JUSTIFICATION AND CONCLUSIONS

CHAPTER TWENTY-NINE

29 Justification and conclusions

This chapter outlines the justification and conclusions for the project. Justification is based on the strategic need for the project and, in particular, how it would fulfil the project objectives. The project justification also takes into account the alternatives to the project, public interest, project benefits and the principles of ecologically sustainable development. The conclusion is based on an overall consideration of the assessment including the key benefi^pts and adverse impacts.

29.1 Secretary's environmental assessment requirements

The Secretary's environmental assessment requirements identify a general reference to Schedule 3 of the *Environmental Planning & Assessment Regulation 2000*. Clause 7(1)(f) of Schedule 3, requires an Environmental Impact Statement to include *the reasons justifying the carrying out of the development, activity or infrastructure in the manner proposed, having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development.*

29.2 Need for the project

The strategic need for the project is discussed in detail in Chapter 3 (Strategic need and justification).

At a broader network level, Sydney Metro (of which the project would be a key component) is considered essential to maintain Sydney as Australia's economic capital by:

- Enabling the growth and development of the Global Economic Corridor as Sydney's prime employment district through the provision of a high quality transit system
- Providing transport infrastructure to connect housing increases to key employment areas in order to maintain liveability and provide support for continued growth
- Improving reliability across the rail network by addressing current and emerging constraints such as train crowding, platform and station crowding, and network complexity.

Rail is, and will continue to be, the dominant mode of public transportation for commuters traveling to and from the Sydney CBD. It is forecast that travel by rail will experience the highest growth in demand when compared to buses and car use. Sydney Metro, together with signalling and infrastructure upgrades across the existing network, would increase the capacity of the rail network from about 120 per hour during peak periods today, to up to 200 services per hour beyond 2024, including capacity for up to 60 metro trains per hour during peak periods (or 30 trains per hour in each direction). This would equate to an increase of up to 60 per cent capacity across the network. Sydney Metro would also result in travel time improvements and a reduction in congestion on trains and platforms.

Alternative transport modes would have limited capacity to absorb Sydney's forecast long-term travel demand growth. For example while extra buses can carry more people, these services would not be necessarily faster or more reliable. Without measures to improve journey times, adding more buses would add to congestion and each bus becomes less effective in meeting customer needs.

The full realisation of the benefits is dependent on the delivery of all stages of Sydney Metro, however this project would be fundamental to achieving the benefits of additional rail capacity across Sydney Harbour and additional Sydney CBD station rail infrastructure. In particular it would provide two additional tracks from Chatswood to the Sydney CBD which would more than double the number of train paths available from the north.

The project would be integral for increased economic clustering around the Sydney CBD (including Barangaroo) and the Global Economic Corridor by:

- Providing the opportunity for development and increasing the rail catchment areas to service the strategic locations of Crows Nest, Victoria Cross, Barangaroo and Waterloo
- Relieving congestion and increase service accessibility and rail capacity across the Sydney CBD, particularly at Wynyard and Town Hall stations, through the provision of new stations at Barangaroo, Martin Place and Pitt Street, and through the provision of extra connectivity and interchange capacity at Central Station and Martin Place
- Reducing pressure on the road and bus networks through the provision of a high quality metro system, particularly for the Sydney CBD and connections across Sydney Harbour
- Improving network resilience through the Sydney CBD and across Sydney Harbour by providing an additional route during planned and unplanned events affecting other Sydney CBD and harbour links.

29.3 Achieving the project objectives

Table 29-1 provides an assessment of the project against the project objectives, as detailed in Chapter 3 (Strategic need and justification).

Table 29-1 Assessment against project objectives

Project objectives	Assessment
Improve the quality of the transport experience for customers	• New Sydney CBD stations and platforms provided at Barangaroo, Martin Place, Pitt Street and Central would spread station loading and decrease crowding at Wynyard and Town Hall stations • The project is being developed with an emphasis on supporting the needs of customers for 'door-to-door' journeys from origin to destination. It would deliver a new tier for Sydney's rail network, supporting high demand with a high-capacity, turn-up-and-go service. 'Turn up and go' frequencies means there is no need for a timetable • Customer service assistants at every station and moving through the network during the day and night • Australian-first platform screen doors which keep people and objects away from the edge, 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 only open at the same time as the train doors • Operational performance requirements that include 98 per cent on time running and clean platforms and trains • 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 • On-board real time travel information and live electronic route maps.
Provide a transport system that is able to satisfy long-term demand	• Provides the largest increase in capacity to the Sydney rail network for 80 years • Travel by rail will experience the highest growth in demand when compared to buses and car use. Total capacity across the rail network would be increased by about 60 per cent as a result of Sydney Metro City & Southwest • The metro rail network would be capable of carrying more people, more quickly, than any other form of public transport ever seen in Sydney • At ultimate capacity, the Sydney Metro network would be able to run up to 30 trains per hour in each direction through Sydney's CBD, providing the foundation for a 60 per cent increase in the number of trains that could operate in the peak periods and catering for an extra 100,000 customers per hour. At ultimate capacity, the Chatswood to Sydenham component would provide additional capacity for more than 40,000 passengers per hour through the Sydney CBD in each direction • Sydney Metro would improve reliability across the rail network by addressing current and emerging constraints such as train crowding, platform and station crowding, and network complexity • Alternative transport modes would have limited capacity to absorb Sydney's forecast long-term travel demand growth.
Grow public transport patronage and mode share	• The railway network across greater Sydney would have room for an extra 100,000 train customers per hour in the am peak in 2036.

Project objectives	Assessment
Support the productivity of the Global Economic Corridor	• Provides faster and more reliable access and by fostering clusters of activities that support more economic growth. In particular this would include improvement to links to the strategic centres of Chatswood, Macquarie Park, Castle Hill, Norwest and Rouse Hill • Facilitates higher productivity by enabling businesses to become effectively closer together through reduced travel times between major economic centres, and between economic centres and potential employees • Delivers wider economic benefits by facilitating land development and business logistics improvements, particularly for knowledge based businesses.
Serve and stimulate urban development	• Provides opportunities for a higher intensity of land use around new and converted stations, including potential higher density residential areas which could offer more affordable housing options with better access to services and employment, and support more liveable, vibrant communities • More specifically provides the opportunity for urban development at Crows Nest, Victoria Cross, Barangaroo and Waterloo.
Improve the resilience of the transport network	• Provides an additional public transport link across Sydney Harbour • Provides an additional route during planned and unplanned events affecting other Sydney CBD and harbour links.
Improve the efficiency and cost effectiveness of the public transport system	• Relieves congestion at major city rail stations – particularly at Wynyard and Town Hall • Increases service accessibility and rail capacity across the Sydney CBD, particularly at Wynyard and Town Hall stations, through the provision of new stations at Barangaroo, Martin Place and Pitt Street • Provides extra connectivity and interchange capacity at Central Station and Martin Place • Freeing of bus services by bus customers transferring to rail, enabling the opportunity to redeploy bus services from the north and north west • Less demand for Sydney Harbour Bridge bus services, freeing capacity over the Harbour Bridge • Reduced road congestion by road users transferring to rail • Less congestion on key road corridors including Sydney Harbour Bridge, Sydney Harbour Tunnel and Eastern Distributor.
Implement a feasible solution recognising impacts, constraints and delivery risk	• The project has been developed in consideration of feasible alternatives including regulatory, governance and better-use reforms, mode, corridor, alignment and station options. Details are provided in Chapter 4 (Project development and alternatives) • Impacts have been reduced through a comprehensive assessment process including close iteration and interactions between the design and environment specialists. Previous, current and ongoing stakeholder and community consultation would also help to improve project outcomes and reduce impacts • Ongoing and detailed design of the project would further reduce impacts, constraints and delivery risks.

29.4 Objects of the Environmental Planning and Assessment Act 1979

The objects of the *Environmental Planning and Assessment Act 1979* (EP&A Act) provide a policy framework within which the justification of the project can be considered. Table 29-2 outlines those objects and provides comment on their relevance to the project.

Table 29-2 Relevance of the EP&A Act 1979 objects to the project

Environmental Planning and Assessment Act 1979 Objects	Comments
Encourage the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment	This Environmental Impact Statement identifies impacts and with a focus on managing impacts, proposes mitigation and management measures. The project has been developed with a focus on sustainable development and is supported by a project specific Environmental and Sustainability Policy and Sustainability Strategy.
Encourage the promotion and coordination of the orderly and economic use and development of land	The project has been designed to minimise impacts to the surrounding natural and built environments, and to minimise disruption to existing development patterns. Provision of a mostly underground metro system is an orderly and economic approach to delivery of the project in the context of existing development along the project alignment.
Encourage the protection, provision and coordination of communication and utility services	The project has been designed to minimise impacts on communications and utility services.
Encourage the provision of land for public purposes	The project would create or improve a number of areas of public land, including station complexes. New pedestrian links would be created as part of the overall project and there is potential to incorporate community facilities within the station precincts.
Encourage the provision and coordination of community services and facilities	The project has been designed and located to avoid direct impacts to community facilities. The predicted improvements in travel times as a result of the project would improve the local access to community services and community facilities.
Encourage the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats	The project impacts on terrestrial and aquatic ecology have been assessed in detail and measures to avoid, mitigate and offset potential impacts on native animals and plants have been developed.
Encourage ESD	Sustainability has been a key driver for the project. A Sustainability Strategy has been developed as well as an Environment and Sustainability Policy (refer to Chapter 25 (Sustainability)). Section 29.5 below provides details of how the project addresses the principles of ESD.
Encourage the provision and maintenance of affordable housing	The project provides public transport accessibility to future growth areas and an affordable transport option for future residents. In particular the proposed station at Waterloo would provide significant benefit to proposed affordable housing development.

Environmental Planning and Assessment Act 1979 Objects	Comments
Promote the sharing of the responsibility for environmental planning between the different levels of government in the state	The responsibility for environmental planning and approval in relation to the project rests primarily with the NSW Government. Consultation has, however, occurred across all levels of government including councils for the four local government authorities through which the project passes – Willoughby Council, North Sydney Council, City of Sydney Council and Marrickville Council.
Provide increased opportunity for public involvement and participation in environmental planning and assessment	The project development process has involved extensive consultation with the community and stakeholders. An objective of the project is to deliver a transport service that has been informed by engagement with communities and stakeholders.

29.5 Principles of ecologically sustainable development

Sustainability has been a key driver for the project. A Sustainability Strategy has been developed as well as an Environment and Sustainability Policy (refer to Chapter 25 (Sustainability)). This section provides details of how the project has and would address the principles of ecologically sustainable development.

Ecologically sustainable development is development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends. The principles of ecologically sustainable development have been an integral consideration throughout the development of the project and a series of sustainability targets have been developed for the project. *The Environmental Planning and Assessment Act 1979* recognises that ecologically sustainable development requires the effective integration of economic and environmental considerations into decision making processes.

There are four main principles supporting the achievement of ecologically sustainable development:

- Precautionary principle
- Intergenerational equity
- Conservation of biological diversity and ecological integrity
- Improved valuation and pricing of environmental resources.

These are discussed in the following sections.

29.5.1 Precautionary principle

The precautionary principle: If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:

- Careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment
- An assessment of the risk-weighted consequence of various options.

Application to the project

The environmental risk analysis documented in Chapter 28 (Environmental risk analysis) addresses the potential impacts of the project. That analysis, together with the detail assessment carried out in preparing this Environmental Impact Statement indicates that there would be no threat of serious or irreversible damage to the environment.

In addition the lack of full scientific certainty has not been used as a reason for postponing measures to prevent environmental degradation. As detailed in each impact assessment chapter, mitigation measures have been proposed to manage identified risks / threats of environmental damage. For example targeted threatened species which were not found during the field surveys have, in line with the precautionary principle, been assumed to be present in the study area.

This Environmental Impact Statement documents the careful evaluation of environmental impacts associated with the project and has been carried out using the best available technical information and adoption of best practice environmental standards, goals and measures to minimise environmental risks. The impact assessments have been carried out in collaboration with key stakeholders and relevant statutory and agency requirements.

29.5.2 Intergenerational equity

Inter-generational equity: The present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.

Application to the project

The objectives of the project are essentially around ensuring an efficient and reliable public transport network. This would benefit current and future generations. Once operational, the project would leave a positive legacy for future generations. It would provide long term benefits by strengthening connections and access across Sydney, providing improved connectivity on the rail network and improving the capacity, reliability and efficiency of the existing transport system. The project would address emerging issues with respect to capacity and congestion which otherwise would be more difficult to address at a future stage. The project would improve the quality of the transport experience for customers.

In addition to the broader Sydney transport operational benefits, the 'door-to-door' experience provided by Sydney Metro would also result in long-term health benefits with the creation of safer and more appealing conditions for pedestrians, cyclists and other transit users. These benefits would also flow through to future generations.

The project would result in a greater demand on electricity. Significant changes to carbon and energy policy (and legislation) are currently occurring in Australia which aim to shift electricity generation from coal fired to renewable sources. As more electricity is generated from renewable sources, the climate change benefits of using electric rail would be improved. A range of measures to mitigate greenhouse gas emissions have been developed and would be implemented (refer to Chapter 25 (Sustainability) for further details).

29.5.3 Conservation of biological diversity and ecological integrity

Conservation of biological diversity and ecological integrity: Conservation of biological diversity and ecological integrity should be a fundamental consideration.

Application to the project

Conservation of biological diversity and ecological integrity has been considered throughout the project planning and design stages (refer Chapter 25 (Sustainability)). The project construction footprint has been developed to avoid or minimise impact to areas of high ecological value. Detailed assessments have been carried out to identify flora and fauna impacts and a range of mitigation measures identified for implementation. Impacts on biological diversity and ecological integrity have been assessed as minor.

29.5.4 Improved valuation and pricing of environmental resources

Improved valuation and pricing of environmental resources: Environmental factors should be included in the valuation of assets and services. Such as:

- Polluter pays (ie those who generate pollution and waste should bear the cost of containment, avoidance, or abatement)
- The users of goods and services should pay prices based on the full life cycle of costs of providing the goods
- Environmental goals, having been established, should be pursued in the most cost effective ways.

Application to the project

Economic appraisal of the project draws on a number of established methodologies which provide for the valuation of externalities, including environmental externalities, and their inclusion in the appraisal process. Environmental parameters which can be valued include air pollution, greenhouse gas emissions, noise pollution, water run-off, nature and landscape and urban separation. Valuations typically adopt broad average values.

The value placed on the environment was inherent in the development of the project design (refer Chapter 25 (Sustainability)). In addition the costs associated with the planning and design of measures to avoid / minimise adverse environmental impacts and the costs to implement them have been built into the overall project costs. Ongoing and detailed design of the project together with specific issue-based management plans would represent further commitment to the recognition of the value of protecting environmental resources.

29.6 Alternatives and consequences of not proceeding with the project (do nothing)

A detailed discussion on alternatives and consequences of not proceeding with the project are provided in Chapter 4 (Project development and alternatives).

29.6.1 Alternatives

A comprehensive assessment of alternatives has been carried out for the project. This has included consideration of:

- Regulatory, governance and better-use reforms
- Investment in road, bus and light rail
- Rail network options
- Station location options
- Tunnel alignment options
- Specific project options such as the method for crossing of Sydney Harbour, dive structures and tunnel portal options.

The project would best meet the objectives when compared to all other alternatives considered.

29.6.2 Consequences of not proceeding (do nothing)

The key consequences of not proceeding with the project would include:

Loss of potential economic benefits

- Lost economic benefits: $2.0 billion per year on average over 30 years
- Lost economic value-add in the corridor by 2036: including $5.2 billion in the Sydney CBD
- Jobs lost: 44,000 in the Global Economic Corridor by 2036 (3500 per year)
- Reduced population growth in key areas. By 2036: 1950 less people in the Sydney CBD
- Reduced competitiveness between Sydney and other Australian cities such as Melbourne and Brisbane.

Reduced transport efficiency

- Additional public transport travel time: 12.7 million passenger hours per year (weighted)
- Additional road users: 20,000 driver and passenger trips (2036 AM peak)
- Cost of road congestion: 5.9 million vehicle hours per year (weighted)
- Increased rail demand to the Sydney CBD impacting existing Central, Town Hall, Martin Place and Wynyard stations: 6733 per year (2026 AM peak)
- Increased train services required: six per year
- Increased train crowding: 3.3 million passenger hours (weighted) in 2026, increasing in severity each year thereafter
- Increased station crowding: 8.4 million hours by 2026 (weighted)
- Reduced reliability: 5.1 million hours per year by 2026 (weighted)
- Insufficient transport capacity will prevent Sydney from reaching its economic potential, leading to worse economic outcomes for the State and nation
- Sydney's transport network will not provide the minimum standard of service expected by rail customers and there will be major impacts on the operational efficiency, reliability and capacity of the suburban rail network in the medium to long term.

29.7 Conclusion

The NSW Government is committed to delivering a step-change in the capacity and customer experience of Sydney's rail network. The project would deliver a brand new tier for Sydney's rail network, supporting high demand with a high capacity – turn-up-and-go service.

Other key benefits of the project include:

- Doubling the number of train paths available from the north (from 20 train paths per direction per hour to 50 train paths per direction per hour)
- Strengthening connections and access across Sydney, particularly within the Global Economic Corridor
- Providing new connections to the rail network – including connections to the T4 Eastern Suburbs Line, and connecting the Sydney CBD with the Northwest
- Improving the capacity, reliability and efficiency of the existing transport system, by relieving the pressure on existing rail lines, Sydney CBD train stations, Sydney CBD, North Sydney and Sydney South bus routes, and the Sydney CBD road network
- Providing improved connectivity across the rail network, particularly direct connection between the Sydney CBD and the Northwest
- Providing the opportunity for urban development particularly around the new stations at Crows Nest, Victoria Cross, Barangaroo and Waterloo
- Improving network resilience through the Sydney CBD and across Sydney Harbour by providing an additional route during planned and unplanned events affecting other Sydney CBD and harbour links.

The project is considered to best meet the objectives when compared to all other alternatives considered. The consequences of not proceeding (do nothing) would result in unacceptable impacts.

This Environmental Impact Statement has been prepared in accordance with the provisions of Part 5.1 of the *Environmental Planning and Assessment Act 1979*. In particular it addresses the requirements of the Secretary of the Department of Planning and Environment. It also includes consideration of the issues raised by the community and stakeholders during the development of the project.

It is inevitable that a project of this scale and location in a heavily urbanised environment would have some adverse impacts, particularly during construction. These impacts need to be considered within the context of the overall objectives of the project and the significant transportation and other benefits it would provide over the medium to longer term and particularly for future generations.

Key environmental issues have been examined throughout the design development process. Consultation has been carried out with affected stakeholders during the assessment to ensure that key potential impacts have been identified at an early stage, and where possible, avoided or appropriate mitigation measures developed. This has resulted in a number of changes that have mitigated many of the potential significant impacts.

Despite these efforts a number of adverse impacts would remain. These impacts would be largely temporary and confined to the construction period. The main potential adverse construction stage impacts would include:

- Traffic and pedestrian impacts with respect to temporary road closures and diversions
- Noise and vibration related impacts
- Demolition of buildings and impacts on business operators
- Temporary use of public land for construction work
- Impacts on community infrastructure
- Visual impacts of construction activities, particularly on construction work sites
- Water quality, particularly during ground improvement work on Sydney Harbour.

These impacts would be mitigated through further consideration during the detailed design stage including the decision on appropriate construction methodologies, and the implementation of the environmental management practices. These residual impacts would be considered as acceptable in the context of the scale and environment of the project.

The cumulative impacts during construction have been a particularly important consideration given the potential overlap with a considerable number of large infrastructure projects in the Sydney CBD. These cumulative impacts would be managed and minimised through a comprehensive coordination and consultation process involving a range of State and local government agencies.

When operational the key residual adverse impacts would be:

- Impacts to pedestrian movement in the vicinity of some metro stations
- Increase in electricity consumption and associated greenhouse gases
- Permanent impact on State heritage associated with the works at Central Station
- Increase in flood levels at existing flood affected properties near the Marrickville dive structure – primarily in the rail corridor and adjacent road reserve.

Further investigations would be carried out prior to the commencement of construction. The results of these investigations would assist in further reducing adverse construction and operational impacts. Any residual long-term adverse impacts would be more than offset by the many and significant benefits of the project.

29.8 The next steps

Transport for NSW is seeking approval from the Minister for Planning for the construction and operation of Sydney Metro Chatswood to Sydenham. Subsequent steps in the process are as follows:

- Exhibition of the Environmental Impact Statement for a minimum of 30 days and invitation for the community and stakeholders to make submissions
- Consideration of submissions. Submissions received by the Secretary would be provided to Transport for NSW and any relevant public authorities. Transport for NSW may then be required to prepare and submit:
  - A submissions report, responding to issues raised in the submissions
  - A preferred infrastructure report, outlining any proposed changes to the project to minimise its environmental impacts or to deal with any other issues raised
- Determination of the Environmental Impact Statement. The Secretary of the Department of Planning and Environment, who would then make a decision on the project and, if approved, set 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.majorprojects.planning.nsw.gov.au/page/on-exhibition.

Your submission must reach the Department of Planning & Environment by close of business on Monday 27 June 2016. Before making your submission, please read the Privacy Statement at www.planning.nsw.gov.au/privacy or for a copy, telephone the number below. The Department of Planning & Environment will publish your submission in accordance with the Privacy Statement.

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

1. Your name and address (at the top of the letter only);
2. The name of the application and the application number (SSI 7400);
3. A statement on whether you support or object to the proposal;
4. The reasons why you support or object to the proposal;
5. A declaration of any reportable political donations made in the previous two years. To find out what is reportable, and for a disclosure form, go to www.planning.nsw.gov.au/donations or phone 1300 305 695 for a copy.

Address:
Department of Planning and Environment
GPO Box 39, SYDNEY, NSW 2001.

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