Chapter 3

Strategic context and project need

January 2020

3 Strategic context and project need

This chapter outlines the strategic context and need for the project, taking into account the current and future transport challenges Sydney is facing, and describes the benefits of the project for people across Greater Sydney. It also describes how the project aligns with national and State strategic planning and transport policies.

The Secretary's environmental assessment requirements as they relate to the strategic context and project need, and where in the environmental impact statement these have been addressed, are detailed in Table 3-1.

Table 3-1 Secretary's environmental assessment requirements – Strategic context and project need

Secretary's requirement	Where addressed in EIS
Environmental impact statement	
1. The EIS must include, but not necessarily be limited to, the following: b. a description of the project and all components and activities (including ancillary components and activities) required to construct and operate it, including: - the relationship and/or integration of the project with existing and proposed public and freight transport services	The relationship and integration of the project with existing and proposed public and freight transport services is described in **Section 3.5** and **Section 3.6**. Additional information about the relationship and integration of the project with existing and proposed public and freight transport services is in **Chapter 5** (Project description), **Chapter 8** (Construction traffic and transport), **Chapter 9** (Operational traffic and transport) and **Chapter 27** (Cumulative impacts).
c. a statement of the objective(s) of the project	**Section 3.3** states the project objectives.
d. a summary of the strategic need for the project with regard to its State significance and relevant State Government policy	**Section 3.2** outlines the strategic need for the project. Reference to the project's State significance and relevant State Government policies are provided in **Section 3.6**.
g. a description of how alternatives and options within the project were analysed to inform the selection of the preferred alternative / option. The description must contain sufficient detail to enable an understanding of why the preferred alternative to, and options(s) within, the project were selected, including: - details of the short-listed route and tunnel options considered, and the criteria that was considered in the selection of the preferred route and tunnel design; - details of the alternative construction methods that were considered for tunnel	The benefits of the overall program of works and the project are provided in **Sections 3.4** and **3.5** respectively. The assessment of strategic and design alternatives considered is presented in **Chapter 4** (Project development and alternatives. Justification for the preferred proposal taking into consideration the objects of the *Environmental Planning and Assessment Act 1979* is presented in **Chapter 28** (Synthesis of the environmental impact statement).

Secretary's requirement	Where addressed in EIS
construction, particularly those areas spanning Sydney Harbour; - the alternative tunnel design and ventilation options considered to meet the air quality criteria for the proposal; and - a justification for the preferred proposal taking into consideration the objects of the *Environmental Planning and Assessment Act 1979*.	

3.1 Sydney's future

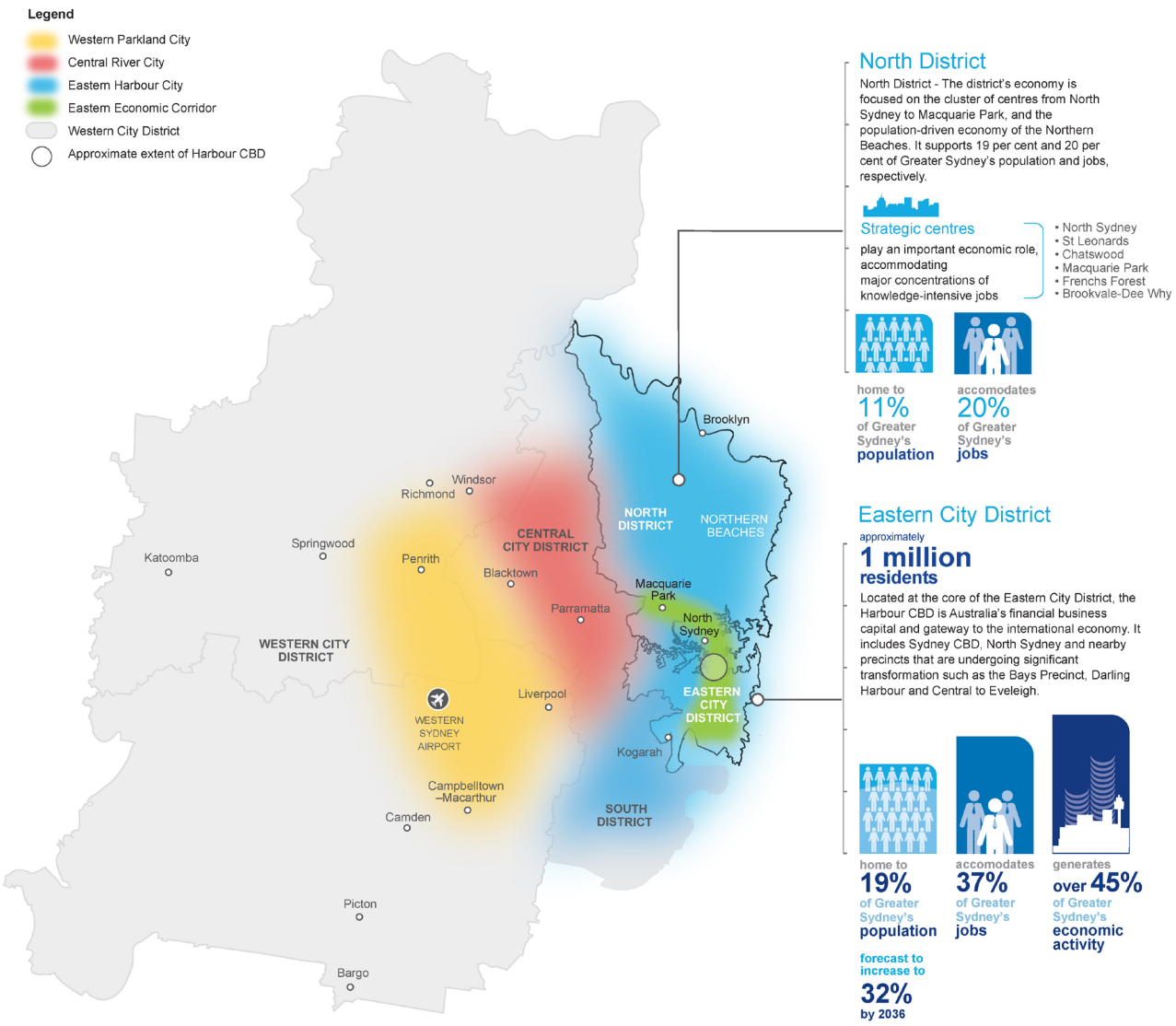
The population of Sydney is forecast to grow from six million to eight million people over the next 40 years. To accommodate this growth, the Greater Sydney Commission's *Greater Sydney Region Plan – A Metropolis of Three Cities* (Greater Sydney Commission, 2018a) envisages a global metropolis of three liveable, productive and sustainable cities.

The Western Harbour Tunnel and Warringah Freeway Upgrade project (the project) is located in the Eastern City District, including the Harbour Central Business District (CBD), and the North District of the Eastern Harbour City. The Eastern City District and North District areas are of strategic economic importance for Sydney. The districts and their key metrics are shown in Figure 3-1.

Sydney's key employment and economic areas are clustered along a corridor that runs from Port Botany and Sydney Airport to Macquarie Park; this is known as the Eastern Economic Corridor. The Eastern Economic Corridor contributed two thirds of the NSW economic growth for the 2015/16 Financial year (Greater Sydney Commission, 2018b), and provides jobs in a range of knowledge-based sectors including education, financial and other business services, communications, high-tech manufacturing and biotechnology (NSW Government, 2014). Given the Harbour City CBD focus of the current arterial road network, many road based trips generated by the Eastern Economic Corridor must pass through the Harbour CBD area to cross Sydney Harbour.

Supporting the current needs and future growth of the Eastern Harbour City and Eastern Economic Corridor through an efficient transport network is fundamental to the liveability, productivity and sustainability of Greater Sydney. Accordingly, the *Greater Sydney Region Plan* was prepared concurrently with the *Future Transport Strategy 2056* (NSW Government, 2018) and the *State Infrastructure Strategy 2018 – 2038* (Infrastructure NSW, 2018) to align land use, transport and infrastructure outcomes for Greater Sydney.

Additional key strategic planning and policy documents relevant to the project are discussed in Section 3.6.



Source: Greater Sydney Region Plan – A Metropolis of Three Cities (Greater Sydney Commission, 2018a)

Figure 3-1 Greater Sydney's Eastern City and North districts

3.2 Overview of the Eastern Harbour City's road transport challenge

The motorway crossings of Sydney Harbour, including the Sydney Harbour Bridge, Sydney Harbour Tunnel and ANZAC Bridge, are critical links in Sydney's motorway and arterial road network. Key metrics for the Eastern Harbour City's road transport network are shown in Figure 3-2.

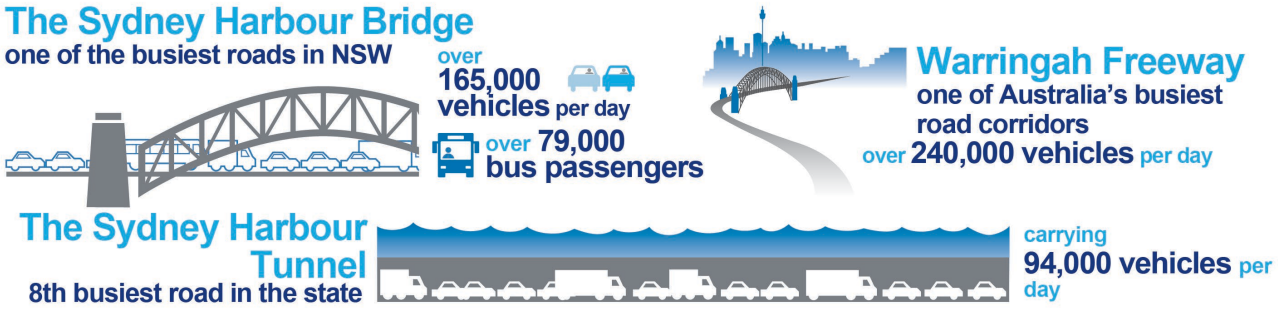


Figure 3-2 Key metrics for the Eastern Harbour City's transport network

In addition to the large number of customers who rely on these corridors, the limited capacity and number of alternate routes for crossing Sydney Harbour make these corridors critical to the performance of the broader motorway and arterial road network. Network data demonstrates that incidents on the harbour crossings and their approaches impact journey times for freight, buses and private vehicles travelling on the arterial network across the region.

During the period of 2014 to 2017, there were an average of 1418 incidents per year on Sydney Harbour Bridge and its approaches (including the Warringah Freeway) impacting journey times for customers. Without intervention, the predicted growth in traffic demand over time will result in further increases in journey time delays and deterioration of reliability over time.

In addition to large traffic volumes, a major contributor to congestion around the Harbour CBD is that many of the most critical road corridors – including the Sydney Harbour Bridge, the Sydney Harbour Tunnel, ANZAC Bridge, Western Distributor and the Warringah Freeway – perform both bypass and access functions. The dual function of these corridors is reflected in the high proportion of vehicles that use them to travel to destinations other than the Sydney CBD (see Figure 3-3). This contributes to high levels of congestion as well as poor network outcomes, as bypassing traffic is impacted by congested collector/distributor roads.

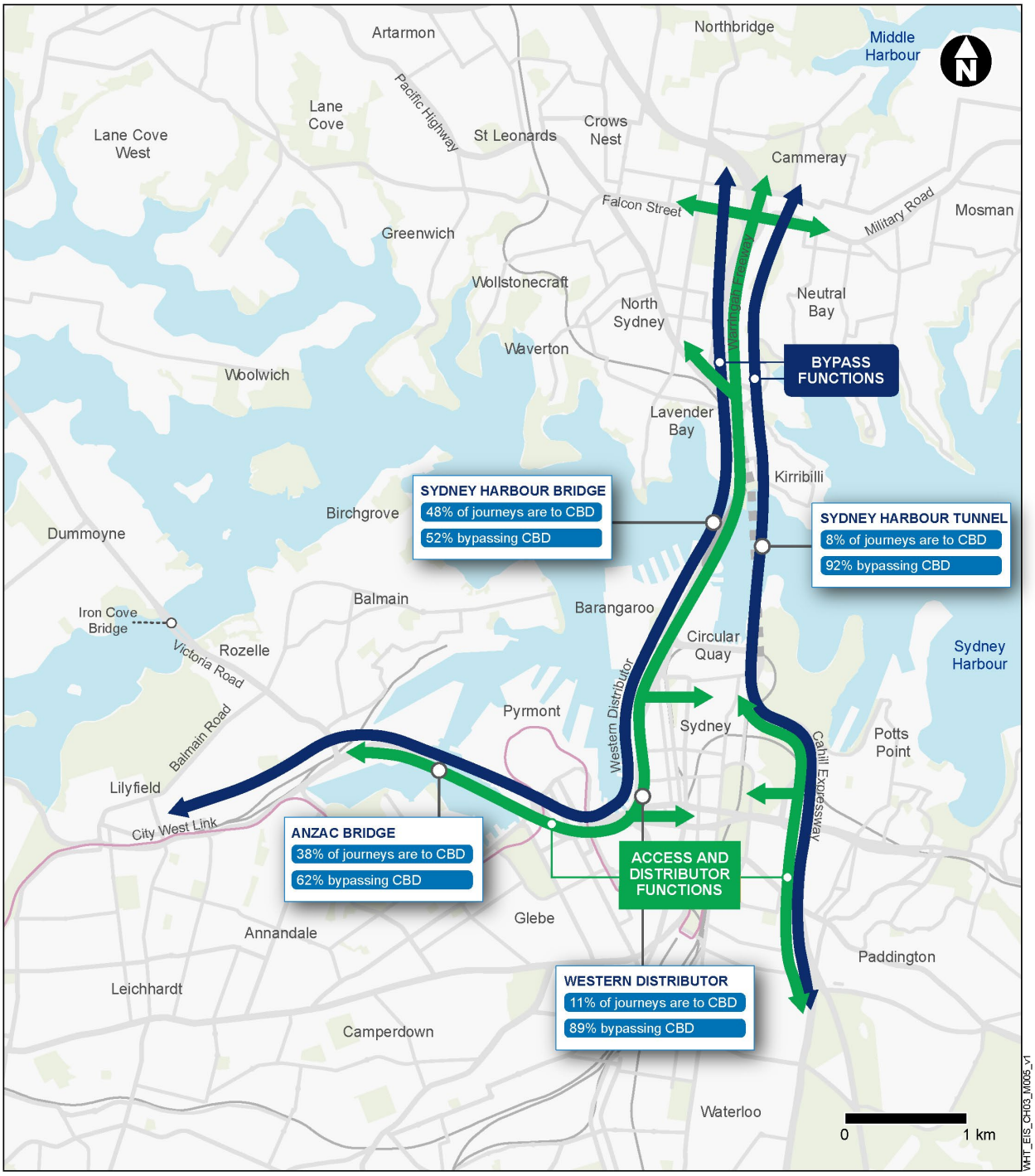


Figure 3-3 Function of critical road corridors around the Harbour CBD

The *Australian Infrastructure Audit 2019* (Infrastructure Australia, 2019) listed the Eastern Distributor, Sydney Harbour Bridge, Warringah Freeway and the Gore Hill Freeway corridor among Australia's most congested road corridors, generating a congestion cost of $65,000 per day in 2016. If no action is taken, this is forecast to rise to $98,000 per day by 2031. As congestion on these corridors increases so too will the costs.

Infrastructure NSW has estimated that the economic risk to growth and productivity posed by traffic congestion in the Eastern City District is about $5 billion a year, and is forecast to increase to about $8 billion annually by 2020. Infrastructure NSW has observed that "*without corrective action, congestion will worsen – and the costs to business and the community will escalate – as the city's population grows*" (Infrastructure NSW, 2014).

Augmenting capacity and reducing the conflict between access and bypass functions for the Sydney Harbour Bridge, the Sydney Harbour Tunnel, ANZAC Bridge and Western Distributor is thus a key element of the integrated transport network required to support the liveability and productivity of the Eastern Economic Corridor and its connections with international gateways and their surrounds.

Further detail on these transport challenges and their influence on the proposed design for the Western Harbour Tunnel and Warringah Freeway Upgrade project is provided in the subsequent sections of this chapter.

3.2.1 High traffic volumes on roads around the Harbour CBD

The Eastern Harbour City has the largest concentration of jobs in Greater Sydney, accommodates the most productive industries and is home to a highly skilled workforce.

The major transport corridors around the Harbour CBD are the busiest in Greater Sydney and Australia. The cross-harbour network is particularly critical, including:

- **Sydney Harbour Bridge (Bradfield Highway and Cahill Expressway)** – one of the busiest roads in NSW, carrying over 165,000 vehicles a day (Roads and Maritime, 2017b)
- **Sydney Harbour Tunnel** – the eighth busiest road in NSW, carrying 94,000 vehicles a day (Roads and Maritime, 2017b)
- **Sydney Harbour Bridge railway crossing** – an essential link on the Sydney Trains network, accommodating T1 North Shore, Northern and Western Line services (Sydney Trains, 2015).

3.2.2 Congested corridors and conflicting functions of roads around the Harbour CBD

The road corridors around the Harbour CBD were developed during a period where traffic demands were CBD focused. Since this time traffic patterns have evolved, with demands to bypass the CBD now larger than those looking to access the CBD (see Figure 3-3). This has resulted in the most critical arterial roads surrounding the Harbour CBD, including the Sydney Harbour Bridge, the Sydney Harbour Tunnel, ANZAC Bridge, Western Distributor and the Warringah Freeway, serving conflicting functions – providing local access to a constrained CBD road network and a bypass route for through traffic.

The Sydney Harbour Tunnel is one of the primary north–south corridors for journeys between centres north of Sydney Harbour and the trade gateways of Sydney Airport and Port Botany and the south-west. This link also provides access to the eastern side of the Harbour CBD.

The Warringah Freeway is a key element of the main north–south and east–west motorway network, but is also used to service shorter trips within the Lower North Shore via closely spaced entry and exits.

The Sydney Harbour Bridge is an important route for vehicles travelling between the North District and centres to the west, including Greater Parramatta and Sydney Olympic Park, and to the south, including Sydney Airport and Port Botany, but also acts as the primary CBD access road to and from the north.

The ANZAC Bridge and Western Distributor were primarily designed to provide access between the Harbour CBD and the west, rather than function as the primary arterial corridor between the Inner West and centres north of the Harbour CBD. This is evidenced by the southbound capacity from the Sydney Harbour Bridge through to the ANZAC Bridge being limited to one lane on the

Western Distributor. The current and future traffic demands indicate that the majority of customers using this corridor are attempting to bypass the Harbour CBD.

These conflicting functions combined with the high traffic volumes on these corridors is a major contributor to the congestion and poor network performance for freight, public transport and private vehicle users on these routes and other tributaries. This is because traffic attempting to bypass the CBD is hampered by congested collector/distributor roads. This conflict results in travel speeds that are low in the AM and PM peaks and are forecast to deteriorate even further as traffic demand grows over time.

3.2.3 Low resilience on the Harbour CBD road transport network

The combination of high demand and full capacity on road corridors around the Harbour CBD has a detrimental impact on the resilience of Greater Sydney's wider road network. Given the critical role these corridors play in the wider arterial road network, incidents on these corridors have broad impacts on the Sydney road network, leading to traffic queues and unreliable travel time for private vehicle and bus users.

As there are only a few alternative harbour crossing routes, the impact of incidents is particularly pronounced if they occur on the harbour crossings or their approaches. With limited alternative routes for freight, commercial vehicles and buses, incidents on these crossings take a long time to clear, often causing significant and widespread delays. Incidents on the Sydney Harbour Bridge and Warringah Freeway corridor between 2014 and 2017 are shown in Figure 3-4.

Figure 3-4 Incidents on the Sydney Harbour Bridge and Warringah Freeway corridor (2014 to 2017)

As traffic demands for the Sydney Harbour Bridge and Warringah Freeway corridor continue to increase, so too will the costs associated with incidents on these critical links. Without action, it is estimated that the annual cost of incidents (excluding congestion) on this corridor alone will be more than $66 million per annum by 2036. Creating alternatives to this route is necessary to increase network resilience and reduce the impact of incidents on Greater Sydney's productivity.

3.2.4 Sub-optimal performance on the Warringah Freeway

Carrying around 240,000 vehicles per day, including more than 30,000 bus passengers during the two-hour AM peak, the Warringah Freeway is one of the busiest road corridors in Australia, and is critical to the operation of the Sydney arterial road network (Roads and Maritime, 2017b). Demand on this corridor is forecast to increase by 17 per cent by 2037.

The Warringah Freeway Corridor has evolved in a piecemeal fashion between 1968 and 2006 and performs a number of distinct functions, including:

- The main M1 corridor linking the Sydney Harbour Tunnel through to Gore Hill Freeway for onward journeys on the M2 and future NorthConnex/M1 corridors

- Servicing key centres along the Eastern Economic Corridor
- Providing access for commuters and services to economic centres including the Harbour CBD, North Sydney, St Leonards, Chatswood and Macquarie Park via the Gore Hill Freeway and Lane Cove Tunnel
- Connections with the west and Inner West, linking the ANZAC Bridge, City West Link and to roads to the north, including Gore Hill Freeway and Lane Cove Tunnel
- Local trips on the Lower North Shore, such as from Willoughby Road to Falcon Street.

These competing functions have resulted in a complex corridor where:

- Ramps are very closely spaced, resulting in traffic weaving across multiple lanes
- Ramps converge and diverge in each of the three carriageways, and sometimes from the right hand lane, creating turbulence and impacting wayfinding
- There is poor separation of vehicles using the mainline and those making shorter local and regional trips.

These competing functions, coupled with the evolution of the corridor over time and high traffic volumes, impact the efficiency, safety, and capacity of the corridor.

The safety and operational issues inherent in the current configuration of the Warringah Freeway are illustrated by the fact there were 387 crashes on the Warringah Freeway (including interchanges) between 2012 and 2016. Of these crashes, 154 occurred on the mainline and involved multiple vehicles.

3.2.5 Congestion impacting urban amenity across the Eastern City and North Districts

Across the Eastern and North Districts, several parts of the arterial road network perform a ‘place’ function. This means that, as well as being transport corridors, parts of the road network are destinations in their own right, including for shopping and dining. These places play an important role in supporting the liveability, productivity and sustainability of Greater Sydney, and the transport network has an important role in supporting this objective, as reflected by ‘Successful Places’ being one of the six NSW-wide outcomes established by *Future Transport Strategy 2056*.

Congestion on the arterial network across the Eastern City and North City Districts result in compromised streetscapes, views, physical safety, air pollution and noise levels, and impairs efforts to improve liveability in these areas.

3.3 The Western Harbour Tunnel and Beaches Link program of works

The Western Harbour Tunnel and Warringah Freeway Upgrade project and the Beaches Link and Gore Hill Freeway Connection project are being delivered as separate projects, but have been developed as an integrated program of works known as the Western Harbour Tunnel and Beaches Link program.

In conjunction with other road, rail, bus and light rail projects, the Western Harbour Tunnel and Beaches Link program of works has been developed to meet the current and future transport needs of Sydney. The program of works represents an important step in the long-term development of Greater Sydney's strategic transport network. The design has been developed to address critical transport constraints on the motorway and arterial network, and support the growth of the city and NSW, by improving the capacity, reliability, and journey time performance of the critical cross-harbour transport corridors near the Harbour CBD.

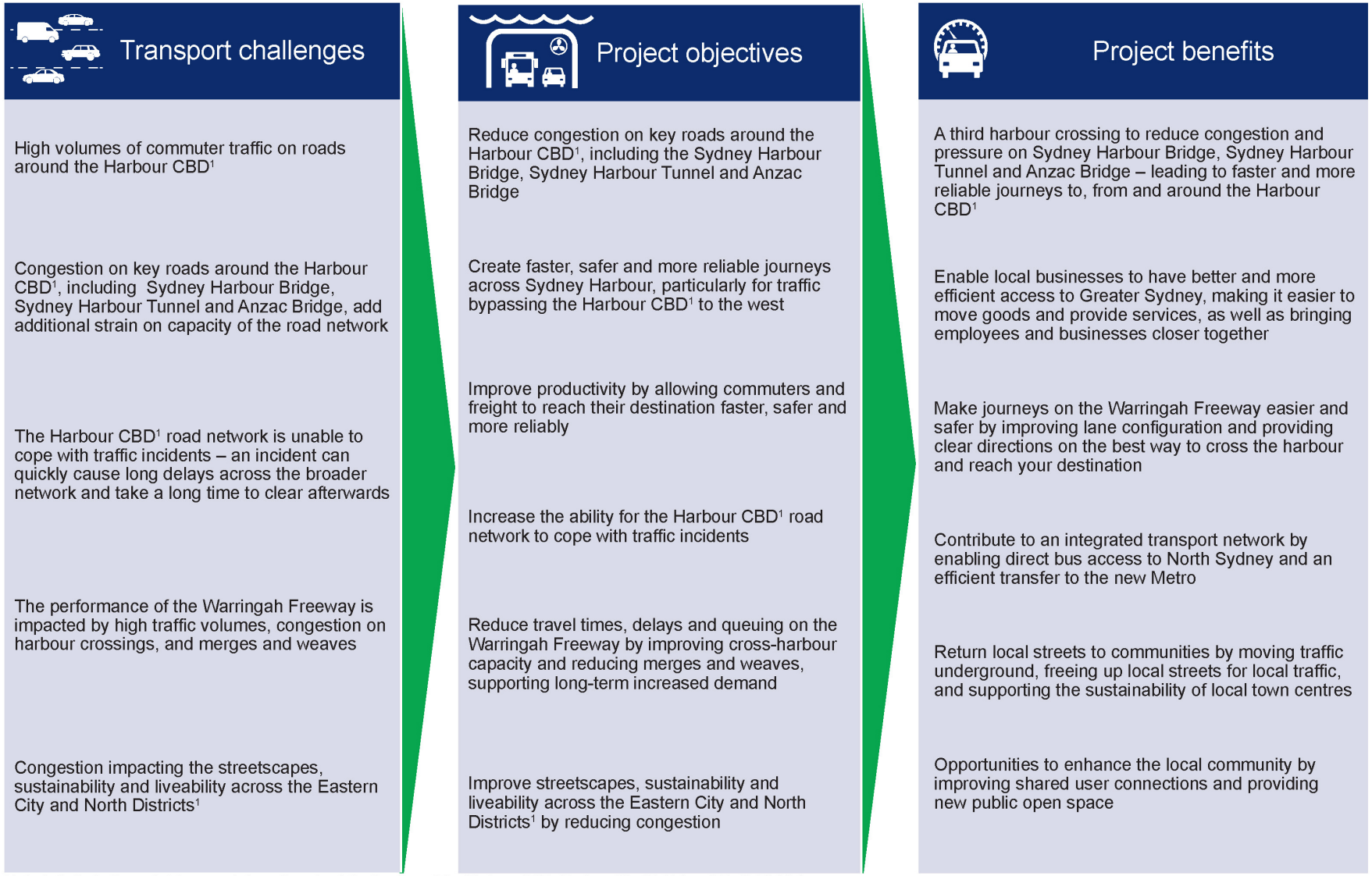
As well as relieving road congestion for freight operators, service vehicles, bus passengers and commuters the program has been designed to provide a platform to deliver significant improvements to public transport services. This includes opportunities for reliable and efficient express bus services between the Northern Beaches, North Sydney, the Harbour CBD and strategic centres to the south and west.

The core capacity improvement offered by the Western Harbour Tunnel and Warringah Freeway project is key to enabling the proposed Beaches Link and Gore Hill Freeway Connection project and the associated significant change in connectivity and reliability for the northern transport network.

To ensure the design for the program of works meets the transport challenges of the Eastern Harbour City, the following objectives have been developed for the Western Harbour Tunnel and Warringah Freeway Upgrade project:

- Reduce congestion on distributor roads around the Harbour CBD, including the Sydney Harbour Bridge, Western Distributor and ANZAC Bridge
- Create faster, safer and more reliable journeys across Sydney Harbour, particularly for traffic bypassing the Harbour CBD to the west
- Improve productivity by allowing commuters and freight to reach their destination faster, safer and more reliably
- Increase the ability for the Harbour CBD road network to cope with traffic incidents
- Reduce travel times, delays and queuing on the Warringah Freeway by improving cross-harbour capacity and reducing merges and weaves, supporting long-term increased demand
- Improve streetscapes, sustainability and liveability across the Eastern City and North Districts by reducing congestion.

A summary of the project challenges, corresponding objectives and overall project benefits are shown in Figure 3-5 and discussed in more detail in Sections 3.4 and 3.5.



Note 1: Refer to figure 3-1 for more information about the location of the Harbour CBD, Eastern City District and North District

Figure 3-5 Project challenges, objectives and benefits

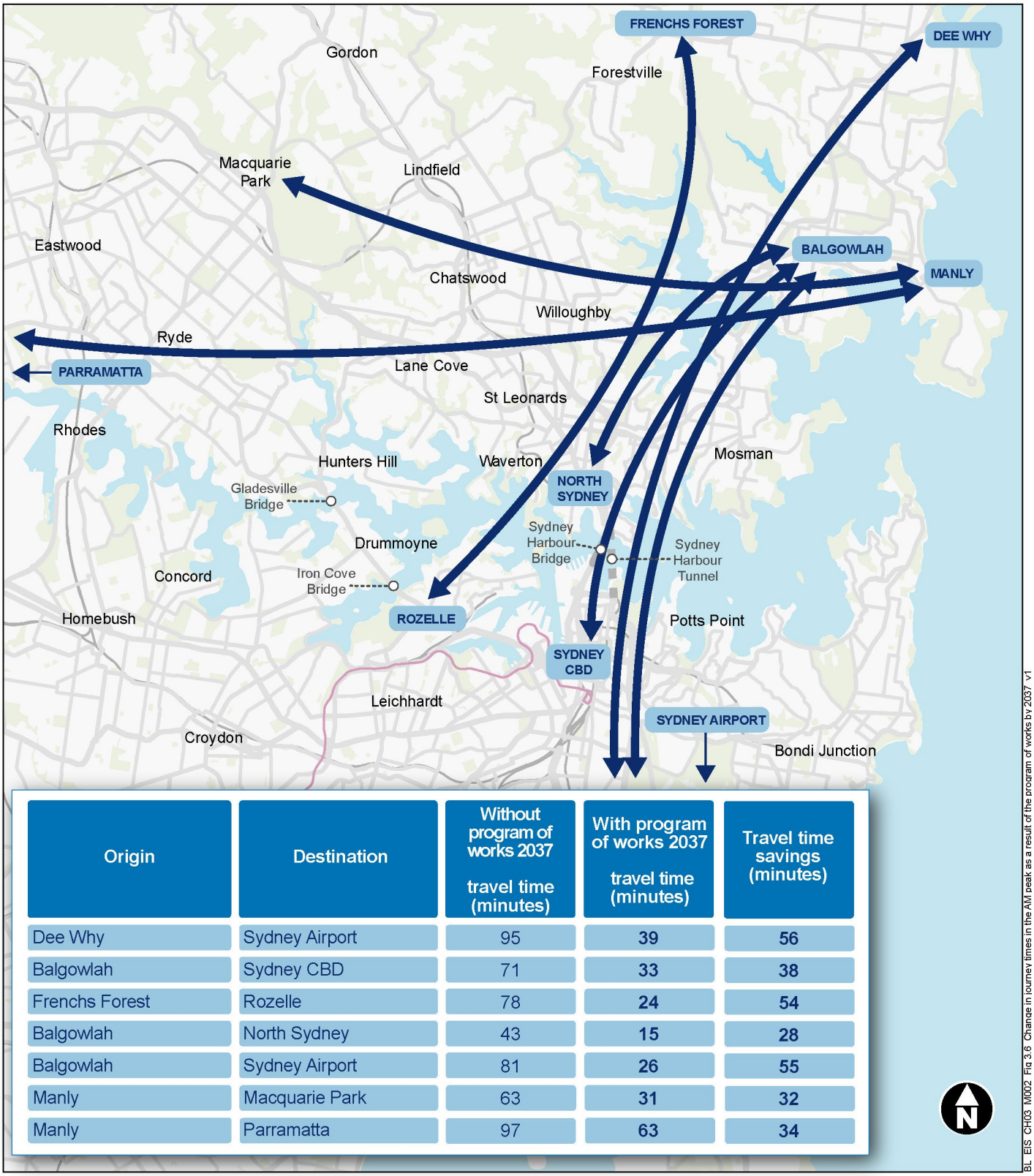
3.4 Key benefits of Western Harbour Tunnel and Beaches Link program of works

The Western Harbour Tunnel and Beaches Link program of works would deliver new strategic road links for Greater Sydney, improving journey times for freight, public transport and private vehicle customers and alleviating pressure on some of the city's most critical transport corridors. The program of works is designed to improve the capacity, reliability, and journey times on cross-harbour transport corridors near the Harbour CBD and improve connectivity to the Northern Beaches.

The program of works would support faster travel times for journeys between the Northern Beaches and south and west of Sydney Harbour. For example, journeys from Dee Why to Sydney Airport are expected to be 56 minutes faster (total travel time 39 minutes) in the AM peak by 2037 (via the proposed Beaches Link, Western Harbour Tunnel and WestConnex). Other key journey times in the AM peak as a result of the program of works are shown in Figure 3-6.

Delivering the program of works would also improve the resilience of the network, given that each project provides additional capacity and an alternative route to heavily congested harbour crossings.

In addition to the journey time and reliability benefits provided for service vehicles, freight and commuters, the program would enable significant improvements for public transport customers currently using some of Sydney's busiest road corridors.



Origin	Destination	Without program of works 2037 travel time (minutes)	With program of works 2037 travel time (minutes)	Travel time savings (minutes)
Dee Why	Sydney Airport	95	39	56
Balgowlah	Sydney CBD	71	33	38
Frenchs Forest	Rozelle	78	24	54
Balgowlah	North Sydney	43	15	28
Balgowlah	Sydney Airport	81	26	55
Manly	Macquarie Park	63	31	32
Manly	Parramatta	97	63	34

Figure 3-6 Change in journey times in the AM peak as a result of the program of works by 2037

Prior to completion of the B-Line works, the Northern Beaches experienced some of Sydney's longest and most unreliable peak-hour bus travel times. The B-Line project has already reduced travel times and increased bus patronage – with over 2000 weekly services providing enhanced services between Mona Vale and Wynyard. Refer to Figure 3-7 for B-Line express routes and integration with key project areas.

The proposed Western Harbour Tunnel and Beaches Link tunnels provide further opportunities for much quicker and more reliable express bus services between the Northern Beaches and strategic centres including North Sydney, the Harbour CBD, St Leonards and Macquarie Park via the motorway network. These bus services will provide links to strategic stations on the rail network to support longer distance public transport journeys. Expansion of B-Line services to take advantage of these opportunities would greatly improve the capacity, journey times and reliability for public transport to and from the Northern Beaches.

Figure 3-7 B-Line express routes and integration with key project areas

By reducing pressure on existing arterial corridors, the program would also provide benefits to users of surface bus services on Warringah Road and Military Road. Bus travel times along the Warringah Freeway would also generally improve as a result of the program of works. This is due to the reduction of traffic on Warringah Freeway caused by traffic demand transferring to the Beaches Link Tunnel and Western Harbour Tunnel, and improvements to the bus priority infrastructure.

By providing additional motorway capacity and bypassing communities underground, the program of works would reduce through traffic volumes through many areas. In addition to reducing pressure on key road corridors such as Military Road, Spit Road, Warringah Road, the Western Distributor and ANZAC Bridge, the program of works would also result in less through traffic through suburbs such as Naremburn, Mosman and Seaforth. This would result in reduced noise and improved amenity through these areas.

Key benefits related to the Western Harbour Tunnel and Warringah Freeway Upgrade project are discussed in detail in Section 3.5.

3.5 Key benefits of the Western Harbour Tunnel and Warringah Freeway Upgrade project

The Western Harbour Tunnel and Warringah Freeway Upgrade project is a vital part of the overall Western Harbour Tunnel and Beaches Link program of works. The project would provide much needed additional capacity on the busiest road corridor in Sydney, improving liveability and amenity for local communities that would benefit from reduced through traffic and improved connectivity, and deliver meaningful productivity benefits for NSW.

This project leverages off the underground WestConnex network to significantly increase the efficiency and capacity of the transport crossings of Sydney Harbour by delivering a new western bypass of the Harbour CBD. The additional core motorway capacity delivered by this project would significantly improve journey times and journey time reliability for approximately 2.5 million people who use the Sydney Harbour Bridge and Sydney Harbour Tunnel road crossings every week, as well as users of many arterial roads whose performance is affected by these crossings.

The Warringah Freeway Upgrade would allow for the new tunnel to connect with the existing road corridor and streamline traffic movements to optimise the use of the three harbour crossings into the future.

This new western bypass of the Sydney CBD would serve through journeys between the south and west of Sydney, including the international gateways of Sydney Airport and Port Botany, and strategic centres north of the harbour including North Sydney, St Leonards, Chatswood and Macquarie Park. Increased road network capacity and connectivity as a result of the project would also result in travel time savings for freight movements, further serving the growth of Sydney's Eastern Economic Corridor.

The increase in harbour crossing capacity and efficiency delivered by the project would also remove a major bottleneck that constrains the road transport capacity of areas north of the harbour, including the Northern Beaches area. The combined delivery of this project with future connections such as the Beaches Link and Gore Hill Freeway Connection project would deliver significant benefits for public transport, freight and other road users over an increased catchment.

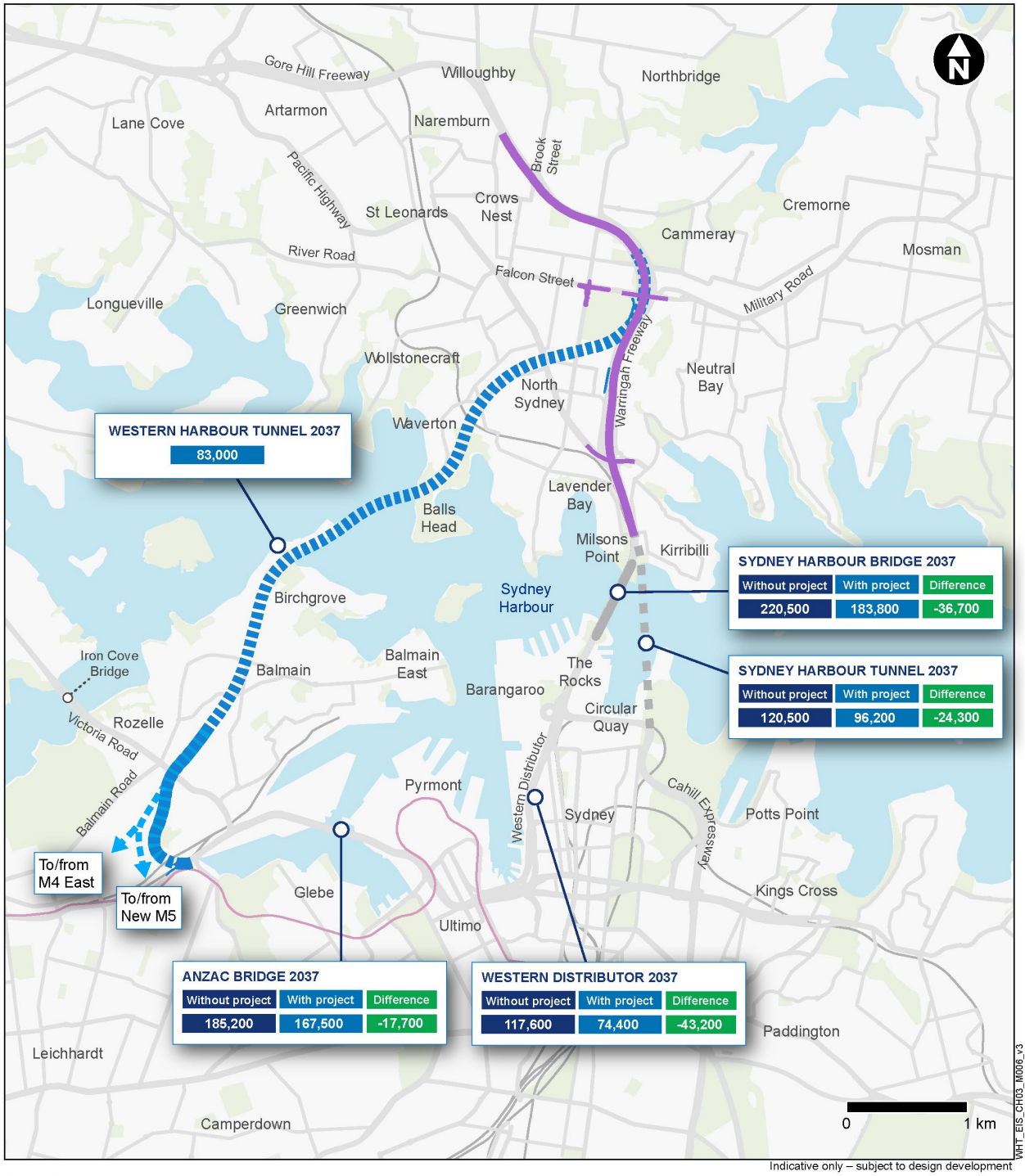
Further detail on some of the key benefits of the project is provided in the following sections. Further information on alignment of the project outcomes with strategic State and Federal Government objectives is provided in Section 3.6.

3.5.1 Reduced pressure on distributor roads around the Harbour CBD

The roads around the Sydney and North Sydney CBDs perform a dual function, carrying traffic accessing these centres and their surrounds, while also serving as the primary through-routes for longer north–south journeys.

A key objective of the project is to provide a high quality western motorway bypass of the Harbour CBD. This would significantly improve journey times and reliability for through traffic and allow CBD collector-distributor roads to function more efficiently by removing the majority of through-traffic. This would benefit all users, including buses and freight, that rely on key corridors including Victoria Road, City West Link, the ANZAC Bridge, Western Distributor, the Sydney Harbour Bridge as well as numerous key road corridors that connect to the Warringah Freeway.

Figure 3-8 illustrates the forecast traffic distribution for the project, showing that large volumes of traffic would no longer need to use the Sydney Harbour Bridge to cross the harbour or the main distributor routes that connect to the Sydney Harbour Bridge. The Western Distributor and Sydney Harbour Tunnel in particular would experience large demand reductions of about 35 per cent and 20 per cent respectively.



Legend

Operational features
- Western Harbour Tunnel
- Warringah Freeway Upgrade
- M4-M5 Link tunnel fitout and commissioned as part of Western Harbour Tunnel

Connecting projects
- M4-M5 Link (indicative)

Existing rail network
- Heavy rail
- Light rail

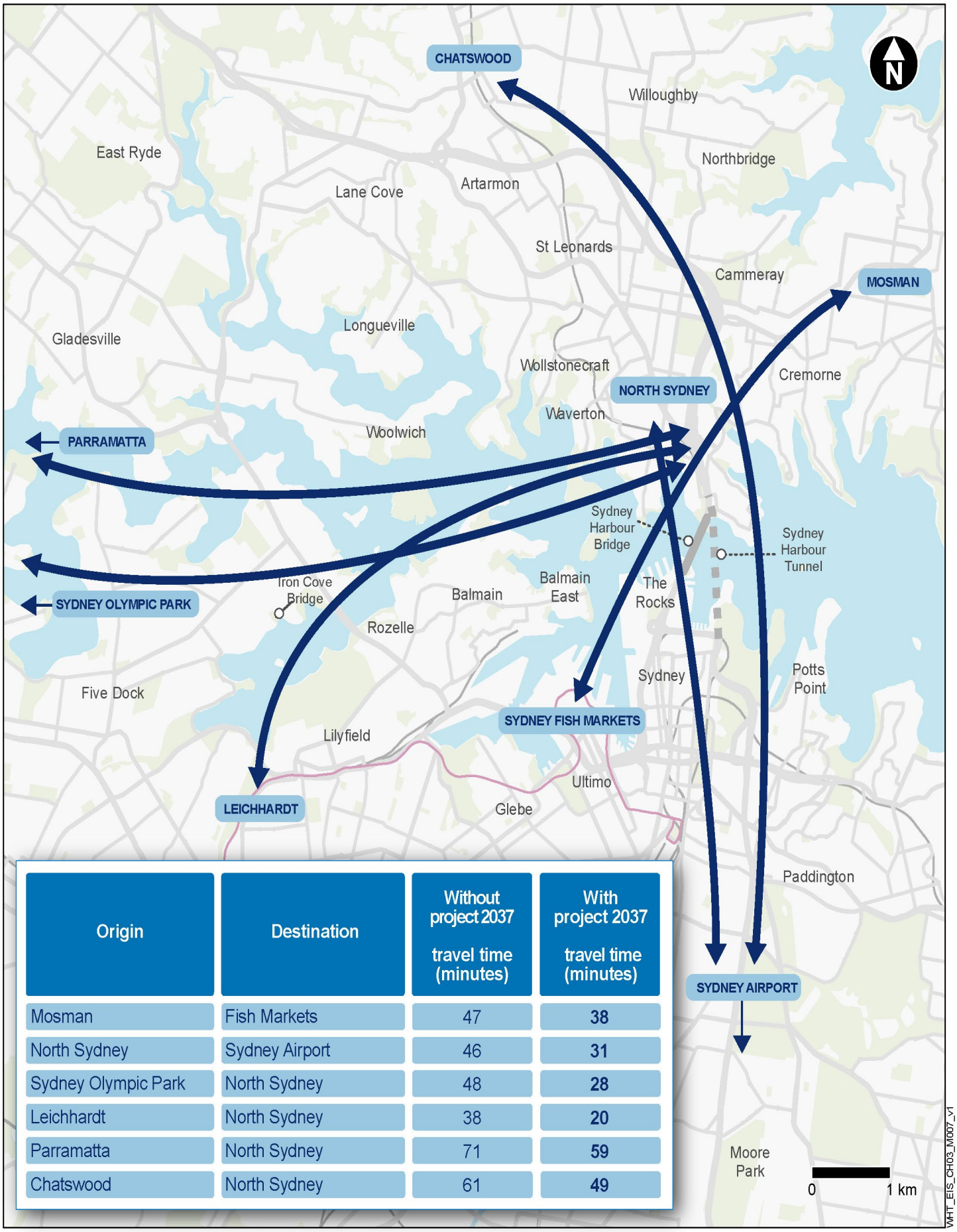
Figure 3-8 Change in average weekday traffic demands (two-way) on key road corridors by 2037

3.5.2 Faster, more reliable journeys on Sydney Harbour crossings

In addition to the fast and reliable journeys the proposed tunnels would offer to customers, the project would enable faster, more reliable journeys for all vehicles, including buses, on surface corridors by relieving pressure on these existing corridors. Relieving pressure on these road corridors would particularly benefit customers on northbound buses, since these buses are currently required to use the general traffic lanes and therefore experience the full impacts of congestion and any disruption to traffic flow.

The expected savings for specific journeys in the AM peak are shown in Figure 3-9, which points to shorter journey times when comparing the 2037 'with project' and 'without project' cases. For example, journeys from Sydney Olympic Park to North Sydney, and from Leichhardt to North Sydney, would both experience time savings of about 20 minutes. Journeys from North Sydney to Kingsford Smith Airport would experience time savings of about 15 minutes.

The impact on AM peak travel times to the Harbour CBD from across Greater Sydney is shown in Figure 3-10. The project would produce large travel time savings for commuters from the Northern Beaches and the Lower North Shore travelling to jobs in the CBD. In particular, travel time savings of up to 20 minutes would be achieved for commuters travelling from Chatswood, Roseville, Lindfield, Forestville, Belrose, Frenchs Forest, Cromer and North Narrabeen. By contrast, some slight increases in travel times would be observed for commutes starting in Rozelle due to an overall increase in travel demand through the Rozelle area (of up to 40 per cent by 2037). Travel time increases in Rozelle are likely to be less than one minute, which is considered to be negligible. The majority of traffic growth through the Rozelle area would be facilitated by the M4-M5 Link and the associated Rozelle Interchange, which would allow substantially more traffic to travel through the area via motorway tunnel.



Origin	Destination	Without project 2037 travel time (minutes)	With project 2037 travel time (minutes)
Mosman	Fish Markets	47	38
North Sydney	Sydney Airport	46	31
Sydney Olympic Park	North Sydney	48	28
Leichhardt	North Sydney	38	20
Parramatta	North Sydney	71	59
Chatswood	North Sydney	61	49

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Figure 3-9 Change in journey times in the AM peak as a result of the project by 2037

Legend

Operational features
- Western Harbour Tunnel
- Warringah Freeway Upgrade

Travel time savings (minutes)
- -1 to 1
- 1 to 5
- 5 to 10
- 10 to 15

Figure 3-10 Travel time savings for journeys to the Harbour CBD in the AM peak as a result of the project by 2037

3.5.3 Improved productivity and access to the Harbour CBD

The major transport corridors around the Harbour CBD are critical links in Sydney's motorway network, with congestion on these corridors impacting the performance of the M1, M2, M5, A1, A4, A40 and A8 corridors. The current transport constraints on the major corridors around the Harbour CBD have broad reaching impacts on the productivity of the region.

The project would relieve pressure on the critical cross-harbour road network and thus reduce the cost of freight, provision of goods and services, and other business travel along and through the Eastern Economic Corridor and around the Harbour CBD. The combination of freight and business travel time savings as a result of the project would generate significant productivity benefits for the Harbour CBD and wider region.

Given the contribution of the Harbour CBD to New South Wales' gross state product, supporting the future growth and productivity of the corridor by enabling greater business-to-business connections is a large benefit for NSW and the national economy.

Figure 3-11 below shows the impact of the project on the number of jobs accessible by car within 30 minutes in the AM peak by 2037. As can be seen, residents in the Lower North Shore (particularly North Sydney and surrounding areas) and the Inner West would enjoy greater access to jobs as a result of the project.

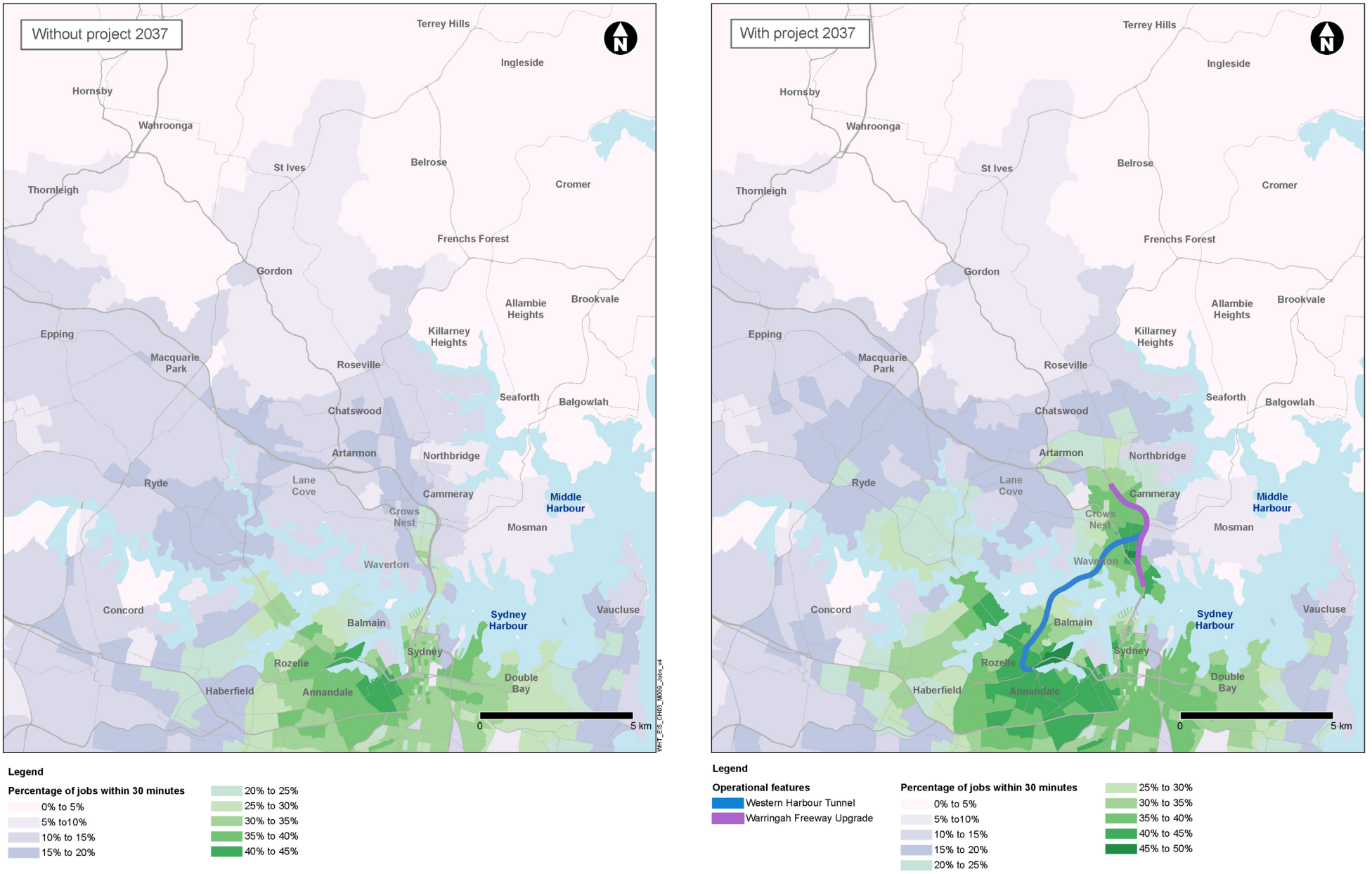

Figure 3-11 Change in the percentage of jobs accessible within 30 minutes in the AM peak as a result of the project by 2037

3.5.4 Increased resilience of the Eastern Harbour City's road network

The major transport corridors around the Harbour CBD are critical links in Sydney's motorway network, with incidents on these corridors impacting the performance across the wider transport network. This heavy reliance on congested corridors with limited alternative routes creates a significant reliability risk for the motorway and arterial network.

The project would boost the resilience of the Eastern Harbour City road network by providing a vital additional road capacity to reduce the impact of incidents, and an alternate corridor to maintain the movement of people and goods through the heart of the Eastern Harbour City in the event of an incident on the Sydney Harbour Bridge, Sydney Harbour Tunnel or ANZAC Bridge corridors.

Resilience benefits reflect savings in travel time and vehicle operating costs that would be derived by providing an alternative route across the harbour, which would limit the impacts of an incident on alternative and connecting routes.

3.5.5 Improved traffic performance on Warringah Freeway to support long term increased demand

A further constraint on network capacity and performance around the Harbour CBD is the performance of the Warringah Freeway: a corridor of critical importance due to its role in providing access to both harbour crossings, as well as providing the primary bus corridor to and from the Sydney CBD.

The Warringah Freeway Upgrade component of the project is critical as it enables:

- The integration of the Western Harbour Tunnel and Beaches Link tunnels into the existing corridor
- Safe and efficient use of the three harbour crossings into the future by reconfiguring access arrangements, lane configurations and improving wayfinding where required
- The Warringah Freeway to accommodate the longer-term increase in demand along this corridor
- Improvements to bus priority infrastructure and integration of future express services via Beaches Link.

Once complete, the upgraded corridor would enable each of the three harbour crossings to perform their intended function:

- The Western Harbour Tunnel as the western bypass of the Harbour CBD
- Sydney Harbour Bridge as a primary Sydney CBD access and collector-distributor corridor
- Sydney Harbour Tunnel primarily providing access to the eastern suburbs and acting as the eastern bypass of the Harbour CBD.

3.5.6 Urban amenity improvements

The *Future Transport Strategy 2056* identifies 'Successful Places' as one of the six outcomes for NSW, and sets out a vision for better balancing 'movement and place' needs, particularly in major centres such as the Sydney CBD (NSW Government, 2018). Certain roads in and around the Harbour CBD perform important 'place' functions, meaning they are destinations in their own right, such as shopping or dining precincts. The amenity of some of these places suffer due to poor performance of the arterial road network.

The project would facilitate improvements to urban amenity by reducing through-traffic movements and relieving pressure on arterial roads connecting the broader Eastern City and North Districts to the Harbour CBD (see Figure 3-8). The project would deliver the opportunity to relocate a significant volume of through traffic on surface arterials underground. In addition to the direct benefit of moving bypass traffic underground, reduced congestion on the arterial network offers flow-on benefits to the adjoining local network, reducing the impact of queuing on local high streets and local roads. Reduced congestion on the arterial road network would result in further improvements in amenity related to physical safety, air quality and noise levels.

In addition to amenity benefits offered by the creation of an underground bypass for a significant number of vehicles, the project also allows for improvements to public spaces at Berrys Bay and Yurulbin Park to improve urban amenity.

The proposed Berrys Bay construction site would be located on Government owned land formally used as an industrial site. In addition to the construction efficiency and reduction in community impacts that use of this waterside site provides, the temporary construction support site at Berrys Bay provides a significant opportunity for Transport for NSW, North Sydney Council and other relevant stakeholders to rehabilitate this residual industrial site to create an area of high quality public space for the wider community.

The project has engaged Mr Bruce Mackenzie AM, a renowned Australian landscape architect who was responsible for creation of Yurulbin Park in the mid-1970s when the site was rehabilitated following its use as a shipyard. This work has informed the plan for establishment of the temporary construction support site to minimise long-term impacts to key features of the site. Mr Mackenzie has also provided the guiding principles for rehabilitation of the site post-construction. This work has identified a number of areas where the original landscape intent was not delivered due to budget constraints at the time (eg soil depths and subsurface drainage in many areas are not suitable to support certain species or larger trees long-term). The project intends to address these issues and revitalise certain areas of the park to improve the site and ensure its longevity as a high value community space.

The final form of these sites, and other areas to be rehabilitated post construction, would be subject to consultation with local councils, stakeholders and the local community.

3.6 Strategic planning and policy framework

The project has been developed to align with the objectives of a number of strategic plans for transport, freight, and city planning that have been prepared at a national and State level. Table 3-2 provides an overview of relevant strategic plans, policies and strategies and their relationship to the project.

Table 3-2 Strategic planning and policy framework

Policy	Description
Australian Infrastructure Plan	The *Australian Infrastructure Plan: Priorities and Reforms for Our Nation's Future* (Infrastructure Australia, 2016) identifies priority infrastructure investments that Australia needs over the next 15 years. The *Infrastructure Priority List* (Infrastructure Australia, 2018) is a reference point for Australia's most important infrastructure investment needs and currently identifies 100 major infrastructure projects and initiatives across Australia. The projects and initiatives have been assessed by Infrastructure Australia for their economic viability, deliverability and strategic compliance with the principles detailed in the *Australian Infrastructure Plan.* The list identifies the Western Harbour Tunnel and Beaches Link program of works as a priority initiative in recognition of its importance in addressing urban congestion on Sydney's arterial road network, augmenting critical cross-harbour capacity and Northern Beaches connectivity. This aligns with the Australian Infrastructure Audit's identification of road corridors to the Northern Beaches and across Sydney Harbour as among the top 30 most congested corridors in Australia.
NSW State Priorities	The NSW Government set out 18 State priorities and the Premier's 12 priorities to create a stronger, healthier and safer NSW (NSW Government, 2015). State priorities include improving road travel reliability, with a target of ensuring that 90 per cent of peak travel on key road routes is on time. The Premier's Priorities include building infrastructure, with a target of delivering key infrastructure projects on time and on budget across the State. The project would contribute to achieving a number of these priorities including: • **Encouraging business investment** – by improving east–west and north–south connectivity, and reducing congestion around the Eastern Harbour City, more people will be able to access Sydney CBD, North Sydney and other key employment centres in less time. Freight transport would also benefit from improved cross-harbour connectivity • **Improving road travel reliability** – by delivering travel time savings for freight, public transport and private vehicle users, and improving the resilience and efficiency of the existing road network • **Reducing road fatalities** – by providing a free-flowing cross-harbour alternative for through traffic, reducing traffic on surface roads and improving traffic flows is correlated with a lower number of road crashes.
State Infrastructure Strategy	The *State Infrastructure Strategy 2018-2038* (Infrastructure NSW, 2018) is a 20 year strategy which identifies and prioritises the delivery of critical public infrastructure to drive productivity and economic growth. The State Infrastructure Strategy recommends that: • Subject to completion of the business case, the NSW Government should invest in the Western Harbour Tunnel and Warringah Freeway Upgrade project to complete a Western CBD bypass and inner urban motorway network • Transport for NSW develops business cases to complete the deployment of smart motorway technology and digital infrastructure across the network in time for the expected opening of the Western Harbour Tunnel and Warringah Freeway Upgrade project. The NSW Government is committed to commencing work on a new crossing of Sydney Harbour to the west of the Sydney CBD. The Western Harbour Tunnel and Warringah Freeway Upgrade project, as part of the Western Harbour Tunnel and Beaches Link program of works, is the result of that commitment.

Policy	Description
	The *NSW Infrastructure Pipeline* (Infrastructure NSW, 2017) has also been prepared by Infrastructure NSW and outlines infrastructure proposals under development by the NSW Government. This includes the opportunities to develop the Western Harbour Tunnel and Warringah Freeway Upgrade project.
Future Transport Strategy 2056	The *Future Transport Strategy 2056* (NSW Government, 2018) builds on the *NSW Long Term Transport Master Plan* (Transport for NSW, 2012a) and sets the 40-year vision, strategic directions and outcomes for customer mobility in NSW. The plan identifies the transport challenges that will need to be addressed to support NSW's economic and social performance over the next 20 years and establishes a number of short, medium and long-term actions to address those challenges. These actions provide the overall framework for how the NSW transport system should develop, in terms of services and infrastructure. The Western Harbour Tunnel and Beaches Link program of works is identified in the strategy as a 'Committed' project (within the next 0–10 years, subject to final business case) forming part of the vision for the future strategic road network for Greater Sydney that will support key movements by road, including public transport, private vehicles and freight.
Greater Sydney Region Plan	The *Greater Sydney Region Plan – A Metropolis of Three Cities* (Greater Sydney Commission, 2018a) is built on a vision of three cities where most residents live within a 30 minute journey of their jobs, education and health facilities, and services. To meet the needs of a growing and changing population, the vision seeks to transform Greater Sydney into a metropolis of three cities: the Western Parkland City, the Central River City and the Eastern Harbour City. This project is located in the Eastern Harbour City which contains Australia's global gateway (Sydney Airport and Port Botany) and financial capital, the Harbour CBD, as its metropolitan centre. One of the key roles of the Plan is to provide appropriate infrastructure in the right places to support the continued growth of Greater Sydney. The Plan also identifies the importance of investing in and delivering efficient and effective transport systems including road infrastructure that would improve business to business connections and support the 30 minute city vision. Objective 18 of the Plan references the Western Harbour Tunnel and Beaches Link program of works as infrastructure that would further improve accessibility from the Northern Beaches to the Harbour CBD and reduce through traffic in the Harbour CBD ensuring the economic strength and global competitiveness of the Harbour CBD. As part of the *Greater Sydney Region Plan,* the Greater Sydney Commission also prepared District Plans which provide a basis for strategic planning at a district level. District Plans relevant to the project are discussed below.
District Plans	The *North District Plan* (Greater Sydney Commission, 2018b) sets out priorities and actions for Greater Sydney's North District, which includes the project-based local government areas of the Northern Beaches, North Sydney and Willoughby. The *North District Plan* addresses issues influencing Greater Sydney to 2056 with one of the overarching priorities for a productive North District including improved access to local jobs, goods and services within 30 minutes. The *North District Plan* includes the Western Harbour Tunnel and Beaches Link program of works as a transport initiative that would provide improved connections and access. The *Eastern City District Plan* (Greater Sydney Commission, 2018c) sets out priorities and actions for Greater Sydney's Eastern City District, which includes the project-based local government areas of City of Sydney and Inner West. The *Eastern City District Plan*

Policy	Description
	addresses issues influencing Greater Sydney to 2056 with one of the overarching priorities for a productive Eastern City District including improved access to local jobs, goods and services within 30 minutes. The project complements this priority by providing improved connectivity and transport capacity across Sydney Harbour, which would enhance the 'Eastern City's' network resilience, improve access to services, and increase the proportion of people with good access to jobs via reliable bus services.
Directions for a Greater Sydney	*Directions for a Greater Sydney 2017-2056* (Greater Sydney Commission, 2017) aims to better integrate land use and infrastructure in Greater Sydney to accommodate a population that will grow from six to eight million people over the next 40 years. It builds upon the *Greater Sydney Regional Plan – A Metropolis of Three Cities* (Greater Sydney Commission, 2018a) and *Towards our Greater Sydney 2056* (Greater Sydney Commission, 2016). The project would support this vision by improving road network performance, resilience and efficiency, enabling sustained growth and productivity across Greater Sydney. The project would also improve access to the strategic centres of the Sydney CBD, North Sydney and St Leonards, resulting in more people having access to jobs and services.
NSW Freight and Ports Plan	The *NSW Freight and Ports Plan* (Transport for NSW, 2018a) supports *Future Transport Strategy 2056* and provides direction to business and industry for managing and investing in freight into the future. The project in conjunction with WestConnex would benefit the freight industry by providing a western bypass of the Harbour CBD, significantly improving the quality of the freight connection through the Eastern Economic Corridor. The project would also provide direct access for freight to the Harbour CBD. The project would address key priority areas in the plan such as strengthening the freight industry, increasing access for freight across the road and rail network, protecting existing freight precincts and ensuring safe, efficient and suitable freight access would meet the needs of Greater Sydney.

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