Final Business Case Evaluation Summary

Sydney Metro West

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About this report

Sydney Metro West (Metro West) is proposed as an integrated land use and transport project. The project will connect Greater Parramatta and the Sydney central business district (CBD) by delivering a new underground metro line.

Metro West is driven by a need to: increase public transport capacity; support employment growth and housing supply; and improve public transport options and benefits for customers by providing a reliable and frequent turn up and go service.

The project will double rail capacity between Greater Parramatta and the Sydney CBD, with a travel time target between the two CBDs of about 20 minutes.

Metro West will:

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

The project will deliver underground metro tunnel and rail infrastructure; new rolling stock; signalling and train control systems; rail and line-wide systems and a depot; operation and maintenance; and; stations including integrated station and precinct developments at some station locations.

The Business Case for Metro West was developed by Sydney Metro and submitted to Government in October 2019. This Business Case Evaluation Summary has been prepared by Infrastructure NSW, the NSW Government's independent infrastructure advisory agency.

Sydney Metro overview

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

Sydney Metro includes:

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

Strategic context

Greater Sydney's population is growing

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

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

Greater Sydney's population is forecast to grow by 1.7 million people from 2016 to 2036. This growth will require the city to accommodate an additional 725,000 new homes and 817,000 jobs including an additional 415,000 people and 170,000 jobs in Parramatta.

Currently the Sydney region experiences stresses that emerge from its monocentric nature. The majority of jobs are concentrated in and around the Eastern Harbour City, while residential homes are spread throughout the region. This creates an imbalance between the physical location of jobs and residents. A significant portion of Greater Sydney's residents need to travel over 30 minutes as part of their daily commute to work.

In 2016, more than 38 per cent of workers living in the Central River City area (which includes the Parramatta CBD) travelled to the Eastern Harbour City (which includes to the Sydney CBD) for work. In the same year, more than 51 per cent of workers in the Western Parkland City (which includes the Badgerys Creek Aerotropolis) travelled to either the Central River City (29 per cent) or Eastern Harbour City (21 per cent).

A Metropolis of Three Cities

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

The Greater Sydney Region Plan sets out a vision that rebalances the city into a metropolis of three connected cities – an Eastern Harbour City (Sydney), Central River City (Parramatta) and Western Parkland City (the Western Sydney Airport and Badgerys Creek Aerotropolis).
This vision supports the development of '30-minute cities', where residents, wherever they live within the region, have access to jobs, schools, hospitals and other key services within 30 minutes of their homes.

The plan also highlights how productivity is driven by connectivity, stating that "A Metropolis of Three Cities requires a well-connected Greater Sydney with new jobs, shops and services in well-located centres connected by efficient transport and safe and convenient walking and cycling routes".

The same vision underpins the *Future Transport 2056* strategy and the State Infrastructure Strategy 2018-2038. These three plans recognise the need for greater integrated planning, including land use and transport planning, to support the productivity, liveability and sustainability of Sydney as it grows.

The *Future Transport 2056* strategy supports the Greater Sydney Region Plan in planning a hierarchy of city-shaping, city-servicing and centre-servicing corridors to support the three-cities vision. The strategy identifies a city-shaping mass-transit network for investigation and implementation over the next 20 or more years. Metro West will play a key role as the mass transit

spine between the Central River City and Eastern Harbour City before potential future extensions, such as to the Aerotropolis.

The Greater Sydney Region Plan and Metro West

Metro West plays a critical role in supporting the Greater Sydney Region Plan and the *Future Transport 2056* strategy. By creating a mass transport connection between two of the three cities in this vision, Metro West will directly support the growth of the Central River City to allow it to support the planned growth targeted by the Greater Sydney Commission.

By providing a 20-minute travel target link between the two city centres, Metro West will encourage investment in the Central River City, both state and international, and encourage the re-location, co-location and growth of businesses in the Central River City, accelerating its growth as a CBD.

The NSW Government's *Future Transport 2056* strategy supports the 30-minute cities concept and builds on the 2012 NSW Long Term Transport Master Plan, which has guided unprecedented investments in transport services and infrastructure across NSW.

Metro West forms the spine of a future city-shaping mass transit network, providing a key east-west connection which underpins the Greater Sydney Region Plan for three 30-minute cities, providing journey-time savings, expanding the catchment of the Parramatta and Sydney CBDs, and integrating with the future city-shaping network.

Project need

Metro West addresses a number of current and future transport and land use needs in its corridor. Westmead, Parramatta CBD, Sydney Olympic Park, The Bays and Sydney CBD account for more than 50 per cent of planned population growth and more than 70 per cent of planned jobs growth in the corridor by 2036.

The corridor is of national economic significance. It has some of the most productive centres in Greater Sydney. The corridor already contains nearly 620,000 high productivity jobs and generates seven per cent of the nation's GDP.

The corridor does, however, face some key transport and land use constraints. Key transport issues include the increasing demand on existing heavy rail lines in the western rail corridor, which is rapidly reaching capacity, and the local impacts of Greater Sydney's monocentric nature on key precincts and locales along the corridor.

Key land use issues include challenges in physically accommodating planned growth without more transport capacity, exacerbated by limited transport connectivity which limits access to jobs within a 30-minute catchment, compromising the amenity and quality of life for residents.

Transport Constraints

There is a demonstrated urgent need to develop the Project to enable land use outcomes and to meet the transport requirements of the western rail corridor, with its four rail lines all reaching capacity by 2027 (including the T1 Western Line from 2024).

Rail crowding and capacity constraints, dwell times with double-deck trains, station crowding, unreliable travel times and limited connectivity with planned precincts are constraining the achievement of planned growth in the corridor, even with significant transport network upgrades underway within the corridor.

By 2036, the number of rail trips on the T1 Western Line, T9 Northern Line and T2 Inner West Line during the one-hour AM peak is projected to increase from 90,000 to 140,000, this is a 56% increase.

The capacity of each line in the corridor is constrained to a maximum of 20 trains per hour, primarily due to signalling constraints and the dwell times required to service double-decker trains, as well as service patterns and the convergence of multiple lines approaching the Sydney CBD. At a reliable capacity of 1,200 passengers per train (900 seated and 300 standing) the maximum capacity for each line is 24,000 passengers per hour.

Rail patronage is forecast to exceed capacity by 2023 on the T2 Inner West Line, by 2024 on the T1 Western Line, and by 2027 on the T9 Northern Line.

The North West Metro Line has provided relief to the T1 Western Line, while Sydney Metro City & Southwest will provide further relief – meaning that suburban services on the line are forecast to reach capacity by 2024. By 2036, it is forecast that T1 Western Line services to the Sydney CBD will be at capacity by the time the services reach Parramatta and more than 120 per cent of capacity by the time the services reach Redfern.

By 2036, T9 Northern Line services are forecast to be at around 120 per cent of capacity by the time the services reach Northern Strathfield.

There are a number of key stations on the network that are experiencing crowding including Parramatta, Town Hall and Wynyard. While there are a number of projects currently under development to relieve station crowding, such as Sydney Metro City & Southwest and Central

Walk, crowding at these key stations will remain an ongoing issue as the need for access to key destinations and interchange opportunities continues to grow in line with patronage.

Train and station crowding reduces service reliability and leads to fewer services operating in a given time period. This in turn leads to further crowding. Reliability impacts in the Sydney CBD cause network-wide impacts, reducing network capacity and increasing crowding on trains and platforms. As crowding increases, reliability is projected to deteriorate, increasing average lateness, reducing the achievement of timetabled services and reducing effective hourly capacity.

Low levels of access to mass transit

Throughout the corridor, travel by private vehicle accounts for more than half of all trips (51%) over 24-hours on a typical weekday (Household Travel Survey, 2016-17). The use of car for travel depends on several factors including the purpose of trips, and the locations where the trip starts and end. For work trips, approximately 40% of residents within the Metro West corridor[1] drive a car or are driven in a car. This proportion is lower than many areas in Sydney but is skewed by the 25% of workers who travel to the Sydney CBD, largely by train (Journey to Work, 2016).

Metro West will result in faster travel times for many journeys undertaken on public transport. A flow-on effect of this is that travel by public transport will become more time-competitive with travel by car for certain trips. Areas where this is expected to be most pronounced are those trips that currently have relatively longer public transport journey times than car journey trips, where there is poor accessibility to public transport services. Improved public transport will result in higher public transport mode share, reduced traffic and a more reliable road network for high productivity users.

Bus network reliability

Along the Greater Parramatta to Sydney CBD corridor, communities that are not located along a heavy rail line, such as Concord, Five Dock, Rozelle and The Bays, rely heavily on bus services to access the Parramatta and Sydney CBDs and other strategic centres. These bus services experience relatively long and unreliable travel times. For example, a bus trip between Five Dock and the Sydney CBD currently takes around 45 minutes. A similar trip from Concord takes over one hour to complete.

There are more than 100 buses an hour in each direction on Parramatta Road during peak periods resulting in bus bunching along this corridor. There are also over 100 buses an hour on Anzac Bridge, which is at capacity during peak periods, impacting services from Victoria Road and The Bays. Similarly, in the Olympic Peninsula, the T7 Olympic Park Line provides shuttle services (six per hour) between Sydney Olympic Park and the T2 Inner West Line at Lidcombe.

Land Use – Jobs and Growth Imbalances

International research indicates that a monocentric region experiencing growth can eventually suffer from increasing costs of living, housing and health for residents and increasing costs of business and labour to its economy.[2]

The Greater Parramatta to Sydney Corridor is one of the great economic corridors of Australia. The corridor houses one million people and includes a number of sites of national and international significance including:

[1] The Sydney Metro West corridor is defined for the purposes of analysis as a series of SA3 geographies – Sydney Inner City, Strathfield-Burwood-Ashfield, Parramatta, Leichhardt, Canada Bay and Auburn.

[2] Greater Sydney Commissions (March 2018), Greater Sydney Region Plan – A Metropolis of Three Cities – connecting people, p80.

- Five out of nine major office markets in Sydney,[3] including the Sydney and Parramatta CBDs.
- The largest health district in NSW at Westmead, serving almost 10 per cent of Australia's population.[4]
- More than ten sports, events and convention facilities, and one of the largest urban parklands in Australia at Sydney Olympic Park, which attracts 10 million visitors each year and 5,600 business and entertainment events each year worth more than $1 billion a year.
- One of the highest potential urban renewal sites in the world[5] at The Bays, which includes 94 hectares of government land and 5.5 kilometres of harbour foreshore located two kilometres from the Sydney CBD.
- Significant heritage sites in Sydney and Parramatta, including the world-heritage-listed Parramatta Park.

The corridor has some of the most productive centres in Greater Sydney, with the Sydney CBD generating $96 billion of gross domestic product each year at $122 per hour, and Sydney Olympic Park and Parramatta to Westmead generating $89 per hour and $80 per hour respectively. This compares to a median of $56 per hour across Greater Sydney. The corridor's highly productive nature attracts both demand for jobs and residents.

However, without addressing the accessibility and connectivity constraints of the corridor, the corridor's future potential is expected to diminish.

By 2036, reduced productivity and international competitiveness in the corridor is forecast to cost the NSW and Australian economies $570 million per year, as a result of reduced agglomeration and increased business transport costs.

This is due to limited transport accessibility and amenity. There is an inherent link between land use and transport outcomes, whereby insufficient transport accessibility and amenity reduce the attractiveness of investment and market-take up of planned growth; locations with limited transport connectivity and amenity are less attractive to businesses, workers and residents.

The corridor currently has insufficient transport accessibility and amenity to support planned land use outcomes, resulting in sub-optimal productivity and place-making outcomes

Consequences of delayed or no investment

There are substantial opportunities for planned growth in the Parramatta and Sydney CBDs and in planned precincts and urban renewal areas in the corridor including Westmead, Sydney Olympic Park, and The Bays. As part of the Greater Sydney Commission's vision for a metropolis of three cities, these areas aim to account for more than 60 per cent of planned population growth and more than 80 per cent of planned jobs growth in the corridor by 2036.

Even with currently planned transport investment in the corridor it is forecast that by 2036, the Parramatta and Sydney CBDs planned precinct and urban renewal areas in the corridor would achieve less than half of planned job and population growth. In addition to delaying the significant

[3] Greater Sydney Commission (March 2018), Greater Sydney Region Plan: A Metropolis of Three Cities – connecting people, p120: includes Sydney CBD, Parramatta CBD, Sydney Olympic Park, Green Square-Mascot and Rhodes.

[4] Greater Sydney Commission (March 2018), Greater Sydney Region Plan: A Metropolis of Three Cities – connecting people, p104.

[5] Infrastructure NSW (formerly UrbanGrowth NSW Development Corporation) (October 2015), Informing the Bays Precinct, Sydney Transformation Plan, p2.

benefits of unlocking growth in these areas, there could also be crowding out of future opportunities because:

- Development occurs with sub-optimal scale, and building heights cannot be increased in the future to achieve the optimal scale of development.
- Residential development occurs in employment areas that would otherwise benefit from significant clustering and agglomeration of economies.
- There will be insufficient mass transit accessibility in the corridor to support planned growth, with four rail lines over total capacity by 2027, more than 100 buses per hour on both Parramatta and Victoria Roads (including 11 bus routes over capacity) and 40 per cent of major arterial roads over capacity by 2036.

Project objectives and design

Customer Experience Framework

Delivering improved outcomes for customers and the transport network are critical to achieving Sydney Metro's vision for a world-class metro for Sydney. Sydney Metro places the customer at the centre of design and the customer experience incorporates all aspects of a journey from door-to-door. Sydney Metro aims to make it easy for all customers, regardless of trip purpose, to choose public transport. The Sydney Metro development process includes consideration of the best outcomes for customers, transport integration, and city-shaping and land use benefits. This includes the design of the trains, stations and precincts.

The following considerations have influenced the design of the Project in relation to the customer experience:

1. Key pedestrian access routes to each station have been identified and barriers such as roads, rivers and train lines have been considered to provide direct, safe access routes.
2. All station entrances have accessible gradients without steps so that customers with or without strollers, luggage or mobility scooters have equal independent access.
3. Cyclists will be able to use Metro bike storage.
4. Customers that use buses or light rail for their first or last mile will benefit from co-located services where changing modes is easy.
5. Easy and intuitive wayfinding with escalator and elevators placement supports crowd flow.
6. Making underground spaces feel safe and comfortable using skylights, comfortable temperatures and generous air flow.
7. Train features like: all trains stop at all stations, level access between platform and train, inside you can see from one end of the train to the other and real time travel information and live electronic route maps.
8. Efficient station entrance and exit placements.
9. Shelter and shade will make the Metro comfortable even on extreme weather days.

Sydney Metro features

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

Key features include:

- No timetable – customers can just turn up and go.
- Opal ticketing – fares are the same as the rest of Sydney.
- Customer service assistants at every station and moving through the network during the day and night.
- Australian-first platform screen doors improving customer safety and allowing trains to get in and out of stations much faster. These doors run the full length of all metro platforms and open at the same time as the train doors.
- Continuous mobile phone coverage throughout the metro network.

- Operational performance requirements that include 98 per cent on time running and clean platforms and trains.
- Multi-purpose areas for prams, luggage and bicycles.
- Wheelchair spaces, separate priority seating and emergency intercoms inside trains.
- Safety benefits including security cameras on trains and the ability for customers to see inside the train from one end to the other.
- Video help points at platforms, connecting directly with train controllers – an Australian first.
- Level access between the platform and train and three double doors per side per carriage for faster loading and unloading.
- Heating and air-conditioning on all metro trains.
- On-board real time travel information and live electronic route maps.

Metro Rolling Stock (Trains)

An analysis of travel time, technical options and rolling stock options indicated that a metro product was preferred, due to its higher reliability.

The next generation fully air-conditioned metro train includes single-deck rolling stock with three or more doors to support rapid boarding and disembarking, which reduces train dwell times and allows platforms to clear faster. This in turn improves train reliability.

The trains will be purpose built, based on a proven platform and be ready, without need of additions or improvements, for service from Day One of project operation. The Metro trains will:

- Have a capacity of about 1,500 passengers.
- Deliver 15 trains per hour (targeting every four minutes) on day one operation.
- Allow for reliable speeds and high frequency due to automation.

Metro West Stations

Sydney Metro has been working with local communities, stakeholders and industry to create a project that will deliver fast, safe and reliable metro.

The Project alignment and design, including the number and location of stations, has resulted from over two years of options development and analysis, and the outcomes were confirmed through government and project governance arrangements.

The assessment of station locations considered:

- Population and supporting new jobs.
- Providing better connections.
- Transport integration.
- Stakeholder, industry and community feedback.
- Cost, value for money and feasibility.
- Protecting the environment and heritage.

Place making and integrated station and precinct development

Metro West is a chance to build more than just railway stations. Through excellence in design and delivery, Metro West will deliver places which:

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

Metro West stations and precincts will provide a new public domain as well as integrate with the existing public realm and adjoining lands to develop and promote vibrant retail, community and other spaces, as appropriate to the context and locality.

Metro West will support future economic development within the station precincts by being a key enabler for renewal and redevelopment. The Project would also provide opportunity for urban renewal at many station locations, appropriate to its local character and improve linkages to the surrounding precinct.

The operation of a metro service will support planned growth and land use change in a number of precincts across the corridor, including The Bays Precinct, the Parramatta Road Corridor, Sydney Olympic Park and Westmead.

New metro stations create opportunities to provide for community needs in consideration of the future vision, relevant planning controls and local character of each area. Provisions for integrated station and precinct developments are being made for: Westmead, Parramatta, Sydney Olympic Park, Burwood North, Five Dock, The Bays and Sydney CBD.

The evaluation of Rydalmere and Pyrmont as strategic station options will consider additional land uses and strategic planning visions for the areas, including the potential for integrated station and precinct development in these locations. Infrastructure NSW notes that the NSW Government has subsequently determined to not proceed with a strategic station option at Rydalmere, but will continue to investigate the viability of a potential strategic station option at Pyrmont.

Any proposed future development associated with station precincts will be subject to separate planning assessment processes and approvals.

Options identification and assessment

Development of the Business Case included a detailed assessment of a broad range of options, including alternative and deferral options, 53 station options, technical, operational, delivery, funding and finance options.

Stations Analysis

The options assessment was conducted in four broad phases and included detailed consultation on a number of issues such as station options, operating concepts, travel times and train types. The number and location of stations was developed using considerable inputs from project partners and careful consideration of the land use and transport needs along the Greater Parramatta to Sydney corridor.

The recommended station locations are Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, and Sydney CBD.

The recommended strategic station options are Rydalmere and Pyrmont. Infrastructure NSW notes that the NSW Government has subsequently determined to not proceed with a strategic station option at Rydalmere, but will continue to investigate the viability of a potential strategic station option at Pyrmont.

A summary of the Metro West stations according to the vision and drivers underpinning the locational identification and assessment are outlined in Table 1 below.

Table 1: Metro West – Station vision and key design drivers

Station Location	Vision	Drivers
Westmead	Well connected and accessible to the health and education precinct, and a revitalised, high-amenity living and employment centre, serving as an extension of the Parramatta CBD.	• Provide an easy, efficient and accessible interchange with the T1 Western Line. • Serve and support the Westmead Health and Education Precinct. • Establish an easy, efficient and accessible interchange with Parramatta Light Rail, T-way and local bus services. • Connect, serve and support the revitalisation of both north and south Westmead.
Parramatta	Sydney's Central River City – A high-amenity and connected employment, living and cultural centre in the heart of Sydney.	• Reinforce Parramatta as the Central River City, with a station located to support high-value employment growth and renewal in the commercial core. • Create a second mass transit node in the Parramatta CBD to provide an easy, efficient and accessible interchange with buses and Parramatta Light Rail. • Support place making in Parramatta CBD by connecting with and activating the proposed Civic Link, and improving connections to Church Street and surrounding cultural and entertainment destinations.

Station Location	Vision	Drivers
		• Create an easy pedestrian connection to the existing Parramatta Station. • Safeguard for a potential future north-south mass transit connection.
Sydney Olympic Park	A metro station at Sydney Olympic Park will be a destination (including for major events), origin and interchange station. The station will support commercial, residential, retail, hotel, education, sports, recreation and entertainment uses.	• Support the transformation of Sydney Olympic Park into a mixed-use lifestyle super precinct. • Create a station to serve both Sydney Olympic Park business and residential community. • Support a safe, efficient and accessible multi-modal transport service during major events.
North Strathfield	A high-amenity living precinct well connected to Sydney's key employment and leisure destinations.	• Provide an easy, efficient and accessible interchange with the T9 Northern Line, extending the Metro West catchment to Sydney's north. • Support and serve the planned renewal and growth of residential and mixed-use land uses in the Homebush and Strathfield area. • Improve pedestrian amenity through better east-west movements, and revitalisation and activation of spaces within the station locality.
Burwood North	A high-density living and employment precinct centred on an improved Parramatta Road, providing a second mass transit node to support residential housing and employment growth in the surrounding catchment.	• Reinforce and facilitate development of Burwood strategic centre north along Burwood Road with a second mass transit node. • Support planned renewal as part of the Parramatta Road Corridor Urban Transformation Strategy. • Provide a direct rail service to a catchment not currently serviced by rail. • Provide an easy, efficient and accessible interchange with buses along Burwood Road and Parramatta Road.
Five Dock	A revitalised, diverse and vibrant local centre, well connected to all transport modes.	• Create an easy, efficient and accessible interchange linking the bus networks along Parramatta Road, Victoria Road, the Drummoyne peninsula and parts of the Inner West. • Serve and support renewal of the established local centre around Five Dock. • Provide a direct rail service to a catchment not currently serviced by rail.
The Bays	A new precinct including employment, civic, retail and residential activities in a high-amenity harbour-side setting.	• Provide a new high-quality public transport access to The Bays Precinct catalysing the establishment and growth of the future living

Station Location	Vision	Drivers
		and employment precinct by improving access to visitors and workers. • Provide mass transport access to highly productive business, technology and education activities. • Support the creation of a high-amenity living and mixed-use precinct, acknowledging its interface with existing port activities. • Provide an easy, efficient and accessible interchange.
Sydney CBD	The gateway to the commercial core of the Eastern Harbour City.	• Provide new and direct access to the Sydney CBD. • Provide an easy, efficient and accessible interchange with Sydney Metro City & Southwest, Sydney Trains, CBD and South East Light Rail, and city bus services. • Serve the financial and commercial core, civic precincts, and key recreational and tourist destinations and events within the Sydney CBD.

There exists a proposed scope outside of the stations, which includes: a stabling facility at Clyde to stable metro trains and house the maintenance and operational facilities; and a service facility to be built at Silverwater to provide fresh air ventilation into the tunnels and to provide an emergency exit out of them. Further planning is underway to determine the location of another service facility between Five Dock and The Bays Precinct.

Potential for Additional Stations

The addition of strategic station options within the corridor, or as a result of future extensions would be subject to feasibility and funding consideration.

Integrated Transport Opportunities

Metro West has been planned in parallel with a number of TfNSW initiatives being developed in the Greater Parramatta to Sydney CBD corridor, including Parramatta Light Rail, the *Future Transport 2056* strategy and the More Trains, More Services program. Collectively these projects and programs, together with planned changes to the bus network, will deliver a highly integrated transport outcome for Sydney.

Key features of the integrated transport plan for the corridor include:

- Provision of new interchanges between Sydney Trains and Metro West at Westmead Station (T1 Western Line), North Strathfield Station (T9 Northern Line), Sydney CBD (potential to interchange with T1 North Shore Line, T1 Western Line, T2 Inner West and Leppington Line, T4 Eastern Suburbs and Illawarra Line, and Sydney Metro City & Southwest, Intercity and Regional Services); with refined train timetables to enable new interchange opportunities.

- Provision of effective transfer with Parramatta Light Rail at Westmead, Parramatta CBD. Potential provision of transfer with the CBD and South East Light Rail at a Sydney CBD Station.
- Reconfiguration of the bus network and provision of interchanges at Westmead Station, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays and the Sydney CBD station.
- Provision of active transport access, including walk up and facilities for cycling access.
- Provision of kiss-and-ride facilities.

These proposed changes to the integrated transport network will provide significant transport benefits such as travel time savings, new and improved access to mass transit, and a growth in 30 minute city catchments for both the Eastern Harbour City and the Central River City. There is an opportunity to further improve these through continued integrated service and infrastructure planning. Examples include optimised service and infrastructure planning through the More Trains, More Services program, and refined and more detailed planning of bus services.

Collaboration with Key Partners

Developing Metro West as an integrated land use and transport project has provided benefits for cross-agency planning and development of metropolitan Sydney. This includes integrating corridor and precinct land use planning, community and stakeholder engagement, benefits realisation and delivery strategies, jobs strategies and transport network planning with initiatives such as the More Trains, More Services program and Parramatta Light Rail.

Community Consultation

Metro West undertook early stakeholder and community consultation throughout 2017 and 2018. Feedback gathered helped shape the project, including station locations. Consultation channels were targeted to reach different geographic areas, demographics, multicultural groups and areas of interest.

Economic evaluation

Metro West has been developed as an integrated land use and transport project which includes integrating corridor and precinct land use planning, community and stakeholder engagement, benefits realisation and delivery strategies, jobs strategies and transport network planning.

Through collaboration with key land use partners, the Project has been optimised to unlock key land use outcomes. The number and location of stations was developed using considerable stakeholder input and careful consideration of the land use and transport needs along the Greater Parramatta to Sydney corridor.

A broad range of benefits are expected to be generated by the Project, including city shaping, environmental and sustainability, transport, and productivity.

Costs

At the time of preparing this summary, the NSW Government is in the process of either procuring or preparing to procure various packages of works which form part of the overall rolling delivery program for Sydney Metro West. As such, NSW Government has requested that the estimated cost of the program is not publicised in this summary. Infrastructure NSW understands that the program cost will be released by the NSW Government at a commercially appropriate time.

Benefits

Metro West will provide a significant increase in mass transit accessibility and amenity in the Greater Parramatta to Sydney CBD corridor, which will boost Sydney's economic productivity and support and unlock planned land use outcomes in the CBDs, planned precincts and urban renewal areas. The Project will generate significant city-shaping, urban renewal, productivity and transport benefits. The key economic project benefits include:

- **Enabling the Greater Sydney Region Plan:** Support the 30-minute city concept, enabling an additional 820,000 jobs and 780,000 people to be within 30 minutes of the Central River and Eastern Harbour Cities.
- **Delivering land use change by supporting and unlocking planned growth:** Support an additional 169,000 jobs and an additional 46,000 dwellings within walking catchments of the proposed metro stations.
- **More jobs and increased productivity:** Connects the economic powerhouses of Parramatta and Sydney CBDs to each other and to emerging economic centres including Sydney Olympic Park, Westmead and The Bays Precinct. This will facilitate economic growth through agglomeration and job creation.
- **Doubling rail capacity:** At ultimate capacity Metro West will effectively double the rail capacity of the Greater Parramatta to Sydney CBD corridor.
- **Reduction in crowding on key rail lines:** Reduction in crowding on the T1 Western Line by up to 30%, T9 Northern Line by up to 30% and T2 Inner West Line by up to 18%.
- **Shorter travel times:** Travel time from Parramatta CBD to Sydney CBD of around 20 minutes.
- **Public transport customer experience benefits:** Customers will have access to the following experience benefits: increased turn-up-and-go services, seamless interchange, increased reliability, thermal comfort, equal accessibility, new underground pedestrian

subways, no gaps, intuitive wayfinding, increased safety, event management, and increased late-night travel options.

- **Road user benefits:** Total car trips on the road network will decrease with at least 83,000 fewer car trips on an average weekday by 2036, reducing congestion on the road network.

The outcomes of the analysis

The economic appraisal takes into consideration the broad range of benefits expected to be generated by the Project, including city shaping, transport and productivity benefits.

Benefit Cost Ratio (BCR)

The following table outlines the estimated benefits for the project:

Table 2: Economic appraisal summary ($millions)

	$ millions
City shaping or urban renewal benefits	3,519
Transport benefits	10,279
Productivity or Wider Economic Benefits (WEBS)	3,550
Total benefits	17,348
Net Present Value* **including Productivity Benefits*	**4,496**
Net Present Value* **not including Productivity Benefits*	**533**

Benefit cost ratio (BCR)* **including Productivity Benefits*	**1.34**
Benefit cost ratio (BCR) without WEBS* **not including Productivity Benefits*	**1.04**

A benefit cost ratio (BCR) is the ratio of a Project's benefits relative to its costs. The BCR for the Project is 1.34 (including WEBS), or 1.04 (excluding WEBS), to put it more simply, the Project will deliver $1.34 worth of benefits for each $1 invested.

At the time of preparing this summary, the NSW Government is in the process of either procuring or preparing to procure various packages of works which form part of the overall rolling delivery program for Sydney Metro West. As such, NSW Government has requested that the estimated cost of the program is not publicised in this summary. Infrastructure NSW understands that the program cost will be released by the NSW Government at a commercially appropriate time.

Deliverability

Procurement

A detailed proposed delivery strategy has been developed for the project, using extensive engagement with industry, evidence taken from global peer organisations, and guidance from a wide range of stakeholders.

The delivery strategy provides recommendations on client delivery requirements, market considerations, supply chain packaging, contracting and transaction process options, and the client model to manage and deliver the Project. It also acknowledges the potential to separate out parts of the Project to be delivered through a Public-Private-Partnership (PPP) and therefore has identified potential PPP opportunities supported by market feedback. The final delivery strategy for the project will be subject to ongoing refinement with both engagement and input from government.

Timeframe

The Project commenced the statutory planning process and property procurement in late 2019 with construction to commence in 2020. Timeframe for the commencement of first passenger services will be dependent on the market response to the procurement packaging. Delivery timeframes of individual packages could be subject to capacity constraints in the Australia engineering and construction sector.

Key risks and mitigation

The risk profile for the refined Metro West concept has evolved to reflect the maturation of the design, and value enhancement activities undertaken. Considerations have been made with respect to constructability, schedule sequence and commercial strategy.

The Infrastructure NSW view

Consistent with the NSW Government's Infrastructure Investor Assurance Framework[6], Infrastructure NSW has undertaken all required Gateway Reviews, project reporting and project monitoring activities on Sydney Metro West.

The Reviews, conducted by panels of independent experts and overseen by Infrastructure NSW, on the Metro West Final Business Case, found that the overall case for the 8-station configuration (Westmead to Sydney CBD) is considered strong and presents a compelling case for investment. The Review Team also noted that the future line expansion is also strong and should proceed, subject to funding availability and capital prioritisation.

The Final Business Case, as presented for the 8-station configuration, demonstrated strategic merit, and a Cost Benefit Analysis (CBA) greater than 1.34 (including Wider Economic Benefits), or 1.04 (excluding WEBs).

Interface and scope impacts between procurement packages needs to be carefully considered and accounted for commercially. In instances where core scope (such as the corridor) could be altered by future investment decisions, consideration should be given to cost and program impacts.

Given existing market conditions, significant scale of the project, complexity of the scope and known planned and current activity in the Australian construction sector, any planned opening to passenger service date is likely to be impacted by market response to procurement packaging. Delivery timeframes should not be artificially compressed by Government. Delivery partners should be permitted to bid their delivery programs, interface arrangements and timings on a value-for-money and best for project basis.

[6] Infrastructure NSW (2016), *Infrastructure Investor Assurance Framework.*