city-shaping – including supporting planned growth, expanding the 30-minute cities, increasing all-day accessibility, reducing public infrastructure provision and household energy consumption, improving housing affordability and supply, and benefiting social equity, sustainability, health and amenity
- transport benefits – namely, increasing transport network capacity, reducing train and station crowding, increasing accessibility to key centres, increasing public transport network reach and use, improving travel times, improving resilience to incidents on the network, opportunities to optimise the bus network, and road user and community benefits
- productivity benefits – particularly, enhancing international competitiveness and creating productive jobs in knowledge-based industries and connectivity benefits by reducing travel times between businesses in the corridor.

This proposal is seeking planning approval to enable the strategic benefits of the approved Concept to be realised. As this proposal is a subsequent stage within the approved Concept, it would continue to be consistent with the key strategic planning and transport infrastructure strategies and policies and contribute to providing the identified benefits of the approved Concept.

Placemaking

The delivery of Sydney Metro West offers the opportunity to deliver a legacy, transform areas by creating new places, or reinforcing and enhancing existing places. The approach to placemaking for Sydney Metro West has been based on a multifaceted approach to the planning, design and management of public spaces, creating inclusive public spaces that promote people's health and wellbeing.

At all stations, Sydney Metro would be responsible for delivering public domain elements and would work with other parts of Transport for NSW to deliver key transport integration elements. This would ensure that stations and interchanges are attractive, safe, functional and allow for the gathering and movement of people. Within station and interchange areas, Sydney Metro would also explore opportunities for activation, retail and other specialised spaces for customers and the community.

Beyond the metro station interchange area, the role of Sydney Metro would be to service key attractions and enable opportunities for land use change and placemaking more broadly. Integration with broader land use planning, led by State and local government agencies will be an ongoing consideration to ensure that the mass transit amenity offered by the new metro stations are supported by appropriate land uses which will contribute significantly to the liveability of the area.

Sydney Metro West would be designed to place the customer at the centre. The metro would deliver an easy customer experience by designing a seamlessly integrated service, where the stations, trains, and connections into and out of the precincts are considered together as an end-to-end journey.

Sydney Metro West objectives

Sydney Metro West's objectives include both network and corridor objectives. The network objectives represent the outcomes to be achieved by Sydney Metro West in its full configuration, including potential extensions. The corridor objectives include the specific plans and needs of the geographic area between Greater Parramatta and Sydney CBD. The specific objectives are set out in detail in the *Sydney Metro West Environmental Impact Statement – Westmead to The Bays and Sydney CBD* (Sydney Metro, 2020a). This proposal would be consistent with those objectives.

Project development and alternatives

The *Sydney Metro West Environmental Impact Statement – Westmead to The Bays and Sydney CBD* (Sydney Metro, 2020a) and the *Sydney Metro West Environmental Impact Statement – The Bays to Sydney CBD* (Sydney Metro, 2021a) considered a number of alternatives with respect to tunnel alignment, station locations, stabling and maintenance facility location, tunnel construction (that is, tunnel boring machine or road header), alternative station construction methods and construction site locations.

The option selection process considered issues raised during consultation with key stakeholders, including with government agencies and the community. Options were assessed against a range of criteria, including customer outcomes, constructability, operation, environmental impacts, accessibility, heritage and placemaking considerations, risk and cost effectiveness.

Consultation with local councils and other relevant stakeholders, including Sydney Olympic Park Authority and the NSW Department of Planning and Environment, has continued throughout the design of the stations, precincts and ancillary infrastructure. This has also included seeking feedback on integration with the local area and future land use plans. Further detail on how the design of the stations and ancillary facilities has responded to stakeholder feedback is provided in the relevant sections of this Environmental Impact Statement.

Stakeholder and community engagement

Stakeholder and community consultation for Sydney Metro West has played an integral part of its development and has informed scoping investigations for this Environmental Impact Statement and will continue to do so through ongoing detailed design development and construction.

Sydney Metro has been engaging with the community, stakeholders and industry on the planned Sydney Metro West since 2017. Feedback gathered has helped shape Sydney Metro West, including station locations. Sydney Metro will continue to work with the community and stakeholders as Sydney Metro West progresses.

Early engagement with the community and stakeholders began in June 2017 and continued into 2018. Further engagement for Sydney Metro West followed the announcement of confirmed station locations between Westmead and The Bays in October 2019. From 30 April to 28 June 2020, the *Sydney Metro West Environmental Impact Statement – Westmead to The Bays and Sydney CBD* (Sydney Metro, 2020a) was on exhibition and the community was asked to provide feedback. Consultation has proactively sought feedback and comments on Sydney Metro West through different forums and channels to inform the development phase and the scope of issues to be assessed as part of the environmental assessment process. This has involved:

- engagement with State government departments and agencies, local governments, peak organisations, the community and industry
- in person and virtual community information sessions, with information sessions along the Sydney Metro West corridor in 2018 and virtual information rooms in 2020 and 2021 to support exhibition of the *Sydney Metro West Environmental Impact Statement – Westmead to The Bays and Sydney CBD* (Sydney Metro, 2020a) and *Sydney Metro West Environmental Impact Statement – major civil construction between The Bays and Sydney CBD* (Sydney Metro, 2021a)
- provision of project information via an interactive online project portal
- letterbox drops to residents and businesses
- a proactive media strategy, which resulted in broad coverage across Sydney metropolitan and local print, radio and television outlets
- advertisements in local and multicultural newspapers
- email alerts to registered community members and stakeholders

- social media via the Sydney Metro Facebook page, which has a reach of more than 50,000 people
- 'Project Overview' information booklets (published in June 2017, March 2018 and October 2019)
- summary Environmental Impact Statements including 'Westmead to The Bays and Sydney CBD - Environmental Impact Statement Summary' (published in 2020) and 'The Bays to Sydney CBD - Environmental Impact Statement Summary' (published in 2021).

Communication channels have also been established since the announcement of Sydney Metro West to provide for ongoing engagement with stakeholders and communities.

The NSW Department of Planning and Environment will place this Environmental Impact Statement on public exhibition. During the exhibition period, government agencies, stakeholders and the community can review this Environmental Impact Statement and have an opportunity to make a written submission to the NSW Department of Planning and Environment for consideration in its assessment of this proposal.

Construction sites and program

The location and land required for the proposed construction sites and for the permanent features required for operation would generally be consistent with the locations identified and established as part of the work carried out under the previous Sydney Metro West planning applications. However, some additional land would be required for construction at the following sites:

- Westmead metro station construction site – additional areas for road work, work within the existing rail corridor and on platforms at the existing Westmead Station
- Sydney Olympic Park metro station construction site – a minor additional area near the Olympic Boulevard / Figtree Drive intersection
- North Strathfield metro station construction site – additional areas for work, all within the existing rail corridor
- The Bays Station construction site – additional areas to support utility and drainage work, road work, traction substation construction and other station precinct and public domain work.

Construction of this proposal is expected (subject to planning approval) to commence in late 2024. The construction period would be around four years, followed by around a further year of testing and commissioning. An indicative construction program for this proposal and how it interrelates with the construction of the work carried out under previous Sydney Metro West planning applications is shown in Figure ES-3.

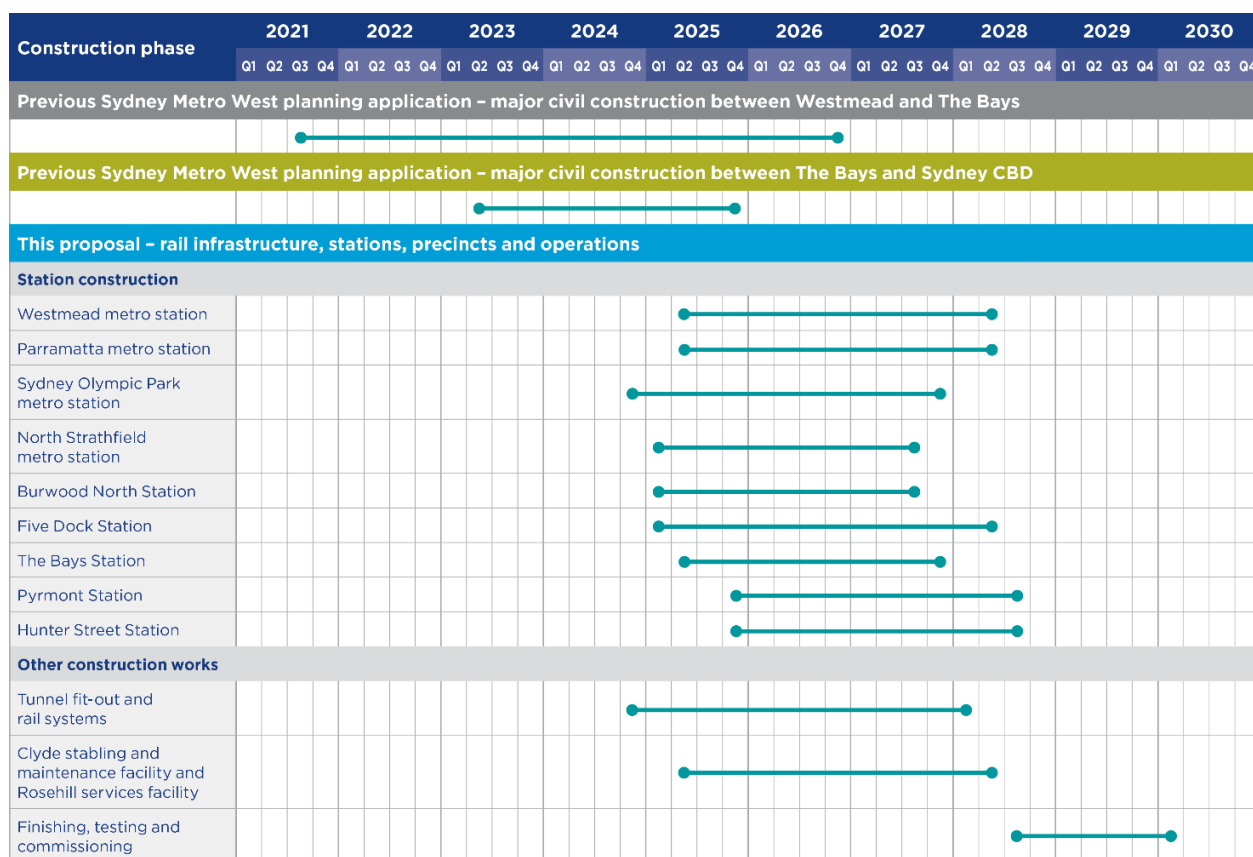


Figure ES-3 Indicative construction program

Approach to the environmental assessment

This Environmental Impact Statement has been prepared in accordance with the provisions of the *Environmental Planning and Assessment Act 1979* as State significant infrastructure. In particular, it addresses the requirements of the Secretary of the NSW Department of Planning and Environment. It also includes consideration of the issues raised by the community and stakeholders during the development of Sydney Metro West.

For the purposes of assessing impacts of this proposal, this Environmental Impact Statement has adopted a precinct-based approach. The precincts are based around each of the metro station locations, and the Clyde stabling and maintenance facility and Rosehill services facility. The fit-out and operation of the tunnels is assessed in a separate section. A precinct-based approach allows for potential impacts to be assessed for individual precincts and location-specific mitigation measures to be considered.

Where relevant, the baseline environment for each precinct has considered the impacts described as part of the previous Sydney Metro West planning applications. For example, the baseline environment for this proposal assumes that the construction sites identified in the previous Sydney Metro West planning applications would be cleared and established prior to the commencement of this proposal. As such, during construction, impacts of this proposal would present largely a continuation of the impacts from work carried out under the previous Sydney Metro West planning applications – though for the most part, at a reduced extent and level of intensity. This is particularly relevant for impacts related to noise, traffic, air quality, social, local business, visual, heritage, water quality, flooding and groundwater.

Operational and construction impacts that would generally be applicable for the whole proposal have been considered on a proposal-wide basis. This includes air quality, sustainability, climate change and greenhouse gas, waste management and resource use, and hazards and risks.

Westmead metro station

Westmead metro station would be located to the east of Hawkesbury Road, between Railway Parade in the north, Bailey Street in the south and Hassall Street in the east to provide a direct interchange with the T1 Western Line and the T5 Cumberland Line. The existing Westmead Station is located immediately to the north. The metro station would provide increased accessibility and connectivity to the Westmead health and education precinct (which includes Westmead Hospital and Western Sydney University) for pedestrians and through interchange with the future Parramatta Light Rail Stage 1, as well as surrounding residential areas experiencing growth and renewal.

The locality around Westmead metro station generally contains a mix of land uses, including the Westmead town centre, and medium- and low-density residential buildings, as well as specialised health, education and recreational areas. Immediately to the north, the Westmead health and education precinct and its redevelopment is planned to transform Westmead into a world-class innovation district.

Operation

The vision for Westmead metro station and its surrounds is for a well-connected and accessible health and education precinct, and a revitalised, high amenity living and employment centre as an extension of Parramatta's CBD.

The station entry would be from a new aerial concourse on Hawkesbury Road, providing a consolidated entry to Sydney Metro and Sydney Trains platforms. A paid underground concourse beneath Alexandra Avenue and the existing rail corridor would also connect the aerial concourse to Sydney Metro and Sydney Trains services. Sydney Metro is continuing to investigate the opportunity for an additional southern station entrance.

When operational, Westmead metro station would provide substantial transport, placemaking and amenity benefits. This includes the provision of a direct interchange between Sydney Metro and Sydney Trains services, as well as safe and equitable connections with active transport. It would provide a gateway to the Westmead health and education precinct, support greater activation along Hawkesbury Road connecting north and south Westmead, providing high amenity and accessible public spaces and supporting growth and renewal opportunities.

A number of improvements would be made to the local transport network to facilitate integration of the metro station including new bicycle routes within the station precinct (to connect to the existing network), bus stops, kiss and ride zones and pedestrian crossing improvements. Sydney Metro is continuing to investigate options for the layout and use of Alexandra Avenue between Hawkesbury Road and Hassall Street. These options include the potential for this section of road to be narrowed and used for bus and emergency services only, to support safe pedestrian movement within the precinct.

This proposal would improve the character and visual amenity of the area due to the new metro station and the associated accessibility and placemaking outcomes. These improvements would also result in social benefits associated with increased accessibility to jobs, education and services and improved amenity, and some opportunities for local businesses such as increased passing trade and improved accessibility.

The key potential impact anticipated during operation of Westmead metro station is that Hawkesbury Road / Alexandra Avenue and Alexandra Avenue / Hassall Street intersections is forecast to see (with and without this proposal scenarios) a decline in performance once the metro station is operational, mainly associated with the increased pedestrian movements in the area. Sydney Metro is continuing to work with stakeholders to manage this issue which includes exploring options to change the layout and use of Alexandra Avenue between Hawkesbury Road and Hassall Street.

Potential impacts associated with other environmental matters such as operational noise and vibration, non-Aboriginal heritage, groundwater, flooding, social and business would comply with the relevant criteria and/or be minor to negligible.

Construction

Major civil construction including station excavation and tunnelling work at Westmead was assessed and approved under a previous Sydney Metro West planning application and does not form part of this proposal. This proposal includes the construction activities required to complete Westmead metro station, and associated precinct work required for the operation of Sydney Metro West.

Construction of Westmead metro station would require the continued use of the construction site established under the previous Sydney Metro West planning application. Some additional areas would be required within the existing rail corridor for interchange work and on roads surrounding the site for transport network improvements. The proposed work is expected to have a total duration of about four years.

For majority of the construction period, there would be little change to the surrounding transport network. To carry out construction of the underground concourse as part of this proposal, Alexandra Avenue would be temporarily closed between Hawkesbury Road and Hassall Street for about 12-18 months. The temporary closure of Alexandra Avenue would result in some additional detours affecting private trips and bus travel times. There would also be some temporary loss of parking, which would have a minor impact on the current availability of parking given the availability of parking on other local roads nearby, and this would generally occur periodically during rail possession works and during the temporary closure of Alexandra Avenue. Consultation would be undertaken with Cumberland Council and City of Parramatta Council to investigate opportunities to provide alternative parking facilities. These temporary construction traffic impacts would be managed through the Sydney Metro Construction Traffic Management Framework.

The performance of some intersections around the site would temporarily decline due to construction works and vehicles, particularly during the 12-18 month closure of Alexandra Avenue. Sydney Metro is continuing to work with other parts of Transport for NSW and other relevant stakeholders to identify and implement measures to minimise potential impacts to network performance.

There would be temporary noise and vibration impacts associated with aboveground construction activities. During the daytime, the highest noise impact work would occur for around four days when a rail tamper is being used and for around 12 weeks during excavation (including excavation of the underground concourse) using a rockbreaker. Other temporary high noise impact work may also occur intermittently during activities that require a concrete saw. During the night-time, temporary 'moderate' to 'high' sleep disturbance impacts are predicted for receivers which are directly adjacent to the rail corridor along Alexandra Avenue and Railway Parade. These predicted impacts would be associated with the need to carry out some work during Sydney Trains rail possessions. Work would be coordinated with scheduled Sydney Trains rail possessions where possible. Rail replacement bus services, which currently operate during rail possessions, would be provided.

There would also be a temporary increase in traffic noise during the 12-18 month period that Alexandra Avenue is closed along roads where traffic is diverted. The Sydney Metro Construction Noise and Vibration Standard (CNVS) would be implemented to manage these potential impacts.

Other key potential impacts during construction would include:

- temporary minor to moderate impacts to landscape character and visual amenity due to the scale and extent of the construction work
- temporary medium social impacts due to construction-related disruptions and potential amenity impacts
- temporary slight negative impacts to local businesses, mainly associated with changed traffic conditions and potential amenity impacts.

Potential impacts associated with other environmental matters such as non-Aboriginal heritage, Aboriginal heritage, contamination, groundwater, flooding and biodiversity would be minor to negligible.

These impacts would be managed through the implementation of the Sydney Metro management frameworks and standard mitigation measures including the Construction Environmental Management Framework (CEMF), Overarching Community Communications Strategy (OCCS), Construction Traffic Management Framework (CTMF) and CNVS.

Parramatta metro station

Parramatta metro station would be located in the heart of the Central River City (Parramatta CBD) between George Street to the north, Smith Street to the east, Macquarie Street to the south and Church Street to the west. Parramatta metro station would be located to the north of the existing Parramatta Station, within the commercial core of Parramatta CBD.

Parramatta metro station would serve and support the growth of Parramatta as Sydney's second CBD, including boosting jobs and improving connections to recreational and tourist attractions. The new metro station would improve customer experience at the existing Parramatta Station by relieving demand in peak times.

The Parramatta metro station precinct is characterised by a diverse mix of commercial and retail with some residential apartments and community facilities. There are also a number of heritage listed buildings and potential archaeological resources in the vicinity of the site.

Operation

The vision for Parramatta metro station and its surrounds is for a high amenity and connected employment, living and cultural centre in the heart of Greater Sydney's Central River City.

The primary eastern station entry would be adjacent to the Civic Link, a pedestrianised link planned by the City of Parramatta Council that would provide a connection from Parramatta Square to River Square. A second station entry would be located to the west on Church Street.

When operational, Parramatta metro station would deliver extensive new public domain, including a section of the Civic Link that would connect Parramatta Square to the Parramatta River via a landscaped, pedestrianised public space and 'cultural spine'. It would provide an extensive expansion of the public domain network within the Parramatta CBD, greatly increasing pedestrian permeability and access, and present the opportunity for high-quality over and adjacent station development to activate the CBD public domain. New cycling and pedestrian facilities proposed would also enhance accessibility and connectivity to the Parramatta CBD and to key public transport interchanges, including bus services and Parramatta Light Rail Stage 1 (currently under construction).

A number of changes would be made to the local transport network to facilitate integration of the metro station, including realignment of Horwood Place to the west, new bus stops on Smith Street and new pedestrian crossings on George Street and Smith Street. The majority of intersections around Parramatta metro station would operate at the same level of service, both with and without this proposal.

This proposal would improve the landscape character and visual amenity of the area due to the new metro station and the associated accessibility and placemaking outcomes. These improvements would also result in social benefits associated with increased accessibility to jobs, education and services and improved amenity, and some opportunities for local businesses. Businesses in the Parramatta CBD would benefit from the improved connectivity with the Sydney CBD, supporting business investment and growth.

Key potential impacts anticipated during operation of Parramatta metro station include:

- operational noise levels from the station would generally comply with the applicable noise criteria. There are some marginal exceedances of the amenity target criteria at one education receiver and one place of worship, however these levels all achieve the amenity acceptance criteria
- potential impacts to the setting of adjacent heritage items would generally be neutral or negligible. The provision of new public domain around the locally listed Kia Ora would allow better public appreciation of this item, resulting in a positive outcome. There would be a moderate indirect impact to the Horse Parapet Façade associated with the scale of the station services building. The design of Parramatta metro station would consider setbacks from adjacent heritage items and opportunities to enhance the significant heritage elements of adjacent items
- potential flooding impacts at the station as the proposed station entry surface levels are below the flood protection level and would require active protection measures. There are also anticipated to be some residual flooding impacts associated with the station beyond the immediate vicinity of the site.

Potential impacts associated with other environmental matters such as Aboriginal heritage, groundwater, social and business would comply with the relevant criteria and/or be minor to negligible.

Construction

Major civil construction including station excavation and tunnelling work at Parramatta was assessed and approved under a previous Sydney Metro West planning application and does not form part of this proposal. This proposal includes the construction activities required to complete Parramatta metro station, and associated precinct work required for the operation of Sydney Metro West.

Construction of Parramatta metro station would require the continued use of the construction site established under the previous Sydney Metro West planning application. Some provisions for future over and adjacent station development, including additional excavation for basement structures would also be required. The proposed work is expected to have a total duration of about four years.

Construction transport impacts would generally be a continuation of those associated with the work carried out under the previous Sydney Metro West planning application. This includes the closure of Horwood Place between Macquarie and George Street, although a temporary pedestrian route through the site would be provided during the majority of construction.

The Pitt Street / Park Parade / Argyle Street intersection would see a temporary decline in performance during construction. Other nearby intersections would generally perform at the same level of service with or without construction traffic. Potential impacts would be managed in accordance with the measures in Sydney Metro's CTMF.

Construction noise levels at the majority of receivers are predicted to comply with the noise management levels. No receivers are expected to be highly noise affected. 'Low' sleep disturbance impacts are predicted at one residential receiver as a result of heavy vehicle movements at night. The Sydney Metro CNVS would be implemented to manage these temporary impacts and further investigation of sleep disturbance would be completed during detailed construction planning when further information becomes available. Ground-borne noise associated with excavation of basement structures for future over and adjacent station development would result in 'high' ground-borne noise impacts for some receivers adjacent to the construction site. These exceedances are predicted to occur during the daytime only and this work is expected to last for around 20 weeks.

With respect to vibration intensive excavation during a worst-case situation, the cosmetic damage screening criteria are predicted to be exceeded at nine buildings in close proximity to the site including the heritage listed Roxy Theatre, Kia Ora, shop at 45 George Street and the Horse Parapet façade. The human comfort criteria are also predicted to be exceeded at some of the nearest buildings, meaning occupants of affected buildings may be able to perceive vibration impacts at times when vibration intensive equipment is in use. In reality, smaller equipment or alternative methodologies would likely be used, which would control the potential impacts. To protect these items, where vibration levels are predicted to exceed the cosmetic damage screening criteria, a more detailed assessment of the structure and attended vibration monitoring would be carried out so that vibration levels remain below appropriate limits for that structure.

Temporary impacts on built heritage items in the Parramatta metro station precinct would be neutral or negligible, with up to moderate impacts at items within the construction site. The world heritage listed Old Government House and Domain within Parramatta Park are located over 300 metres to the west of the construction site and is unlikely to be visible in key views to these items in Parramatta Park due to its scale, the distance and intervening built form. Excavation for basement structures has the potential to uncover Aboriginal and non-Aboriginal archaeology. This would be managed through the processes established under the previous Sydney Metro West planning application.

A portion of the convict drain heritage item is located within the south-eastern corner of the Parramatta metro station construction site. Excavation for this proposal would result in the potential removal of about 50 metres of the item where it is located within the Parramatta metro station construction site, resulting in a moderate direct impact. However, the excavation would not remove the whole of the item. Prior to the partial removal the convict drain, it would be archivally recorded.

The excavation for basement structures for future over and adjacent station development would also result in some additional groundwater inflow, however this is generally expected to be consistent with or reduced by comparison to the impacts from the work associated with the previous Sydney Metro West planning application. The basement excavations may also result in some additional ground movement; however, the assessment identified that the risk to buildings, including heritage buildings and structures, would be slight (possible superficial damage which is unlikely to have structural significance) to negligible (superficial damage unlikely).

Other key potential impacts during construction would include:

- temporary minor to moderate impacts to landscape character and visual amenity due to the scale and extent of the construction work
- temporary medium social impacts due to construction-related disruptions and potential amenity impacts
- temporary slight negative impacts to local businesses, mainly associated with temporary loss of private and on-street parking and potential amenity impacts. Access would be maintained to adjacent businesses
- temporary flooding impacts to the construction site and excavations during the Probable Maximum Flood (PMF) event, as well as potential minor to moderate localised flooding impacts to Horwood Place between Macquarie Street and George Street and the Macquarie Lane access to Smith Street from the obstruction of existing flow paths through the construction site.

Potential impacts associated with other environmental matters such as soils, contamination and biodiversity would be minor to negligible.

These impacts would be managed through the implementation of the Sydney Metro management frameworks and standard mitigation measures including the CEMF, OCCS, CTMF and CNVS.

Sydney Olympic Park metro station

Sydney Olympic Park metro station would be located close to Olympic Boulevard and between Herb Elliott Avenue and Figtree Drive, and in close proximity to the Heritage Abattoir Precinct to the north.

The Sydney Olympic Park metro station precinct is characterised by mainly commercial properties – typically being office or retail, as well as educational facilities. High-density residential areas are also located nearby.

The broader Sydney Olympic Park metro station precinct is proposed to be a thriving urban centre with a vibrant mix of homes and jobs, as well as a premier destination for cultural, entertainment, recreational and sporting events.

Operation

The vision for Sydney Olympic Park metro station and its surrounds is for a thriving urban centre with a vibrant mix of homes and jobs and a premier destination for cultural, entertainment, recreation and sporting events.

Customers would access the metro station from the main proposed public space running north-south between Herb Elliott Avenue and Figtree Drive. In event mode, the station would also be accessed from the proposed public space to the west that would be connected to Olympic Boulevard.

When operational, Sydney Olympic Park metro station would support the creation of a new town centre and reinforce Sydney Olympic Park as a premier destination for major events. It would provide a new mass transit hub right in the heart of Sydney Olympic Park, substantially improving access for people across Sydney to major events at Sydney Olympic Park. It would also deliver new public domain integrating with the new Sydney Olympic Park town centre and substantially improve transport options and customer clearance times following major events.

A number of changes would be made to the local transport network to facilitate integration of the metro station, including new shared precinct streets and a bus interchange.

This proposal would improve the landscape character and visual amenity of the area due to the new metro station and the associated accessibility and placemaking outcomes. These improvements would also result in social benefits associated with increased accessibility to jobs, education and services and improved amenity, and some opportunities for local businesses such as increased passing trade.

The majority of intersections around Sydney Olympic Park metro station are anticipated to operate at the same level of service both with and without this proposal, however the potential for increased delays are forecast at some nearby intersections during the PM peak due to the anticipated kiss and ride trips.

Potential impacts associated with other environmental matters such as operational noise and vibration, non-Aboriginal heritage, groundwater, flooding, social and business would comply with the relevant criteria and/or be minor to negligible.

Construction

Major civil construction work including station excavation and tunnelling work at Sydney Olympic Park was assessed and approved under a previous Sydney Metro West planning application and does not form part of this proposal. This proposal includes the construction activities required to complete Sydney Olympic Park metro station, and associated precinct work required for the operation of Sydney Metro West.

Construction of Sydney Olympic Park metro station would require the continued use of the construction site established under the previous Sydney Metro West planning application. A minor area of additional footprint would be required for this proposal located near the Olympic Boulevard / Figtree Drive intersection to support the development of public domain. The proposed work is expected to have a total duration of about four years.

For the majority of construction there would be little change to the surrounding transport network. For example, existing pedestrian and cycle routes surrounding the Sydney Olympic Park metro station construction site would be maintained. Some sections of footpaths may require short-term closures, which may result in some minor additional travel times for pedestrians. Appropriate temporary diversions would be established to safely guide pedestrians around work zones.

During major events, key pedestrian thoroughfares would fall within the immediate vicinity of the Sydney Olympic Park metro station construction site, with the potential for conflicting desire lines between pedestrians and construction vehicles. These potential impacts would require mitigation measures or restrictions that would be determined in consultation with relevant agencies.

The M4 Western Motorway ramps / Hill Road intersection would see a temporary decline in performance during construction. Other nearby intersections would generally perform at the same level of service with or without construction traffic or operate with spare capacity with the addition of construction traffic. Potential impacts would be managed in accordance with the measures in Sydney Metro's CTMF.

Noise levels at most receivers are predicted to comply with the noise management levels. Some intermittent moderate and high impacts would occur during a worst-case situation at the closest commercial and education receivers during the use of concrete saws. There would be periods when construction noise levels are much lower than the worst-case levels predicted and there would be times when no equipment is in use and no impacts occur. Low impacts are predicted at two residential receivers during the night. No sleep disturbance impacts are predicted. The Sydney Metro CNVS would be implemented to manage these temporary impacts.

Some additional vegetation clearing would be required within the additional footprint required for this proposal; however, vegetation removal would be limited to planted landscaping species, resulting in limited potential impacts to biodiversity.

Other key potential impacts during construction would include:

- temporary minor impacts to landscape character and visual amenity due to continued presence of construction work
- temporary low social impacts due to construction-related disruptions and potential amenity impacts
- temporary slight negative impacts to local businesses, mainly associated with changed traffic conditions and potential amenity impacts.

Potential impacts associated with other issues such as non-Aboriginal heritage, Aboriginal heritage, contamination, groundwater and flooding would be minor to negligible.

These impacts would be managed through the implementation of the Sydney Metro management frameworks and standard mitigation measures including the CEMF, OCCS, CTMF and CNVS.

North Strathfield metro station

North Strathfield metro station would be located immediately adjacent to the existing North Strathfield Station and would provide direct interchange with the T9 Northern Line.

The metro station would be located parallel and to the west of Queen Street, bounded to the north by Pomeroy Street, to the east by Queen Street, and to the south by the existing North Strathfield Station entry.

North Strathfield metro station would provide customers travelling on the busy T9 Northern Line with an attractive interchange option to access key centres, as well providing access to new centres.

The area surrounding North Strathfield is characterised by single storey detached residential properties and low-rise residential apartments, townhouse buildings and a mix of schools and commercial uses. The North Strathfield local centre is located nearby on the opposite side of Queen Street, with retail and offices at street level and some residences above.

Operation

The vision for North Strathfield metro station and its surrounds is for a high amenity living precinct, well connected to Sydney's key employment and leisure destinations.

North Strathfield metro station would provide a direct interchange between Sydney Metro and Sydney Trains services. Entrances located off Queen Street would provide customers with access to the Sydney Trains and Sydney Metro platforms.

A new pedestrian footbridge would also be provided (to the north of the existing station building) to provide an interchange connection between Sydney Metro and Sydney Trains services and connect to a new station entry from the west via Pomeroy Street. The existing footbridge that connects Queen Street, the Sydney Trains station platforms, and the public footpath access to the west of the station (between Pomeroy Street and Hamilton Street East), would also provide a connection to the metro station. The existing footbridge may also require upgrades/replacement including the potential widening of the footbridge to provide improved interchange capacity (to be further investigated subject to detailed design and further stakeholder consultation).

North Strathfield metro station would support the local centre at North Strathfield, providing activation through enhanced access and connections. The station would also support several of the priorities and initiatives outlined by the City of Canada Bay Council.

When operational, North Strathfield metro station would provide legible, safe and intuitive station access to the east and west of the existing rail corridor, including connectivity to the Bakehouse Quarter and to Powells Creek open space. It would deliver new public domain enhancements to Queen Street and support the development of the proposed local centre.

A number of changes would be made to the local transport network to facilitate integration of the metro station, including a new low-speed environment on Queen Street to prioritise pedestrians, new kiss and ride and bus zones, and upgrades to a number of surrounding intersections.

During operation, there is generally expected to be a noticeable improvement to the character and visual amenity of the area due to the new metro station, and the associated accessibility and placemaking outcomes. However, from some viewpoints there may be a reduction in visual amenity due to the scale of the metro infrastructure and changes to the existing North Strathfield Station. The design of the station would be consistent with the principles and outcomes presented in the Design Guidelines developed for Sydney Metro West, including place-specific design principles that respond to contextual factors (refer to Appendix E (Design Guidelines)).

The accessibility and placemaking improvements would also result in social benefits associated with increased access to jobs, education and services and improved amenity, and some opportunities for local businesses such as increased passing trade and improved accessibility.

Key potential impacts anticipated during operation of North Strathfield metro station include:

- the majority of intersections around North Strathfield metro station would operate at satisfactory levels, although there would be some minor increased delays at the Pomeroy Street / Queen Street / Beronga Street intersection due to proposed modifications to accommodate pedestrian and bus movements
- the presence of new metro station infrastructure and interchange facilities with the existing station would change the setting of the local heritage listed station. This impact is anticipated to be minor and would be managed through the Design Guidelines and design quality processes so that the new built elements are sympathetic to the heritage significance of the existing station.

Potential impacts associated with other environmental matters such as operational noise and vibration, Aboriginal heritage, groundwater, flooding, social and business impacts would comply with the relevant criteria and/or be minor to negligible.

Construction

Major civil construction including station excavation and tunnelling work at North Strathfield was assessed and approved under a previous Sydney Metro West planning application and does not form part of this proposal. This proposal includes the construction activities required to complete Westmead metro station and associated precinct work required for the operation of Sydney Metro West.

Construction of North Strathfield metro station would require the continued use of two construction sites on the eastern side of the existing rail corridor established as part of the work carried out under the previous Sydney Metro West planning application. Additional areas within the existing rail corridor would also be required to support construction of this proposal. The work for this proposal is expected to have a total duration of about four years.

Construction transport impacts would generally be a continuation of those from the work carried out under the previous Sydney Metro West planning application, including the closure of the footpath and removal of parking along the western side of Queen Street. In addition, parking along the eastern side of Queen Street would also be removed to maintain two-way traffic flow along this road. Opportunities to mitigate on-street parking impacts would be explored in consultation with the City of Canada Bay Council during construction planning. Access to the pedestrian footbridge on the southern end of the existing North Strathfield Station would be maintained during construction. Nearby intersections would generally perform at the same level of service with or without construction traffic or operate with spare capacity with the addition of construction traffic.

Construction work required within the rail corridor at and around North Strathfield Station would primarily be carried out during scheduled Sydney Trains rail possessions. Rail replacement bus services, which operate during rail possessions, would be provided.

There would be potential temporary noise and vibration impacts associated with worst-case scenario aboveground construction activities. During the daytime, noise impacts are predicted to be 'low' to 'moderate' when work would be carried out outside the station, particularly when noise-intensive equipment such as concrete saws is being used. During the night-time, outdoor work during rail possessions is predicted to result in 'low' to 'moderate' noise impacts at the nearest residential receivers. These impacts would occur over isolated weekend periods. High sleep disturbance impacts are predicted at one residential receiver with 'moderate' impacts predicted at several other nearby residential receivers during the rail possession work. There would be periods when construction noise levels are much lower than the worst-case levels predicted and there would be times when no equipment is in use and no impacts occur. The Sydney Metro CNVS would be implemented to manage temporary impacts and further investigation of minimising sleep disturbance would be completed as detailed construction planning information becomes available.

Construction activities occurring within and around the existing local heritage listed North Strathfield Station would result in moderate temporary impacts to the setting of the item. The presence of construction work and disruptions to the local area are also expected to result in moderate impacts to landscape character and visual amenity, medium social impacts and slight negative impacts to local businesses.

Some minor additional vegetation clearing would be required, mainly within the existing rail corridor. This vegetation is comprised of planted street trees and naturally propagated native and exotic species, and there would be minimal biodiversity impacts.

Potential impacts associated with other environmental matters such as Aboriginal heritage, contamination, groundwater and flooding would be minor to negligible.

These impacts would be managed through the implementation of the Sydney Metro management frameworks and standard mitigation measures including the CEMF, OCCS, CTMF and CNVS.

Burwood North Station

Burwood North Station would be located around the intersection of Parramatta Road and Burwood Road across two sites. The Burwood North Station northern site would be located between Burwood Road and Loftus Street on the northern side of Parramatta Road and the Burwood North Station southern site would be located between Burwood Road and Esher Lane on the southern side of Parramatta Road.

The Burwood North Station precinct is characterised by a variety of retail, commercial, light industrial, low- and medium-density development and open space uses. Concord Oval, located on the corner of Loftus Street and Parramatta Road, is an important regional sporting facility and is in the process of being redeveloped into a state-of-the-art sporting, recreation and community facility. The Burwood Strategic Centre is developed around the existing Burwood Station (to the south of Burwood North), with the Burwood shopping precinct located nearby.

Burwood North Station would support educational precincts, sporting and recreational facilities, new residential housing and employment growth in the surrounding catchment.

Operation

The vision for the Burwood North Station and its surrounds is for a well-designed high-density living and employment precinct, centred on the enhanced spines of Parramatta Road and Burwood Road, providing a second mass transit node for the Burwood Strategic Centre.

Customers would access the metro station via two entrances on Burwood Road, one to the north and one to the south of Parramatta Road. The two entrances would be connected via an unpaid pedestrian link below Parramatta Road, which would be open to the public during station operating hours. When operational, Burwood North Station would facilitate activation and urban renewal around the station and Parramatta Road corridor, consistent with the *Parramatta Road Corridor Urban Transformation Strategy* (NSW Government, 2016a) and *City of Canada Bay Local Strategic Planning Statement* (City of Canada Bay Council, 2020). Burwood North Station would also support the development of Burwood as a dual-node centre with activity between the metro station and the existing Burwood Strategic Centre. It would improve amenity north and south of the Parramatta Road and would be a catalyst for positive change.

The proposal would also have a positive impact on the local road network due to the expected mode shift from private vehicle trips to public transport. Changes to the local transport network to facilitate integration of the metro station would include new kiss and ride and bus zones and an upgrade to the Burton Street / Burwood Road intersection. There would be some parking loss associated with these changes. The majority of intersections around Burwood North Station would operate at satisfactory levels and similar to existing conditions.

This proposal would generally improve the character and visual amenity of the area due to the new metro station and the associated accessibility and placemaking outcomes. These improvements would also result in social benefits associated with increased accessibility to jobs, education and services and improved amenity, and some opportunities for local businesses such as increased passing trade and improved accessibility.

Key potential impacts anticipated during operation of Burwood North Station include:

- operational noise from the station is generally predicted to comply with the applicable criteria at nearby receivers. However, a minor exceedance is predicted at the closest residential receivers to the north of the station. The detailed design process would consider further design solutions and measures to reduce the noise levels so that compliance with the applicable noise criteria is achieved. Based on the anticipated land use changes in this area, it is expected that these buildings could be redeveloped in the near future, in which case compliance would be achieved by incorporating feasible and reasonable measures as part of the redevelopment
- the height of the southern station building would result in the potential to cast a longer shadow in areas to the west, south and east of the station building during mid-winter. However, the total separation between the southern station building and adjacent residences would be consistent with setback standards identified in the State Environmental Planning Policy No 65 – Design Quality of Residential Apartment Development
- the new southern station entry building may result in some minor visual and setting impacts to the local heritage listed Bath Arms Hotel located across Burwood Road. The new metro station entry could visually compete with this item and its prominent corner location. The design of the station would be consistent with the principles and outcomes presented in the Design Guidelines developed for Sydney Metro West, including place-specific design principles that respond to contextual factors (refer to Appendix E (Design Guidelines)).

Potential impacts associated with other environmental matters such as Aboriginal heritage, groundwater, flooding, social and business would comply with the relevant criteria and/or be minor to negligible.

Construction

Major civil construction including station excavation and tunnelling work at Burwood North was assessed and approved under a previous Sydney Metro West planning application and does not form part of this proposal. This proposal includes the construction activities required to complete Burwood North Station, and associated precinct work required for the operation of Sydney Metro West.

Construction would require the continued use of the two construction sites which would have been established under the previous Sydney Metro West planning application. The proposed work is expected to have a total duration of about four years.

Construction transport arrangements would largely be a continuation of those established under the previous Sydney Metro West planning application, including loss of parking on adjacent streets. Modelled intersection performance during construction of this proposal indicates that all intersections would perform at the same level of service with or without construction traffic.

During the worst-case scenario, daytime activities, noise impacts are predicted to be 'moderate' and 'high' when work would be carried out outside the station, particularly when noise-intensive equipment such as concrete saws are being used. Appropriate respite would be provided to affected receivers in accordance with the CNVS.

During the worst-case night-time scenario, 'moderate' to 'low' noise impacts are generally predicted at the nearest residential receivers. More distant receivers are predicted to have 'low' noise impacts or comply with the noise management levels. 'Moderate' sleep disturbance impacts are predicted at the nearest residential receivers. These impacts would mainly result from heavy vehicles accessing the site via Burton Street and movements within the site. There would be periods when construction noise levels are much lower than the worst-case levels predicted and there would be times when no equipment is in use and no impacts occur. The Sydney Metro CNVS would be implemented to manage these temporary impacts and further investigation of minimising sleep disturbance would be completed as detailed construction planning information becomes available.

Some planted street trees would be removed on Loftus Street, Burton Street and Burwood Road to facilitate continued construction vehicle access and egress following construction of the station box. The biodiversity impact of this vegetation removal and vegetation removed by the previous Sydney Metro West planning application would be minimal. The combination of trees removed by this proposal and the previous Sydney Metro West planning applications would be replaced to provide a net increase in the number of mature trees at a ratio of 2:1 across the entire Sydney Metro West project.

Other key potential impacts during construction would include:

- temporary minor to moderate impacts to landscape character and visual amenity due to the scale and extent of the construction work
- temporary medium social impacts due to construction-related disruptions and potential amenity impacts
- temporary slight negative impacts to local businesses, mainly associated with changed traffic conditions and potential amenity impacts.

Potential impacts associated with other environmental matters such as non-Aboriginal heritage, Aboriginal heritage, contamination, groundwater and flooding would be minor to negligible.

These impacts would be managed through the implementation of the Sydney Metro management frameworks and standard mitigation measures including the CEMF, OCCS, CTMF and CNVS.

Five Dock Station

Five Dock Station would be located in Five Dock town centre, off Great North Road. The Five Dock Station western site would provide the station entry and would be located between Great North Road and East Street, to the north of Fred Kelly Place and south of St Alban's Anglican Church. The Five Dock Station eastern site would provide station services and would be located on the corner of Second Avenue and Waterview Street.

The Five Dock Station precinct is characterised by its vibrant town centre, which includes a mix of commercial, retail, community, residential and civic open space uses. Fred Kelly Place is a focal point of the community. The town centre is surrounded by low-rise detached residential properties, apartments and townhouse buildings together with a mix of schools, including the Five Dock Public School. Great North Road is the primary north-south spine through the locality leading from Parramatta Road to the peninsula suburbs of Abbotsford and Drummoyne.

The *City of Canada Bay Local Strategic Planning Statement* (City of Canada Bay Council, 2020) highlights Five Dock Station as supporting development of the local centre focused on Great North Road and building on existing qualities. Priorities include expanding the range of services and employment opportunities and encouraging evening activities and the night-time economy. Key actions include implementing the expansion of Fred Kelly Place and encouraging a diversity of dwellings within the vicinity of the Five Dock town centre. The planning statement also advocates for walking and cycling connections to be integrated with new metro stations. Five Dock Station would also support the local village centre and placemaking outcomes presented in the *Five Dock Town Centre Urban Design Study* (City of Canada Bay Council, 2013) by providing rail services to the area for the first time. The station also offers opportunity for a new bus interchange.

Operation

The vision for the Five Dock Station and its surrounds is to deliver a station precinct development that contributes to the character and identity of Five Dock as a revitalised, diverse and vibrant local centre, well connected to all transport modes.

The station entry would be from the northern edge of Fred Kelly Place, which would be extended to the north as part of this proposal.

When operational, Five Dock Station would support an enhanced Fred Kelly Place, in consideration of the principles outlined in the *Five Dock Town Centre Urban Design Study* (City of Canada Bay Council, 2013). It would facilitate improved public and active transport accessibility for the community by providing efficient access and interchange, and respect and contribute to the local character and amenity of the Five Dock town centre. It would promote connectivity to and from the station through streets, lanes and public places.

A number of improvements would be made to the local transport network to facilitate integration of the metro station including new kiss and ride zones in surrounding streets and additional bus stops on Great North Road. There would be some parking loss associated with these changes. The proposed road network changes would have a minor impact on intersection performance with surrounding intersections continuing to perform satisfactorily.

During operation, there is generally expected to be improvements to the character and visual amenity of the area due to the new metro station, and the associated accessibility and placemaking outcomes. This includes potential improvements to the setting of the adjacent local heritage listed St Alban's Anglican Church by setting back the adjacent station entry building. The accessibility and placemaking improvements would also result in social benefits associated with increased access to jobs, education and services and improved amenity, and provide some opportunities for local businesses.

Potential impacts during the operation of Five Dock Station include:

- operation of this proposal is generally expected to result in beneficial visual impacts due to improvements in public domain and the streetscape. However, there would be minor to moderate adverse visual impact to views toward the station services building on the eastern site, which would be of a larger scale than former low-rise residential buildings in this location. There would be some compatibility in terms of massing between the new services building and the adjacent medium-density residential building. The design of the building would be consistent with the principles and outcomes presented in the Design Guidelines developed for Sydney Metro West, including place-specific design principles that respond to contextual factors (refer to Appendix E (Design Guidelines)).

Potential impacts associated with other environmental matters such as operational noise and vibration, non-Aboriginal heritage, groundwater, flooding, social and business would comply with the relevant criteria and/or be minor to negligible.

Construction

Major civil construction including station excavation and tunnelling work at Five Dock was assessed and approved under a previous Sydney Metro West planning application and does not form part of this proposal. This proposal includes the construction activities required to complete Five Dock Station, and associated precinct work required for the operation of Sydney Metro West.

Construction would require the continued use of the two construction sites established under the previous Sydney Metro West planning application. The proposed work is expected to have a total duration of about four years.

Construction transport arrangements would largely be a continuation of those established under the previous Sydney Metro West planning application, including the temporary conversion of parts of Waterview Street and Second Avenue to one-way operation and loss of parking on adjacent streets (some of which would be permanently removed). Existing pedestrian and cycle routes surrounding Five Dock Station would generally be maintained throughout construction. The Parramatta Road / Great North Road, Great North Road / Queens Road / Fairlight Street, and Great North Road / Ramsay Road / First Avenue intersections would see temporary declines in performance during construction, due to the additional construction vehicles on the road network. Construction transport impacts would be managed in accordance with the CTMF. Construction site traffic generated at the Five Dock Station construction sites would be managed to minimise movements during church services times at St Alban's Anglican Church.

During worst-case situation daytime activities, temporary construction noise impacts are predicted to be 'moderate' to 'high' when work would be undertaken outside the station, particularly when noise-intensive equipment such as concrete saws are being used. During the worst-case night-time period, 'moderate' to 'high' noise impacts are generally predicted at the nearest residential receivers during external fit-out activities, such as during the installation of cladding. More distant receivers are predicted to have 'low' noise impacts or comply with the noise management levels. Moderate sleep disturbance impacts are also predicted at the closest residential receivers. There would be periods when construction noise levels are much lower than the worst-case levels predicted and there would be times when no equipment is in use and no impacts occur. The Sydney Metro CNVS would be implemented to manage these temporary impacts and further investigation of minimising sleep disturbance would be completed as detailed construction planning information becomes available.

Other key potential impacts during construction would include:

- temporary minor to moderate impacts to landscape character and visual amenity due to the scale and extent of the construction work
- temporary medium social impacts due to construction-related disruptions and potential amenity impacts
- temporary slight to moderate negative impacts to local businesses, mainly associated with changed traffic conditions and potential amenity impacts.

Potential impacts associated with other environmental matters such as non-Aboriginal heritage, Aboriginal heritage, contamination, groundwater, flooding and biodiversity would be minor to negligible.

These impacts would be managed through the implementation of the Sydney Metro management frameworks and standard mitigation measures including the CEMF, OCCS, CTMF and CNVS.

The Bays Station

The Bays Station would be located at White Bay between Glebe Island and the former White Bay Power Station. The station would have direct access to the future Bays Waterfront Promenade, which would run north-south along White Bay. Port Access Road, Sommersville Road and Solomons Way provide access to the White Bay Cruise Terminal and other port operations located in the Glebe Island and White Bay destinations.

The Bays Station precinct is framed by the residential suburbs of Rozelle, Balmain and Balmain East, located to the north and west. There are several significant landmarks in proximity including the former White Bay Power Station, the Glebe Island Silos, and Anzac Bridge. Land use near the proposed site is largely maritime-related commercial and industrial. The land within The Bays has been identified as a State Significant Precinct and Growth Centre by the NSW Government. The Bays Station would support the renewal and development of The Bays and provide access to the established areas of Balmain and Rozelle.

The Bays Station is located within Bays West as defined in the *Bays West Place Strategy* (NSW Department of Planning, Industry and Environment, 2021a), a part of The Bays that includes White Bay, the former White Bay Power Station, Glebe Island, Rozelle Bay and Rozelle Rail Yards. Bays West is subject to a collaborative planning approach led by the NSW Department of Planning and Environment. Sydney Metro would work with stakeholders to support the planned growth at The Bays.

Sydney Metro has developed a precinct plan to inform the concept design for the station precinct in consultation with the NSW Department of Planning and Environment. The Bays Station precinct, including the provision for adjacent station development and public domain, would be subject to the Bays West Place Strategy and associated Bays West Urban Design Framework and sub-precinct master plans for the White Bay Power Station (and Metro) and Robert Street sub-precincts. The preparation of the Bays West Urban Design Framework and sub-precinct master plans are being led by the NSW Department of Planning and Environment to inform the initial rezoning for Bays West, and would be subject to separate planning process.

Operation

The vision for The Bays Station and its surrounds is for a new mixed use innovation precinct including employment, civic, retail and residential activities in a high amenity harbour-side setting.

Customers would access the station via an entrance to the south of White Bay, near the future Bays Waterfront Promenade. When operational, The Bays Station would support the establishment of The Bays Precinct by facilitating a well-designed, high-quality station, public domain and development, and by substantially improving transport connectivity to the precinct. It would provide unimpeded access to White Bay foreshore from the station, reorientating the precinct towards the foreshore. It would also connect the Rozelle Parklands with the White Bay foreshore, as well as east-west access from Rozelle and Balmain through the site toward the Anzac Bridge and Pyrmont. Sydney Metro will continue to work with the NSW Department of Planning and Environment to integrate The Bays Station with the Bays West Place Strategy and the master planning being undertaken for this area.

New cycling, pedestrian, public transport facilities and a new road network would substantially enhance accessibility and connectivity to the area. This would include active transport links through the new precinct and connecting to Rozelle Parklands to the Anzac Bridge and through to the future reinstated Glebe Island Bridge (delivered by others). Vehicle access into the precinct would be managed through a new signalised intersection on Robert Street and provision of a new street around the precinct. Cruise passenger and ports traffic would be maintained via the new precinct street with access to James Craig Drive.

This proposal would improve the character and visual amenity of the area due to the new metro station and the associated accessibility and placemaking outcomes. The accessibility and placemaking improvements would also result in social benefits associated with increased accessibility to jobs, education and services and improved amenity, and provide some opportunities for local businesses.

The provision of trunk drainage infrastructure between Robert Street and White Bay, adjacent to the White Bay Power Station would help to manage flood levels adjacent to the site to reduce impacts and manage site access during flooding. With the implementation of flooding mitigation measures, this infrastructure would not cause any permanent local nuisance flooding or drainage issue.

Key potential impacts anticipated during operation of The Bays Station include:

- the design of the station and precinct has considered the important view corridors to and from the State heritage listed former White Bay Power Station. There would, however, be some minor direct and moderate indirect impacts to the former White Bay Power Station mainly associated with the new traction substation located to the south. The design and scale of the traction substation would be further considered as part of ongoing design to minimise these impacts
- the new Robert Street / new precinct street intersection would result in the loss of parking spaces along Robert Street and would be at the existing access to 48-50 Robert Street. Further investigation, including a safety assessment, would be carried out so that safe access is maintained to 48-50 Robert Street
- potential flooding impacts at the station as the proposed station entry surface levels are below the flood protection level and would require active protection measures.

Potential impacts associated with other environmental matters such as operational noise and vibration, groundwater, social and business would comply with the relevant criteria and/or be minor to negligible.

Construction

Major civil construction including station excavation and tunnelling work at The Bays was assessed under previous Sydney Metro West planning applications and does not form part of this proposal. This proposal includes the construction activities required to complete The Bays Station, and associated precinct work required for the operation of Sydney Metro West.

Construction of The Bays Station would require the continued use of the construction site established under the previous Sydney Metro West planning applications. Some additional areas to the north and south of the former White Bay Power Station would also be required to support utility and drainage work, road work, traction substation construction, and station precinct and public domain work. The proposed work is expected to have a total duration of about four years.

Due to the location of the construction site and the restricted public access, potential temporary construction transport impacts would be limited. Some parking spaces on Robert Street would be temporarily impacted during road and intersection upgrade works. Parking spaces along Robert Street would also be permanently removed once the new intersection is operational. Construction transport impacts would be managed in accordance with the CTMF.

'Moderate' to 'high' temporary construction noise impacts are predicted at a small number of the commercial and industrial receivers during a worst-case situation, particularly when noise-intensive equipment is in use. There would be periods when construction noise levels are much lower than the worst-case levels predicted and there would be times when no equipment is in use and no impacts occur. 'Low' construction noise impacts are generally predicted at the nearest residential receivers, apart from short periods when noise-intensive works may be carried out near the boundary of the site. 'Low' sleep disturbance impacts are predicted at the nearest residential receivers north of the site as a result of heavy vehicle movements. The Sydney Metro CNVS would be implemented to manage these temporary impacts and further investigation of minimising sleep disturbance would be completed during detailed construction planning when further information becomes available.

Construction activities would be located within the heritage curtilage of the State heritage listed former White Bay Power Station. Construction of the traction substation would require excavation within the heritage curtilage and would result in the alteration of the yard area (part of areas assessed as having little to moderate heritage significance within the *White Bay Power Station Conservation Management Plan*), however no built fabric of the item would be directly impacted by these works. Excavation work for new drainage infrastructure to the north of the former White Bay Power Station may directly impact part of the Inlet Canal. Further work would be undertaken to confirm the depth of the Inlet Canal and the likelihood for direct impacts. Impacts on all other important heritage items in the vicinity of The Bays Station construction site would be neutral or negligible.

Works to grade and level the site for the traction substation would remove all archaeological remains related to the first White Bay Hotel; however, these remains have a low likelihood of being present and would be of local heritage significance. This would be managed under an Archaeological Research Design and Excavation Methodology prepared for this proposal.

Some additional vegetation clearing would be required in the additional footprint area to the south and north of the former White Bay Power Station. This vegetation is comprised of landscaped and regenerated exotic and native species. The removal of this vegetation would have minimal biodiversity impacts.

Other key potential impacts during construction would include:

- temporary medium social impacts due to construction-related disruptions and potential amenity impacts, noting the site is largely located in a non-residential area
- temporary slight to moderate negative impacts to local businesses, mainly associated with changed traffic conditions and potential amenity impacts.

Potential impacts associated with other environmental matters such as landscape and visual impacts, Aboriginal heritage, contamination, groundwater and flooding would be minor to negligible.

These impacts would be managed through the implementation of the Sydney Metro management frameworks and standard mitigation measures including the CEMF, OCCS, CTMF and CNVS.

Pymont Station

Pymont Station would be located at the centre of the Pymont peninsula, across a western and eastern site. The Pymont Station western site would be located between Paternoster Row and Pymont Street, immediately north of Pymont Bridge Road, and the Pymont Station eastern site would be located between Edward Street, Union Street and Pymont Bridge Road. Entrances would be located on Pymont Bridge Road at the western site, and Union Street at the eastern site.

The area surrounding the Pymont Station western site includes low- and medium-rise character terrace buildings, former warehouse buildings and local hotels at prominent corner sites. There are some remnant buildings that exhibit a heritage character. The Pymont Station eastern site is located near The Star Sydney, a casino that is subject to a proposed redevelopment application. There are also several heritage buildings in the vicinity of this site.

Pymont Station would be located on the western fringe of the Sydney CBD, containing commercial, residential and retail development, and extensive foreshore areas with parks and waterside boardwalks. The precinct has been identified for collaborative planning between the NSW Government and the City of Sydney Council, with the intention of 'facilitating an economic and jobs hub' and a 'gateway to the CBD' (City of Sydney, 2020).

The station would support the aims of the *Pymont Peninsula Place Strategy* (NSW Department of Planning, Industry and Environment, 2020b), which includes a transition to a place where people walk and use public transport to connect to other places. The station would also support existing and proposed residential, employment, tourism, and entertainment land use in the area.

Operation

The vision for the Pymont Station and its surrounds is for a new harbour-side precinct enabled by the metro station, focused on knowledge-intensive employment and supported by public domain, retail and residential activities.

Customers would be able to access the station via two entrances, one on Union Street and one on Pymont Bridge Road.

Pymont Station would support the precinct's role as a significant employment and entertainment destination and urban renewal area connected to the Sydney CBD, The Bays Precinct and Western Sydney. It would provide a direct rail service to Pymont to support a catchment not currently serviced by the Sydney Trains network. It would also facilitate efficient interchange with bus and light rail and enable comfortable and safe connections for pedestrians and cyclists, including on Union Street, Pymont Street and Pymont Bridge Road. It would provide a high-quality public domain contributing to the streetscape, complementing the surrounding context and heritage character.

The existing transport network, such as the separate cycle path on Union Street and the shared zone on Paternoster Row, would provide good access to the station.

The Pymont Station western site would be located within the Pymont Heritage Conservation Area. Overall, impacts on the heritage conservation area would be localised to the immediate streetscapes rather than the whole heritage conservation area, which expands over about five hectares of the Pymont area. All other potential impacts on important heritage features would be neutral or negligible.

This proposal would improve the character and visual amenity of the area due to the new metro station and the associated accessibility and placemaking outcomes. These improvements would also result in social benefits associated with increased accessibility to jobs, education and services and improved amenity, and provide some opportunities for local businesses such as increased passing trade and improved accessibility.

Key potential impacts anticipated during operation of Pyrmont Station include:

- while the majority of intersections around the station are expected to operate with capacity or improve with the station, there is forecast to be a reduction in performance at the Pyrmont Bridge Road and Union Street intersection due to high pedestrian demands at the zebra crossing. Sydney Metro is investigating potential measures to improve overall performance for both pedestrians and vehicles at this intersection in consultation with the City of Sydney Council and Transport for NSW
- the proposal would generally comply with all relevant noise and vibration criteria; however, there would be minor non-compliances of the amenity target criteria during the night-time. These noise levels comply with the amenity acceptance criteria that is considered appropriate in this location. Attenuation measures would be further developed throughout the detailed design phase
- potential flooding impacts at the station as the proposed station entry surface levels are below the flood protection level and would require active protection measures.

Potential impacts associated with other environmental matters such as Aboriginal heritage, groundwater, social and business would comply with the relevant criteria and/or be minor to negligible.

Construction

Major civil construction including station excavation and tunnelling work at Pyrmont was assessed under a previous Sydney Metro West planning application and does not form part of this proposal. This proposal includes the construction activities required to complete Pyrmont Station, and associated precinct work required for the operation of Sydney Metro West.

Construction of Pyrmont Station would require the continued use of the two construction sites established under the previous Sydney Metro West planning application. The proposed work is expected to have a total duration of about four years.

Construction transport arrangements would largely be a continuation of those established under the previous Sydney Metro West planning application, including temporary closure of the footpath and loss of parking along the southern side of Union Street between Edward Street and Pyrmont Bridge Road.

The performance of some intersections around the site would temporarily decline during peak periods due to the construction works and vehicles, including at Pyrmont Bridge Road / Union Street, Union Street / Pyrmont Street and Harris Street / Allen Street. Potential construction traffic impacts would be managed in accordance with the measures in the CTMF.

'Moderate' to 'high' noise impacts are predicted at the nearest residential receivers during a worst-case situation, particularly surrounding the western construction site. 'Moderate' sleep disturbance impacts are predicted during a worst-case situation at a small number of nearby residential receivers during external fit-out activities, such as during the installation of cladding. The number of potential sleep disturbance impacts would depend on several factors, including the type of equipment being used and the duration of noisy work. There would be periods when construction noise levels are much lower than the worst-case levels predicted and there would be times when no equipment is in use and no impacts occur. The Sydney Metro CNVS would be implemented to manage these temporary impacts and further investigation of minimising sleep disturbance would be completed as detailed construction planning information becomes available.

The Pyrmont Station western construction site is located within the Pyrmont Heritage Conservation Area, surrounded by a high proportion of intact mid- to late-19th century terrace housing. Temporary structures and activities associated with construction would be visually prominent and would temporarily overshadow significant views of nearby terrace housing and worker's houses on Pyrmont Street and Paternoster Row. This would result in temporary minor indirect impacts to the conservation area.

Two planted London Plane street trees on Edward Street would be removed as part of this proposal which, combined with the trees removed as part of the previous Sydney Metro West planning application, would have negligible biodiversity impacts. The combination of trees removed by this proposal and the previous Sydney Metro West planning applications would be replaced to provide a net increase in the number of mature trees at a ratio of 2:1 across the entire Sydney Metro West project.

Other key potential impacts during construction would include:

- temporary minor to moderate impacts to landscape character and visual amenity associated with the continued presence of construction work
- temporary low social impacts due to construction-related disruptions and potential amenity impacts
- temporary slight to moderate negative impacts to local businesses, mainly associated with changed traffic conditions and potential amenity impacts.

Potential impacts associated with other environmental matters such as Aboriginal heritage, contamination, groundwater and flooding would be minor to negligible.

These impacts would be managed through the implementation of the Sydney Metro management frameworks and standard mitigation measures including the CEMF, OCCS, CTMF and CNVS.

Hunter Street Station (Sydney CBD)

The Hunter Street Station (Sydney CBD) precinct is situated in the heart of the Sydney CBD, near to the commercial core and is one of the busiest precincts of the Sydney CBD. The Hunter Street Station (Sydney CBD) western site would be located on the corner of Hunter Street and George Street and the Hunter Street Station (Sydney CBD) eastern site would be located adjacent to Richard Johnson Square at the corner of Hunter Street, O'Connell Street and Bligh Street.

The precinct surrounding Hunter Street Station (Sydney CBD) is characterised by a broad mix of uses including offices, retail, hotels, entertainment and night-life, as well as open space such as The Royal Botanic Garden, the Domain and Hyde Park. The precinct supports the largest office sub-market in Australia, favoured by financial, legal, property and technology services. It is well connected to Greater Sydney through the network of suburban train lines, light rail, buses and ferries.

Hunter Street Station (Sydney CBD) would provide direct access to the commercial core of the Sydney CBD. The metro station would also enable interchange with existing public transport networks, including Sydney Metro City & Southwest, the existing Sydney Trains suburban rail network, light rail and bus networks.

Operation

The vision for the Hunter Street Station (Sydney CBD) and its surrounds is for a landmark station that reinforces the commercial heart of the global Eastern Harbour City, unlocking public transport capacity and catalysing new economic opportunities with Greater Parramatta (the Central River City).

A western station entrance would be provided facing George Street, in proximity to the light rail stops, across from the George Street entrance to the existing Wynyard Station. Proposed north-south and east-west through site links would enable access to this entrance from the surrounding street network. An eastern station entrance would also be provided facing O'Connell Street with a through-site link enabling access to Bligh Street.

When operational, Hunter Street Station (Sydney CBD) would establish an integrated transport hub in the north of the Sydney CBD, strengthening Sydney's transport network and linking important destinations to deliver a more connected city. It would deliver a design that promotes active street frontages to support a vibrant public domain in the heart of the Sydney CBD and deliver a high-quality station entry to George Street, the CBD's north-south pedestrian boulevard.

The station precinct would include an unpaid underground connection to Wynyard Station, using an existing tunnel under George Street, and a paid underground connection to Sydney Metro City & Southwest Martin Place Station. This would improve public amenity, extend existing east-west connections between Barangaroo and Martin Place, and facilitate efficient transfer between Sydney Metro lines, the suburban rail network, and light rail, ferry and bus services. No changes to the road network are proposed and the future intersection performance for vehicles is anticipated to be similar with or without the metro station.

This proposal would improve the character and visual amenity of the area due to the new metro station and the associated accessibility and placemaking outcomes. These improvements would also result in social benefits associated with increased accessibility to jobs, education and services and improved amenity, and some opportunities for local businesses. The station is expected to support further business investment and growth within the Sydney CBD by providing greater connections between businesses, labour markets, customers and clients located within and near to the Sydney Metro corridor.

Key potential impacts anticipated during operation of Hunter Street Station (Sydney CBD) include:

- this proposal would generally comply with all relevant noise and vibration criteria; however, there would be minor non-compliances of the amenity target criteria for some receivers directly adjacent to the tunnel ventilation system during the daytime, evening and night-time. These noise levels comply with the amenity acceptance criteria that is considered appropriate in this location. Attenuation measures would be further developed throughout the detailed design phase

- as the majority of customers are anticipated to access and egress the metro station by walking, a short section of footpath along Hunter Street immediately west of Pitt Street would operate at level of service D (with potential conflicts, passing and speed restrictions for pedestrians). Sydney Metro would continue to investigate improvements to the surrounding pedestrian network, including the potential for minor footpath upgrades (such as localised footpath widening) on O'Connell Street, Hunter Street and at Richard Johnson Square with key stakeholders such as City of Sydney Council and Transport for NSW, in response to increased pedestrian demand associated with the metro station
- the Hunter Street Station (Sydney CBD) sites are in proximity to a number of significant State and local heritage items and contributory buildings. The State heritage listed former Skinners Family Hotel would be incorporated into the design of the western station entry; specifically, the station building would be designed to respond to the scale of the former Skinners Family Hotel to manage any potential impacts on the visual setting of this item. The station building has the potential to visually dominate the street which could result in a minor impact to the setting of this item. Potential impact to the setting of other nearby heritage items would be neutral or negligible
- potential flooding impacts at the station as the proposed station entry surface levels are below the flood protection level and would require active protection measures.

Potential impacts associated with other environmental matters such as Aboriginal heritage, groundwater, social and business would comply with the relevant criteria and/or be minor to negligible.

Construction

Major civil construction including station excavation and tunnelling work at Hunter Street (Sydney CBD) was assessed under a previous Sydney Metro West planning application and does not form part of this proposal. This proposal includes the construction activities required to complete Hunter Street Station (Sydney CBD), and associated precinct work required for the operation of Sydney Metro West.

Construction of Hunter Street Station (Sydney CBD) would require the continued use of the two construction sites which would be established under the previous Sydney Metro West planning application. The proposed work is expected to have a total duration of about four years.

Changes to the surrounding transport network during construction would be limited and would largely be a continuation of those established under the previous Sydney Metro West planning application. This includes the removal of some parking on roads fronting the construction sites.

The performance of some intersections around the site would temporarily decline due to construction works and vehicles. Several of these would still operate with spare capacity with the addition of construction traffic. Major temporary declines in performance are predicted at the Macquarie Street / Bent Street and Hunter Street / Macquarie Street intersections. Measures outlined in the CTMF would be implemented to minimise potential impacts to road network performance.

Noise levels at the majority of receivers are predicted to comply with the noise management levels. 'Moderate' impacts are predicted at a close hotel (The Comfort Hotel) receiver and 'low' impacts are predicted at three more distant hotels during a worst-case situation. No sleep disturbance impacts are predicted.

There are a number of important heritage items in proximity to this proposal, including the State heritage listed Tank Stream adjacent to the western site and the former Skinners Family Hotel which, would be retained and protected within the site. There would be no direct impacts to these items and potential indirect impacts (to the setting or from vibration) have generally been assessed as neutral or negligible.

Other key potential impacts during construction would include:

- temporary minor to moderate impacts to landscape character and visual amenity due to the continued presence of construction activity at the sites
- temporary medium social impacts due to construction-related disruptions and potential amenity impacts
- temporary slight to moderate negative impacts to local businesses, mainly associated with changed traffic conditions and potential amenity impacts.

Potential impacts associated with other environmental matters such as Aboriginal heritage, contamination, groundwater, flooding and biodiversity would be minor to negligible.

These impacts would be managed through the implementation of the Sydney Metro management frameworks and standard mitigation measures including the CEMF, OCCS, CTMF and CNVS.

Clyde stabling and maintenance facility and Rosehill services facility

Clyde stabling and maintenance facility would be located in the Clyde industrial area, to the north of the M4 Western Motorway and to the east of James Ruse Drive. Duck Creek sits north and east of the site. Rosehill services facility would be located to the north of Duck Creek and the stabling and maintenance facility, and south of Rosehill Gardens racecourse. Unwin Street is located to the north of the services facility and Shirley Street is located to the east.

In addition to the Rosehill Gardens racecourse, the area around Clyde stabling and maintenance facility and Rosehill services facility is generally made up of industrial uses. Local strategic planning strategies identify the area around Clyde stabling and maintenance facility and Rosehill services facility as continuing to provide its existing land use as key urban services. Design development for the Clyde stabling and maintenance facility and Rosehill services facility would consider integration with strategic planning for the precinct.

Operation

When operational, Clyde stabling and maintenance facility and Rosehill services facility would sit within, and would be compatible with, the surrounding industrial land use.

Opportunities for landscaping have been identified around the facility to provide improved visual amenity and tree canopy cover. While the facility is essentially to support operation of the rail line and would not support public access, it would still support key movement and place elements, including delivery of an active transport link within the former T6 Carlingford Line corridor (the 'Wilderline'), safeguarding the opportunity for future active transport corridors including adjacent to Duck River and Duck Creek, and landscaping around the site.

New permanent pedestrian access would also be provided to Rosehill Gardens racecourse from James Ruse Drive to replace the previous access over the former Rosehill Station footbridge (which would be removed as part of work under the previous Sydney Metro West planning application). This permanent access would likely be located to the north of the Sydney Metro West infrastructure, potentially through the formalisation of the temporary construction phase access point.

Localised rehabilitation of Duck Creek and A'Beckett's Creek would be carried out where they run through or adjacent to the Sydney Metro site. This would provide substantial ongoing biodiversity and public benefits.

Key potential impacts anticipated during operation of Clyde stabling and maintenance facility and Rosehill services facility are generally limited, for example:

- the Clyde stabling and maintenance facility and Rosehill services facility would result in minimal impacts on the surrounding road network
- predicted noise levels for the facilities and the section of aboveground track connecting to the mainline tunnels would be compliant with the applicable noise criteria at the nearest residential receivers. Ongoing consultation with Rosehill Gardens racecourse would continue to better understand how potential impacts from operational noise at nearby horse stables can be feasibly and reasonably managed
- any groundwater collected in the stations and ancillary infrastructure would be transferred to a permanent water treatment plant at Clyde stabling and maintenance facility prior to discharge to stormwater. The discharge water quality level would be determined in consultation with the NSW Environment Protection Authority during detailed design, taking into consideration the current water quality of the receiving watercourse
- due to the industrial setting of these facilities, visual, social and business impacts would generally be negligible to low.

Construction

Major civil construction including levelling of the site, tunnelling work, and the excavation of a services shaft and tunnel dive structure at Clyde and Rosehill was assessed and approved under a previous Sydney Metro West planning application and does not form part of this proposal. This proposal includes the construction activities required to complete the Clyde stabling and maintenance facility and Rosehill services facility ready for the operation of Sydney Metro West.

Construction activities at this site would require the continued use of much of the construction sites used under the previous Sydney Metro West planning application. The previous work at the site will have raised the stabling yard above the PMF level and diverted Kay and Unwin Street over the site. The proposed work for this proposal is expected to have a total duration of about four years.

Potential flood hazard to people and vehicles accessing the construction site would need to be managed as part of construction planning as the area surrounding the construction site is vulnerable to flooding. This would be through the continuation of arrangements in place as part of the previous Sydney Metro West planning application.

Construction impacts on traffic, parking, public transport, pedestrians and cyclists would be minimal, including during major events at Rosehill Gardens racecourse. The CTMF outlines mitigation measures to minimise potential impacts, including during special events.

'Low' temporary construction noise impacts are predicted at the nearest residential receivers during rail system access shaft construction, when material is being supplied through the tunnel portal of the outdoor dive structure. 'Low' temporary impacts are also predicted at one horse stable at Rosehill Gardens racecourse that is adjacent to a gap in the acoustic hoarding to allow for the realigned Unwin Street. Consultation with the owners and operators of the horse stables near the Clyde stabling and maintenance facility construction site would be carried out so that potential impacts to horses are appropriately managed. 'Low' temporary sleep disturbance impacts are predicted at some of the nearest residential receivers west of James Ruse Drive. The Sydney Metro CNVS would be implemented to manage these temporary impacts and further investigation of minimising sleep disturbance would be completed as detailed construction planning information becomes available.

With respect to vibration, the cosmetic damage screening criterion is predicted to be exceeded at the local heritage listed RTA depot façade located on Unwin Street. A more detailed assessment of the structure and attended vibration monitoring would be carried out so that vibration levels remain below appropriate limits for that structure.

Similar to the operational phase, potential visual, social and business impacts during construction would generally be negligible to low due to the industrial setting.

These impacts would be managed through the implementation of the Sydney Metro management frameworks and standard mitigation measures including the CEMF, OCCS, CTMF and CNVS.

Tunnels

Sydney Metro West includes about 24 kilometres of twin tunnels between Westmead and the Sydney CBD. The tunnel alignment traverses beneath a highly urbanised area with a mix of land uses, as well as several waterways.

Operation

Operational activities as part of this proposal would be largely confined to the underground operation of metro trains. Appropriate track form would be implemented so that ground-borne noise and vibration from the operation of metro trains in the tunnels would comply with the applicable criteria.

The tunnel alignment would be directly below and in close proximity to a number of heritage items, including some local, State, National, Commonwealth and World heritage items. Ground-borne vibration associated with the operation of this proposal is predicted to be well below cosmetic damage screening levels and human comfort vibration levels at all heritage items. As such, there would be no noise and vibration impacts on heritage items or conservation areas located above the tunnel alignment during operation of this proposal.

There is not anticipated to be any soils, groundwater or contamination impacts during operation of the tunnels. The influence of the tunnel on the overall groundwater levels and regional flow patterns are expected to be negligible as the tunnel would be tanked (to prevent the inflow of groundwater) as part of the work carried out under the previous Sydney Metro West planning applications.

Construction

Impacts of excavation of the tunnels have been assessed under the previous Sydney Metro West planning applications. Tunnel-related construction activities as part of this proposal would be limited to tunnel and rail systems fit-out. Fit-out of the tunnels would occur up to 24 hours per day and seven days per week. As these works would occur underground and are relatively minor in nature, potential impacts such as construction noise and vibration, and potential impacts to heritage items, would be negligible.

Proposal-wide benefits and impacts

Operation

When operational, the proposal-wide benefits would be substantial. In particular, this proposal would provide significant improvements to the public transport network capacity and efficiency, including new public transport interchange facilities at and around stations. It would improve reliability across the rail network by relieving congestion on the T1 Western, T9 Northern, and T2 Inner West railway lines. It is also expected to provide wider road network benefits by encouraging greater use of public transport.

The operation of this proposal would also support new residential and employment zones along the Greater Parramatta to Sydney CBD corridor, including at Sydney Olympic Park and The Bays – providing improved transport for the additional 420,000 new residents and 300,000 new workers forecast to be located within the corridor over the next 20 years.

Operation of this proposal would also provide regional social benefits, such as reduced travel stress, improved accessibility to jobs, education and social facilities, and potential health and wellbeing outcomes associated with improved active transport.

Sustainability initiatives and targets would drive outcomes towards achieving a minimum rating of 75 under the Infrastructure Sustainability Council (ISC Design and As-Built rating Tool version 1.2) or 5 Star Green Star Design and As-built rating (or equivalent), as per the Concept condition of approval C-B7. Climate change risks would be assessed throughout design development and risk treatments would be progressively incorporated as appropriate.

When operational, the estimated greenhouse gas emissions would be around 157,800 tonnes of carbon dioxide equivalent per year. Sydney Metro would offset 100 per cent of greenhouse gas emissions associated with electricity consumption during operation. While difficult to quantify and assess, this proposal would also have the real potential to improve regional air quality and reduce regional greenhouse gas emissions by providing a low greenhouse gas alternative to private vehicle travel.

Potential impacts associated with property, hydrology and water quality, air quality, waste management and resource use, and hazard and risk, would comply with the relevant criteria and/or be minor to negligible.

Construction

During construction, proposal-wide impacts would generally be minor. Impacts would primarily relate to local amenity issues and would be addressed by proven management and mitigation measures.

Construction of this proposal would provide regional social benefits such as enhanced wellbeing from job opportunities and community investment. Potential temporary medium social impacts due to construction-related disruptions and potential amenity impacts would be manageable with the implementation of mitigation measures.

Greenhouse gas emissions are anticipated to be generated during the construction phase due to the need for energy consuming activities associated with plant, equipment and vehicle movements. The total estimated construction emissions from this proposal are 359,193 tonnes of carbon dioxide equivalent per year. Measures would be implemented to manage emissions, and Sydney Metro would offset 25 per cent of Scope 1 and Scope 2 construction emissions associated with this proposal.

During the construction of this proposal, the introduction of additional heavy vehicles on the road network has the potential to result in safety impacts on pedestrians, cyclists and other road users. Sydney Metro have extensive experience in managing construction related traffic safety issues in busy pedestrian areas on other similar projects. There is also potential for on-street parking impacts resulting from construction workers parking on surrounding streets. Specific mitigation measures to address this would be developed by the relevant construction contractor(s) in consultation with local councils during detailed construction planning.

Potential impacts associated with property, sustainability, climate change risk, air quality, waste management and resource use, hazard and risk, hydrology and water quality would comply with the relevant criteria and/or be minor to negligible with the implementation of standard management and mitigation measures.

These impacts would be managed through the implementation of the Sydney Metro management frameworks and standard mitigation measures including the CEMF, OCCS, CTMF and CNVS.

Cumulative impacts

Operational stage cumulative impacts of this proposal would largely relate to the overall strategic benefits, including the identified city-shaping, transport and productivity benefits. These benefits would be substantial and could be enhanced as part of the future integrated transport network. For example, the operation of Parramatta Light Rail would extend the catchment of Sydney Metro West, providing enhanced transport benefits and land use outcomes. Cumulative landscape character and visual amenity benefits may also arise due to urban realm improvements, particularly at locations such as The Bays and Pyrmont.

During construction, key cumulative impacts of this proposal would primarily relate to the continuation of activities associated with the previous Sydney Metro West planning applications. However, the impacts associated with this proposal would be generally more confined and of a less intensive nature.

In some locations, construction work for this proposal could also overlap with or follow the construction of other major projects. Potential cumulative impacts have generally been assessed as being minor in nature and more likely to increase the duration of impacts rather than the magnitude. Coordination and consultation would be carried out with the proponents of other nearby major projects and with relevant stakeholders to appropriately manage cumulative impacts. This could involve adjustments to the program, work activities or haul routes of either Sydney Metro's work and/or those of other construction projects.

Management and mitigation

The overarching approach to environmental management includes measures incorporated in the design and construction approach to avoid or minimise impacts, environmental performance outcomes and mitigation measures.

Potential impacts would be adequately managed through the implementation of construction environmental management documentation (for construction phase impacts) and the specific performance outcomes and mitigation measures identified in this Environmental Impact Statement (for both construction and operation). This would include the use of the Sydney Metro CEMF, CNVS, CTMF and OCCS which set out the overall approach to environmental management. Earlier versions of these have been or are currently being successfully implemented on the Metro North West Line, Sydney Metro City & Southwest and Sydney Metro – Western Sydney Airport projects. Measures would also be incorporated in the design and construction planning to avoid and minimise impacts.

Sydney Metro will continue to work with key stakeholders (including local communities) so that they are informed about this proposal and have opportunities to provide feedback. Should this proposal be approved, Sydney Metro would also specifically consult with stakeholders to fulfil mitigation measures outlined in this Environmental Impact Statement.

Justification and conclusion

The approved Sydney Metro West Concept included consideration of the justification of Sydney Metro West as a whole in the *Sydney Metro West Environmental Impact Statement – Westmead to The Bays and Sydney CBD* (Sydney Metro, 2020a). This proposal is seeking planning approval to enable the Sydney Metro West Concept to be realised by carrying out the rail infrastructure, stations precincts and operations components of the Concept.

This Environmental Impact Statement has been prepared in accordance with the provisions of the *Environmental Planning and Assessment Act 1979*. In particular, it addresses the requirements of the Secretary of the NSW Department of Planning and Environment.

Key environmental issues have been examined throughout the design development process. Consultation has been carried out with affected stakeholders during the assessment process so that key potential impacts of this proposal have been identified at an early stage, and where possible, avoided or appropriate mitigation measures developed.

It is expected that a project of this scale, located in a heavily urbanised environment, would have some adverse impacts, particularly during construction. For construction, most impacts would relate to the continuation of impacts from work carried out under the previous Sydney Metro West planning applications. While this would result in consecutive impacts, these would be generally less intensive and would be manageable to an acceptable level. There would be some additional construction footprints required at several construction sites. These additional sites would be small and would not result in substantial impacts beyond those already assessed.

When operational, the benefits of Sydney Metro West would be substantial. In particular, it would provide substantial improvements to the public transport network capacity and efficiency, including new public transport interchange facilities at and around stations. Key potential impacts would relate to noise and vibration from the operation of trains in the tunnel and from the ongoing surface operations at Clyde stabling and maintenance facility. Measures incorporated in the track form and acoustic shielding would enable compliance with all relevant noise and vibration criteria. Other operational issues would relate to transport network and parking changes to integrate the new metro stations, water quality control and flooding. These impacts would be managed to an acceptable level.

Any residual impacts as a result of this proposal need to be considered within the context of the significant city-shaping, transportation and other strategic benefits it would provide over the medium to longer term, and for future generations. In particular, this includes the significant placemaking opportunities to facilitate the transformation of areas with new places or to reinforce and enhance existing places.

Provided the measures and commitments specified in this Environmental Impact Statement are effectively implemented during the design, construction and operational phases, the identified environmental impacts would be acceptable and manageable. The consequences of not proceeding (do nothing) would result in unacceptable impacts on the transport network, particularly in terms of the inability to support growth and urban renewal. This would ultimately constrain Sydney's future liveability and global competitiveness.

On balancing the strategic need and benefits with the residual impacts, Sydney Metro West is considered to be in the public interest.

Next steps

Sydney Metro is seeking approval from the Minister for Planning for the rail infrastructure, station precincts and operations components of Sydney Metro West. Next steps in the process include:

- exhibition of this Environmental Impact Statement for a minimum of 28 days and invitation for the community and stakeholders to make submissions
- consideration of submissions – submissions received by the Secretary of the NSW Department of Planning and Environment would be provided to Sydney Metro who may then be required to prepare and submit:
 - a Submissions Report, responding to issues raised in the submissions
 - a Preferred Infrastructure Report and/or Amendment Report, outlining any proposed changes to the proposal to minimise its environmental impacts or to deal with any other issues raised
- determination by the Minister for Planning including, if approved, any conditions of approval.

Consultation with the community and stakeholders would continue throughout the detailed design and construction phases.

Any person wishing to make a submission should use the online form if possible. To find the online form go to the web page for the proposal via www.planningportal.nsw.gov.au/major-projects/projects/on-exhibition.

Your submission must reach the NSW Department of Planning and Environment by the close of the exhibition period. Before making your submission, please read the Privacy Statement at www.planning.nsw.gov.au/privacy or for a copy, telephone the number below.

If you cannot lodge online, you can write to the address below. If you want the NSW Department of Planning and Environment to delete your personal information before publication, please make this clear at the top of your letter. You need to include:

- 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)
- The name of the application and the application number (SSI- 22765520)
- A statement on whether you support or object to the proposal
- The reasons why you support or object to the proposal
- A declaration of any reportable political donations made in the previous two years. To find out what is reportable, and for a disclosure form, go to <https://www.planning.nsw.gov.au/donations> or phone 1300 305 695 for a copy.

Address:

NSW Department of Planning and Environment
Locked Bag 5022
Parramatta NSW 2124

Your submission should be marked Attention: Director, Transport Assessments.

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Appendix K – Draft Heritage Interpretation Strategy

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Technical Paper 3 – Operational noise and vibration

Technical Paper 4 – Construction noise and vibration

Technical Paper 5 – Non-Aboriginal heritage

Technical Paper 6 – Landscape and visual amenity

Technical Paper 7 – Contamination

Technical Paper 8 – Hydrology, flooding and water quality

Technical Paper 9 – Social impacts