

3.0 Need for the modification and strategic context

3.1 Need for the modification

3.1.1 Importance and role of the Westlink M7 within Western Sydney

The Westlink M7 is a major road infrastructure corridor on Greater Sydney's orbital motorway network. When considering all modes of transport, Greater Sydney's road network carries, and will continue to carry, most of the trips made across Greater Sydney, as identified in the *Future Transport Strategy 2056* (Transport for NSW (Transport), 2018a). The arterial road network, including the orbital motorway network, provides connectivity between communities and to dispersed employment areas that are more difficult for customers to reach using public transport, walking and cycling. The arterial road network also provides the primary connections to enable road-based freight movements. An efficient road network is therefore critical to ensuring the economic growth of Greater Sydney.

The Westlink M7 has a key role in providing connections to both existing and future transport infrastructure across Greater Sydney. The Westlink M7 connects the M5 South-West Motorway with the M4 Motorway and The Hills M2 Motorway. It is identified as a primary freight route in the Department of Infrastructure, Transport, Regional Development and Communications map of the National Land Transport Network, and is identified in the *NSW Freight and Ports Plan 2018-2023* (Transport, 2018b) as one of Greater Sydney's key freight corridors. The interchanges with the Westlink M7 and other major arterial roads also provide connectivity between Greater Sydney and regional areas. The Westlink M7 will also provide a connection to the approved M12 Motorway, enabling access to planned growth areas in Western Sydney and the future Western Sydney International (Nancy-Bird Walton) Airport (Western Sydney International Airport).

The Environmental Impact Statement (EIS) for the approved project (Roads and Traffic Authority (RTA), 2000) and Conditions of Approval (CoA) were produced in the context of strategic planning and policy documents in the early 2000's. Those strategic documents identified a growing need for public transport options within Western Sydney and other areas of Greater Sydney in general to alleviate problems of congestion stimulated by population growth. As such, the EIS for the approved project outlined that the wide central median would provide sufficient space within the road corridor that in future may allow for:

- Public transport facilities such as dedicated bus operations,
- Light or heavy rail, or
- Development of additional traffic lanes.

Condition 36 and Condition 42 of the CoA require the project to have the ability to accommodate for the future provision of public transport infrastructure along the motorway, but also to evaluate the demand for dedicated public transport facilities along the road corridor at five, 15 and 25 years after the opening of the motorway.

The older planning and transport strategies which informed the original project and EIS have been superseded by new metropolitan and infrastructure strategies developed by Transport as the transport network operators, including the *Future Transport Strategy 2056* and *NSW Freight and Ports Plan 2018–2023*. These current strategies have prompted the development of significant programs of public transport infrastructure and corridors in the region, such as Sydney Metro (Western Sydney International Airport and West) and the Liverpool-Parramatta and North-West T-way bus services.

Since the approval of the Westlink M7, key public infrastructure projects in Western Sydney have begun operating, are under construction or are in the planning phase, as outlined in Table 3-1.

Table 3-1 Key public transport infrastructure projects since approval of the Westlink M7

Project	Description	Commencement year (or predicted)
Liverpool-Parramatta T-way	Continuous series of bus-only lanes and bus roadways between Parramatta and Liverpool in Western Sydney.	2003
North-West T-way	Continuous series of bus-only lanes between Parramatta, Blacktown and Rouse Hill in Western Sydney.	2007
Transport Access Program (TAP)	An initiative to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure.	Ongoing
More Trains More Services Program	A program that will deliver: <ul style="list-style-type: none"> New fleet to provide more comfortable journeys World-class digital train technology to create more services and improved reliability Upgraded rail infrastructure to simplify the network and improve operations. 	2017 – 2019 (Stage 1) 2019 – 2029 (Stage 2)
Sydney Metro North West	A 36-kilometre railway between Tallawong Station in Rouse Hill to Chatswood Station, featuring 13 stations.	2019
Parramatta Light Rail	A 12-kilometre light rail network connecting Westmead to Carlingford via the Parramatta CBD.	2023 (predicted)
Sydney Metro City & Southwest (Chatswood to Sydenham and Sydenham to Bankstown)	An extension to Sydney Metro Northwest being developed in two stages. This project would create a continuous rail link from Sydney's northwest to Sydney's southwest via the City of Sydney.	2024 (predicted)
Sydney Metro Western Sydney International Airport	A 23-kilometre railway between St Marys Station and a new station at the Western Sydney Aerotropolis via the new Western Sydney International Airport.	2026 (predicted)
Sydney Metro West	A railway between Westmead and the Sydney CBD, with stations at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pyrmont and the Sydney CBD.	2030 (predicted)

In addition to these projects, other public transport infrastructure projects being investigated for potential delivery in 2026, 2036 and 2056 according to *Future Transport 2056* include:

- Extending the existing rail line from Leppington to the new Western Sydney Aerotropolis Station
- A train link between Western Sydney International Airport and Parramatta
- New north-south mass transit / train links to Greater Parramatta
- Extension of the City and Southwest Metro line from Bankstown to Liverpool.

Current transport strategies do not identify the need for the central median of the Westlink M7 as a public transport corridor. Alleviating capacity constraints on Greater Sydney's road network and the public transport system through the provision of public transport infrastructure has moved away from the Westlink M7. Instead, increasing the road capacity of this key north-south motorway, in conjunction

with the development of the network of public transport infrastructure projects in Greater Sydney and Western Sydney in particular, would support the objectives of the strategic metropolitan and transport documents shaping Sydney's growth. This would also accommodate increased traffic on the Westlink M7 expected from the new Western Sydney International Airport via the approved M12 Motorway.

3.1.2 Increasing capacity of the Westlink M7

Current congestion and travel time

Since its opening in 2005, traffic on the Westlink M7 has grown by around 4.5 per cent per annum to 191,000 average daily traffic (AADT) in 2019. Over this period, traffic on the Westlink M7 has been relatively free flowing, however, over the past five years peak period travel time savings for both directions have reduced.

The Westlink M7 frequently reaches its capacity and as a result, experiences consistent, recurrent congestion during both the morning and evening peak periods, particularly along the southern section of the Westlink M7, between the M4 Motorway and M5 Motorway. This congestion can result in prolonged peak periods, for example with peak traffic flows occurring in off-peak hours. Further information on the existing traffic environment is provided in **Section 7.1** (Traffic and transport).

The use of the wide central median to address congestion through provision of additional traffic lanes aligns with the intent of the original project design and EIS and the current transport strategies for the region.

Future population growth

Greater Sydney is expected to experience population growth of 640,100 people between 2016 and 2026, with most of the growth expected Western Sydney. The Westlink M7 is located in the Australian Bureau of Statistics (ABS) Blacktown and Sydney South West Statistical Areas (SA4). These areas are expected to have an increase in residents of 74,200 and 61,700 people respectively between 2016 and 2026. Near to the Westlink M7 is the Parramatta SA4 which is expected to have an increase in residents of 81,800 people between 2016 and 2026. Western Sydney's population growth is projected to increase by half a million by 2036, making it the largest growing urban population in Australia (Western Sydney University, 2016). Growth expectations and statistics may be affected by the COVID-19 pandemic.

The main driver of growth in these areas are the release of greenfield land, urban renewal and the emerging centres in the Western Parkland City and Central River City. Strategic north west and south west priority growth areas have been identified by NSW Government and include areas such as Leppington, Oran Park, Marsden Park and Schofields. DPE has also identified a Western Sydney Employment Area, which will provide businesses in the region with land for industry and employment close to the planned new Western Sydney International Airport. The precincts of the Employment Area will generally be located to the west of the Westlink M7, and generally south of the M4 Motorway, and in future will comprise of new transport, logistics, warehousing, and office space.

As a result of this forecasted population growth and employment precincts, it is anticipated that there will be a further increase in vehicles travelling on roads in Greater Sydney, with the number of trips made around Greater Sydney each day forecast to increase by 31 per cent from 2015 levels, from 16 million to 21 million vehicle movements by 2036 (Infrastructure Australia, 2015). This growth in vehicle trips, along with population growth in Western Sydney in particular, and Greater Sydney more broadly, will place increasing pressure on key transport corridors including the Westlink M7.

The Western Sydney International Airport and associated growth (including jobs, industry and increased freight operations) of the Western Sydney Aerotropolis (the area to be called Bradfield) will also place increased reliance on the Westlink M7. The approved M12 Motorway, once built, will provide an east-west motorway connection between the Western Sydney International Airport and the Westlink M7, intersecting a section of the Westlink M7 which currently experiences heavy congestion.

The operation of the Airport and growth in the region would increase demand and traffic volumes on the Westlink M7, particularly around the intersection of the Westlink M7 and approved M12 Motorway, in both the northbound and southbound directions. This has the potential to impact journey times and freight productivity for the Westlink M7 if additional capacity is not provided.

Without infrastructure investment, the level of congestion currently experienced will worsen and further impact on travel times for customers and freight. By 2026, in the absence of the proposed modification, there is limited capacity for the Westlink M7 to meet the additional traffic demands to support vehicles which would access the Westlink M7 via the approved M12 Motorway project due to regional population growth. Without such additional capacity, traffic performance would deteriorate to the south and north of the approved M12 Motorway – Westlink M7 interchange. A Traffic and transport assessment has been prepared (refer **Appendix D**) which includes scenarios with and without the proposed modification. The results are summarised in **Section 7.1** (Traffic and transport).

3.1.3 Public transport infrastructure

As mentioned in **Section 3.1.1**, the planning and transport strategies which informed the original project and EIS have been superseded by new metropolitan and infrastructure strategies developed by Transport as the transport network operators, including the *Future Transport Strategy 2056* and *NSW Freight and Ports Plan 2018–2023*. These current strategies have prompted the development of significant programs of public transport infrastructure and corridors in the region, such as Sydney Metro (Western Sydney International Airport and West) and the Liverpool-Parramatta and North-West Transitway bus services.

Current transport strategies do not identify the need for the central median of the Westlink M7 between Prestons and Oakhurst/Glendenning as a public transport corridor. Alleviating capacity constraints on Greater Sydney's road network and the public transport system through the provision of public transport infrastructure has moved away from the Westlink M7. Instead, increasing the road capacity of this key north-south motorway, in conjunction with the development of the network of public transport infrastructure projects in Greater Sydney and western Sydney in particular, would support the objectives of the strategic metropolitan and transport documents shaping Greater Sydney's growth.

As such, additional capacity is required on this essential road corridor to alleviate current congestion and accommodate future additional vehicle movements, and the use of the wide central median for this purpose aligns with the intent of the original project design and EIS and the current transport strategies for the region.

The proposed modification would not preclude the provision of public transport on the Westlink M7 if a need for this is identified in the future. The footprint of the proposed modification (within the existing road median) could be re-purposed for public transport in the future if demand or transport priorities change.

3.1.4 Concurrent construction with the approved M12 Motorway

The approved M12 Motorway would connect the Westlink M7 to the future Western Sydney International Airport. The approved M12 Motorway would extend west from the Westlink M7, with a Westlink M7/M12 Motorway interchange near Elizabeth Drive at Cecil Park. Construction of the approved M12 Motorway is expected to begin in 2022 and conclude in 2025 (with commissioning potentially occurring into the first quarter of 2026).

The design of the proposed modification has considered the interface with the M12 Motorway/Elizabeth Drive interchange. Subject to construction planning, it is intended that the Westlink M7 interchange works for the M12 Motorway be constructed at the same time as the proposed modification to realise the potential social and environmental benefits in delivering the intersection of these key arterial roads in an integrated manner (refer to **Section 4.3.14** for further detail).

Potential cumulative impacts of the proposed modification and the M12 Motorway are assessed in **Section 7.18** (Cumulative impacts). Cumulative impacts assessed include potential construction and operational impacts, such as the continuing impact of traffic and noise on the surrounding road network and local receivers.

3.2 Strategic context

The population of Greater Sydney is expected to grow to about 6.6 million people by 2036 (NSW Department of Planning and Environment, 2020), while the population of Greater Western Sydney (extending from Windsor in the north to Campbelltown in the south, and from Parramatta in the east to Penrith and the Blue Mountains) is expected to grow to three million people in the same timeframe (Infrastructure Australia, 2020). It is expected that by 2031, more than half of all new jobs in Sydney will

be created in Western Sydney (Department of Planning and Environment, 2014). The NSW Government has committed to developing the Western Sydney Employment Area (*State Environmental Planning Policy (SEPP) (Industry and Employment) 2021* (specifically the former SEPP (Western Sydney Employment Area) 2009) to provide for business growth in the region.

This population growth, new employment precincts and a number of planned developments, including the Western Sydney International Airport, is expected to put significant pressure on the existing transport network (Infrastructure Australia, 2021a). Traffic modelling undertaken by Transport indicates that the existing transport network will not be able to service future demand sufficiently and efficiently. Additional pressure on the network is expected to increase safety risks, worsen travel outcomes and affect planning and development undertakings with the region (Infrastructure Australia, 2021b). Upgrading infrastructure, including roads, is vital to ensure that Greater Sydney's transport system is able to cope with the growth of its population and the need to travel between different areas of Greater Sydney. Plans such as *Greater Sydney Region Plan: A Metropolis of Three Cities – connecting people* (Greater Sydney Commission, 2018a), *Future Transport Strategy 2056* (Transport, 2018a) and the *State Infrastructure Strategy 2018-2038 – Building Momentum* (Infrastructure NSW, 2018) identify that upgrading transport infrastructure assists in facilitating the objectives and outcomes of those plans.

The following sections describe the proposed modification in the context of relevant Australian and NSW State policies and plans.

3.2.1 The Infrastructure Priority List

Infrastructure Australia's *Infrastructure Priority List* (2021b) (the Priority List) identifies a number of priority projects and initiatives that Australia needs to meet its infrastructure challenges. The projects and initiatives on the Priority List have been assessed for their economic viability, deliverability, and strategic compliance with the principles of the *Australian Infrastructure Plan* (Infrastructure Australia, 2021a). The *2021 Australian Infrastructure Plan* is a plan intended to provide a practical and actionable roadmap to infrastructure reform in Australia, and support the national recovery from the COVID-19 pandemic, as well as recent bushfires, drought, floods and cyber-attacks.

While the proposed modification is not a project that is explicitly specified in the Priority List, the Priority List identifies that a Western Sydney Infrastructure Plan that includes upgrades to key roads that support traffic movement in and out of south-west Sydney and around Western Sydney International Airport, is a priority initiative. Building the future M12 Motorway and upgrading key roads in south-west Sydney are priority projects in place to ease the pressure on the transport network from projected population increases.

Resolving current and anticipated pressure on the road network can also be assisted through the upgrading of other key arterial roads within south-west and Western Sydney, such as the Westlink M7. Widening the Westlink M7 would provide additional capacity and improved flows along the already congested road. This, coupled with the upgrades to existing roads (for example Bringelly Road and The Northern Road) and the building of the approved M12 Motorway, would help to support the objectives of the Priority List projects identified to relieve current and predicted stresses on the road network within south-west and Western Sydney.

3.2.2 State Infrastructure Strategy

The *State Infrastructure Strategy 2018–2038: Building Momentum* (Infrastructure NSW, 2018) (the 'Strategy 2018') is a 20-year strategy that looks beyond current projects and identifies policies and strategies needed to provide infrastructure that meets the needs of a growing population and a growing economy. The Strategy 2018 recommends reforms, policies and projects that respond to NSW's changing economic, social, technological, and environmental outlook and that build on the benefits already delivered by the largest infrastructure program in Australia.

The Strategy 2018 acknowledges that many existing infrastructure assets in NSW are under stress as demand has risen above forecasted levels. Sydney's major roads are identified as assets which are struggling to meet increasing demand, with some key arterial roads showing marked slumps in peak hour speeds. The Strategy 2018 recognises the importance of using existing infrastructure to relieve demand capacity issues. It is identified that infrastructure often has additional capacity that can be activated, which could ease bottlenecks and enhance capacity.

In May 2022, the *State Infrastructure Strategy 2022-2042: Looking Ahead* (Infrastructure NSW, 2022) (the 'Strategy 2022') was released. The Strategy 2022 is a 20-year strategy which sets out infrastructure priorities to meet the future needs of NSW.

The Strategy 2022 identifies that previous State Infrastructure Strategies have recommended a suite of transformational infrastructure projects including major rail and road projects which are currently in delivery. The Strategy 2022 advises that smaller-scale projects should be a focus of investment including improvement in local amenities; however, also acknowledges that megaprojects such as improved motorways will continue to be the backbone of transformational investments. Investing in existing infrastructure assets such as the Westlink M7 is consistent with both The Strategy 2018 and Strategy 2022 and important to resolving the capacity issues of existing infrastructure. By design, the Westlink M7 has the capacity to expand within its existing wide central median and doing so would make use of an existing transport corridor to relieve capacity issues on a key part of Sydney's motorway network.

3.2.3 Future Transport Strategy 2056

The *Future Transport Strategy 2056* (Transport, 2020a) (the 'Future Transport Strategy') is the NSW Government's vision for the next 40 years of transport in NSW and provides a snapshot of successes and performance since the Strategy's first release in 2018, including progress against existing and new initiatives. The purpose of the strategy is to guide integrated transport and land use planning across regional NSW and Greater Sydney.

It also focuses on planning for a network that will allow the NSW Government to achieve its plans for the 'Three Cities' concept for Greater Sydney - the Western Parkland City, the Central River City and the Eastern Harbour City. As part of the concept, the NSW Government wants customers to be able to access one of the cities of the nearest strategic centre within 30 minutes of where they live (refer to **Section 3.2.5** for further details).

The Future Transport Strategy identifies visions and indicative alignments for various transport modes including the road and rail network which would support the growth of the region in which the Westlink M7 is located.

This Future Transport Strategy identifies that to meet future challenges and support the Three Cities concept, network development must be flexible and embed future optionality, maximise capacity and re-use of assets, and support innovative service and technology provision. As a key north-south link, the Westlink M7 forms an integral part of the future of Greater Sydney's road network. Expanding the motorway would increase capacity and reduce congestion by re-configuring this existing asset, helping to facilitate the movement of transport customers within the Western Parkland City and Central River City as well as the objectives of the Future Transport Strategy.

3.2.4 Greater Sydney Services and Infrastructure Plan

The *Greater Sydney Services and Infrastructure Plan* (Transport, 2018c) sets the customer outcomes for Greater Sydney for the movement of people and freight to meet customer needs and deliver responsive, innovative services. The plan provides more detail and defines the network required to achieve the service outcomes identified in the *Future Transport 2056* strategy (Transport, 2018a).

The Greater Sydney Services and Infrastructure Plan identifies the current and committed links for the transport network in Greater Sydney, which includes the Westlink M7 as a key north-south connection supporting the Western Parkland City. The plan identifies that addressing the existing congestion and population growth in Greater Sydney would require us to better use existing capacity, particularly through prioritising more efficient vehicles on the road network. The Plan also identifies the role of various east-west road corridors between Liverpool and the Outer Sydney Orbital as supporting increasing capacity demand on the Westlink M7. However, in March 2018 the Western Sydney City Deal was agreed in order to improve community infrastructure and liveability within Western Sydney. A key feature of the deal included improved connectivity to the area. In 2020, a proposal for rapid bus link services linking Liverpool with the Western Sydney International Airport and Aerotropolis was proposed along Hoxton Park Road (a key connector for movement between Liverpool and local industrial areas). If approved, this project could constrain the capacity expansion for other types of traffic on this road. Widening the Westlink M7 would increase expected capacity and reduce congestion using an existing

road asset, helping to facilitate the movement of transport customers within the Western Parkland City and Central River City as well as the objectives of the *Greater Sydney Services and Infrastructure Plan*.

3.2.5 Greater Sydney Region Plan – A Metropolis of Three Cities

The *Greater Sydney Region Plan – A Metropolis of Three Cities* (Greater Sydney Commission, 2018) envisions a Greater Sydney made up of three linked cities, where most residents live within 30 minutes of work, education, health care, services and great places. The three linked cities are the Western Parkland City, Central River City and the Eastern Harbour City (refer to Figure 3-1). The Westlink M7 is located within the Western Parkland City (sections within the Liverpool and Fairfield LGAs) and the Central River City (sections within the Blacktown LGA).

To support the vision of the metropolis of three cities, appropriate infrastructure in the right places is needed. The Greater Sydney Region Plan identifies four overarching objectives to improve the planning and provision of infrastructure across Greater Sydney as it grows and evolves, of which three are relevant to the proposed modification (objective 1, 2 and 4).

Objective 1: Infrastructure supports the Three Cities

Developing the Three Cities model requires the historical radial focus on the Eastern Harbour City to change, which brings a requirement for interconnections within and between the three cities. To properly facilitate those connections and deliver a 30-minute city (where most people can travel to their nearest metropolitan centre or cluster by public transport within 30 minutes), connections to existing infrastructure (including transport infrastructure) need to improve. Importantly, transport corridors and locations for new centres need to be safeguarded for future infrastructure investments. One strategy to achieve this objective includes sequencing growth across the three cities to promote north-south and east-west connections.

The proposed modification would increase capacity and reduce delays for motorists travelling along this key north-south transport corridor between the Western Parkland City and to the Central River City. The increased capacity on the Westlink M7 would also enhance connections with existing and key future east-west transport connections. Currently, the Westlink M7 provides access to the T1 western train line service which runs between Central Station in the Eastern Harbour City and Emu Plains Station in the Western Parkland City. The closest station to the Westlink M7 is Rooty Hill. The proposed modification would improve access to this transport connection through reducing congestion along the Westlink M7. The proposed modification would also support future key east-west city-serving transport connections including rapid bus connections between Liverpool to Austral (north), east-west connections between Bonnyrigg and Blacktown and the Western Sydney International Airport. The proposed modification would also continue to facilitate access between the north-west and south-west growth areas prioritised to support the growth of the Central River City and the Western Parkland City.

Objective 2: Infrastructure aligns with forecast growth – growth infrastructure compact

The Western Parkland City and Central River City are forecasted to experience significant residential and employment growth and therefore requires new and/or enhanced local and regional infrastructure to support it.

The Greater Sydney Commission's Growth Infrastructure Compact (now known as *Place-based Infrastructure Compact*) is a collaborative process led by the Greater Sydney Commission which involves modelling growth scenarios for areas to evaluate the most cost-effective sequencing for growth aligned with the provision of infrastructure over 10, 20 and 40 years. Areas adjacent to construction and operational footprint in the Blacktown and Liverpool LGAs have been identified as potential future areas to be assessed by the *Western Sydney Place-based Infrastructure Compact* (Greater Sydney Commission, n.d.). These upgrades have been identified to support the Greater Penrith to Eastern Creek growth areas, the Western Sydney Aerotropolis and the growing Western Parkland City. The connection between the Westlink M7 and the approved M12 Motorway is identified in the Place-based Infrastructure Compact for Western Sydney as an important upgrade to be delivered over the next 20 years. This upgrade has been identified in order to improve the movement of freight in and through Western Sydney to support planned growth in industrial, commercial and agribusiness industries. It is also likely that the future Western Sydney Freight Line, currently under investigation, would traverse the Westlink M7 near Old Wallgrove Road.

More broadly, the Greater Sydney Commission has two objectives – to align forecast growth with infrastructure and sequence infrastructure provision across Greater Sydney using a place-based approach. It is recognised that the Western Parkland City and Central River City are undergoing a rapid period of growth, particularly with residential development in the north-west and south-west growth precincts. This growth continues and it is important that infrastructure such as the road network also grows to support the new requirements of an increased population.

Objective 4: Infrastructure use is optimised

This objective sets a need to make use of existing assets to increase infrastructure capacity to better support communities, minimising or avoiding the need to fund new infrastructure. The strategy to support this objective is to maximise the utility of existing infrastructure assets and consider strategies to influence behaviour changes, to reduce the demand for new infrastructure. The proposed modification is consistent with this objective as it would increase its capacity to accommodate current and future vehicle volumes and avoid the need to establish additional new transport corridors.

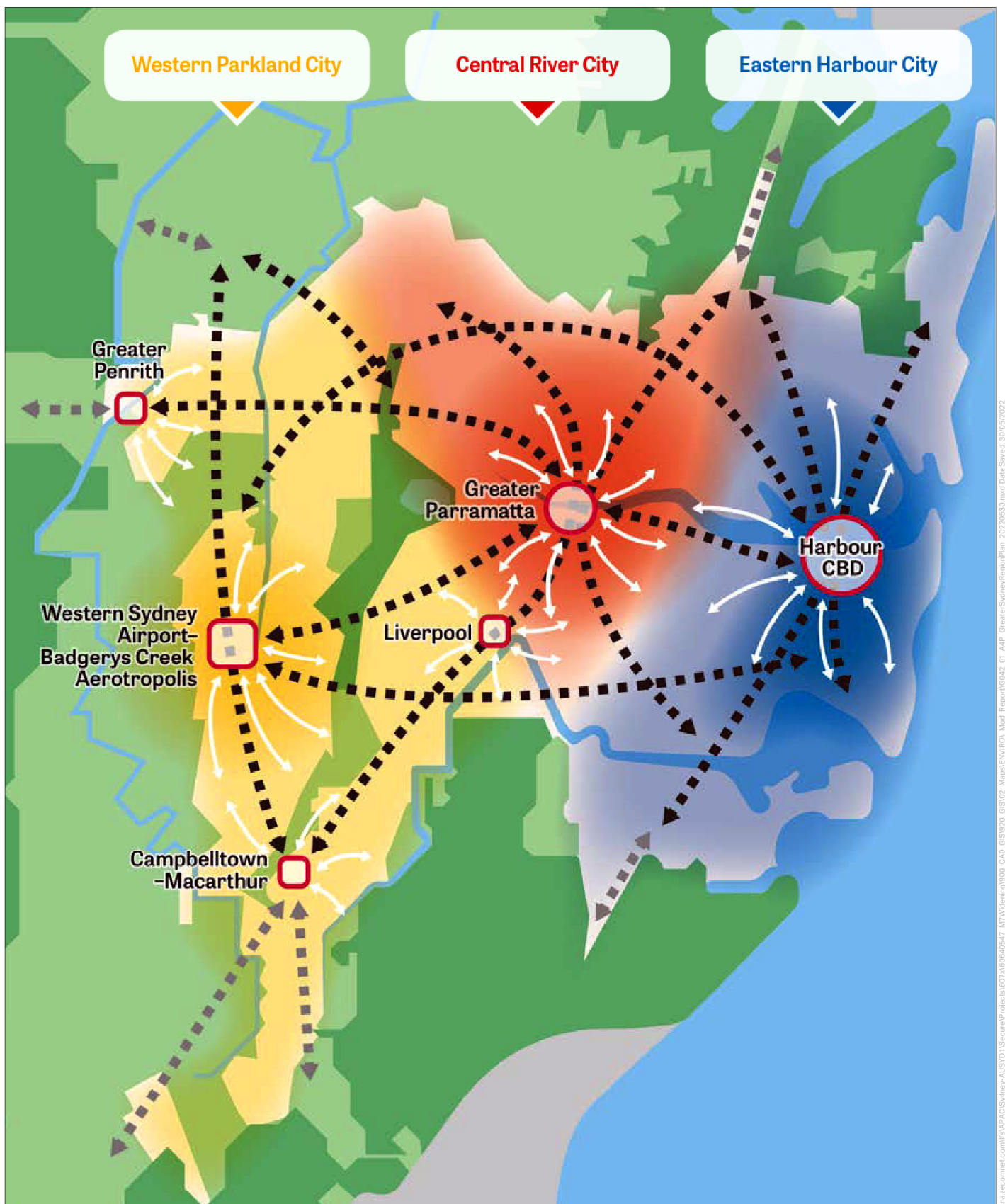


FIGURE 3-1: GREATER SYDNEY REGION PLAN
(Source: Greater Sydney Commission, 2018a)

AECOM

Legend

Metropolitan Centre	City-shaping Transport Corridor	Protected Natural Area
Metropolitan Cluster	Regional Transport Corridor	Metropolitan Rural Area
Waterways	City Serving Transport	

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3.2.6 Western City District Plan

The *Western City District Plan* (Greater Sydney Commission, 2018b) gives effect to the *Greater Sydney Region Plan – A Metropolis of Three Cities*. It is a 20-year plan that aims to manage growth in the context of economic, social and environmental matters to achieve the 40-year vision for Greater Sydney to develop as a metropolis of three cities under the *Greater Sydney Region Plan*. The plan covers the Blue Mountains, Camden, Campbelltown, Fairfield, Hawkesbury, Liverpool, Penrith and Wollondilly LGAs. Within that district, the *Western City District Plan* aims to ensure that its residents will have quicker and easier access to a wider range of jobs, housing types and activities, improving the district's lifestyle and environmental assets.

The *Western City District Plan* outlines a number of planning priorities that seek to achieve the overall vision for the Western Parkland City. The objectives of those planning priorities and the way in which the proposed modification meets those objectives is detailed in Table 3-2. The proposed modification is directly related to priorities W1 and W7 through the upgrading of a key transport link in Western Sydney.

Table 3-2 Planning priorities of the Western City District Plan

Priority and objectives	Comment
Priority W1 Planning for a city supported by infrastructure	
Objective 1 – Infrastructure supports the three cities	The proposed modification would increase the capacity on the existing Westlink M7 for private vehicles, ride share and freight vehicles, supporting quicker access within the Western Parkland City and from the Western Parkland City to the Central River City and Eastern Harbour City.
Objective 2 – Infrastructure aligns with forecast growth – growth infrastructure compact	The population of Western Sydney is growing and will continue to grow in the coming years. It is important that infrastructure matches that growth to support a liveable city where residents can get to where they need to go as efficiently as possible. The proposed modification would support forecast growth in the Western Parkland City, Western Sydney Aerotropolis and the Greater Penrith to Eastern Creek growth area.
Objective 3 – Infrastructure adapts to meet future needs	The proposed modification would adapt an existing motorway to meet both the current and future needs of an increasing population.
Objective 4 – Infrastructure use is optimised	The proposed modification would make use of an existing infrastructure asset and create a more efficient transport corridor, better integrating with other key transport links including the M5 Motorway, M4 Motorway, M2 Motorway and the approved M12 Motorway.
Priority W7 Establishing the land use and transport structure to deliver a liveable, productive and sustainable Western Parkland City	
Objective 14 – A Metropolis of Three Cities – integrated land use and transport creates walkable and 30-minute cities	The proposed modification would increase the capacity along a key south to north-road corridor within Greater Sydney, allowing for more efficient journeys. Improved efficiency in the road corridor complements the objective of 30-minute cities by supporting more efficient connections to public transport corridors in the region.
Objective 15 – The Eastern; Greater Parramatta and the Olympic Peninsula; and Western Economic Corridors are better connected and more competitive	The proposed modification would increase the capacity of an existing south to north connection which has key links to economic corridors in the Western Parkland City.

Priority and objectives	Comment
Objective 16 – Freight and logistics network is competitive and efficient	The Westlink M7 is a key road freight transport link in Sydney. Expanding its capacity would allow for more efficient road freight movements.
Objective 17 – Regional connectivity is enhanced	Increasing the capacity of the Westlink M7 would support connections between the southern and northern areas of Western Sydney and beyond Greater Sydney. The Westlink M7 is identified as a primary freight route in the Department of Infrastructure, Transport, Regional Development and Communications map of the National Land Transport Network.

3.2.7 Central City District Plan

The *Central City District Plan* (Greater Sydney Commission, 2018c) is a 20-year plan that aims to manage growth in the context of economic, social and environmental matters to achieve the 40-year vision for Greater Sydney. The Central City District covers the Blacktown, Cumberland, Parramatta and The Hills Shire LGAs. The plan aims to ensure a liveable, productive and sustainable future for the Central River City.

The *Central City District Plan* outlines a number of planning priorities that seek to achieve the overall vision for the Central River City. The proposed modification is directly related to priorities C1 and C9 through providing infrastructure to support the growth of the Central City District. The objectives of those planning priorities and the way in which the proposed modification meets those objectives is detailed in Table 3-3.

Table 3-3 Planning priorities of the Central City District Plan

Priority and objectives	Comment
Priority C1 A city supported by infrastructure	
Objective 1 – Infrastructure supports the three cities	The proposed modification would increase the capacity on the existing Westlink M7 for private vehicles, public transport, ride share and freight vehicles, supporting quicker access within the Central River City and from the Central River City to the Western Parkland City.
Objective 2 – Infrastructure aligns with forecast growth – growth infrastructure compact	In the Central City District many areas are experiencing, or forecast to experience, significant growth. The proposed modification would support connections between growth areas in the district to employment opportunities, infrastructure and services.
Objective 3 – Infrastructure adapts to meet future needs	The proposed modification would adapt an existing motorway to meet both current and future needs of an increasing population.
Objective 4 – Infrastructure use is optimised	The proposed modification would create a more efficient transport corridor connecting the Central River City to the Western Parkland City, optimising the use of the existing Westlink M7.

Priority and objectives	Comment
Priority C9 Delivering integrated land use and transport planning and a 30 minute city	
Objective 14 – A Metropolis of Three Cities – integrated land use and transport creates walkable and 30-minute cities	The proposed modification would increase the capacity along a key south to north-road corridor within Greater Sydney, allowing for more efficient journeys. Improved efficiency in the road corridor complements the objective of 30-minute cities by supporting connections to public transport corridors including to the existing T1 western train line service between Central Station and Emu Plains. The proposed modification would support future planned city-serving high-frequency services between Liverpool to Austral (north) and from Bonnyrigg to Western Sydney International Airport. Rapid bus connections between Western Sydney International Airport and Blacktown (which would traverse the Westlink M7) is also currently being investigated. The proposed modification and increased capacity on the Westlink M7 would support other nearby road projects in efforts towards attaining the 30-minute city objective. Some new projects and upgrades include future upgrades to Elizabeth Drive, a proposed Western Sydney Freight Line between Moorebank and the Western Sydney International Airport, and the approved M12 Motorway. These new projects and upgraded networks will facilitate a higher volume of traffic. Given they would traverse, connect with and therefore likely increase capacity on the Westlink M7, the proposed modification is required in order to support the development of connecting transport infrastructure.
Objective 16 – Freight and logistics network is competitive and efficient	The Westlink M7 is a key road freight transport link in Greater Sydney. Increasing its capacity would allow for more efficient road freight movements.

3.2.8 NSW Freight and Ports Plan 2018 – 2023

The *NSW Freight and Ports Plan 2018 – 2023* (Transport, 2018^b) is a plan that intends to facilitate collaboration between government and industry to establish clear initiatives and targets that will allow the freight system in NSW to operate more efficiently and safely, thus allowing NSW to move and grow. It recognises the reliance on the goods moved throughout NSW through its pipelines, ports and airports and that the freight sector contributes \$66 billion to the State's economy each year. This plan includes over 70 objectives to be delivered by 2023 that are focused on achieving five key objectives, of which three are directly related to the proposed modification:

Objective 1: Economic growth

Productivity of the freight industry can be enhanced through investing in freight infrastructure which includes roads.

Objective 2: Efficiency, connectivity and access

The *NSW Freight and Ports Plan 2018 – 2023* recognises the significant cost of new infrastructure. Accordingly, the performance and use of the State's existing roads, rail, ports, pipelines and airports need to be boosted.

Objective 3: Capacity

To address capacity constraints on the State's freight network, the NSW Government needs to address road congestion, rail freight capacity and protect land needed for vital freight and logistics operations. One mechanism to do this is to improve the road network, particularly key arterial roads that support the movement of road freight. Success in the realm of capacity means reduced travel times, improvements to reliability and improved safety through the delivery of capacity building freight programs.

3.3 Options and alternatives

The Westlink M7 runs between the M5 South West Motorway/ M31 Hume Motorway and The Hills M2 Motorway with the greatest congestion occurring on the southern half, between the M5 Motorway and M4 Motorway. For the Westlink M7 to accommodate future traffic growth and reduce existing congestion, an additional lane is needed in each direction next to the existing carriageway.

Strategic alternatives and various design and construction options were considered and assessed against the objectives of the proposed widening. Opportunities to reduce potential adverse social and environmental impacts of the proposed widening were investigated, in addition to the key objective of improving the efficiency and reliability of travelling on the Westlink M7.

3.3.1 Objectives of the proposed widening

The objectives of the proposed widening are to:

- Provide additional capacity on the Westlink M7 to meet future traffic growth, reduce congestion and improve connectivity and reliability
- Avoid and minimise impacts on the road network, the community and environment during construction
- Integrate with the new M12 Motorway, minimising disruption during construction and providing safe and efficient connectivity in the operations phase
- Deliver a design that integrates with and respects the existing urban design and landscape features of the Westlink M7
- Provide a cost effective / affordable solution.

3.3.2 Initial options assessment

An initial options assessment was undertaken to compare widening into the centre median of the Westlink M7 against widening onto the shoulder of the Westlink M7. The assessment considered the social, environmental and cost implications of these options. When compared to widening into the centre median, widening onto the shoulder of the motorway would:

- Result in the need for extensive land acquisition that would be cost prohibitive and have adverse social impacts
- Require extensive modifications to the intelligent transport system (ITS) backbone and shared path network
- Require disruptive and cost prohibitive reconfiguration of interchanges
- Result in works being closer to sensitive receivers, having a greater potential for construction and operational noise, vibration, dust and amenity impacts
- Result in greater amount of earthworks to cut /fill batters and embankments having greater potential to intercept contaminated material
- Take longer to construct, impacting adjoining receptors for a greater length of time
- Have more impact to stands of retained/mature vegetation, having a greater biodiversity impact
- Have a greater change in the landform/landscape of the corridor, having a larger visual impact.

The outcome of this assessment was that widening onto the shoulder of the Westlink M7 would generally have greater social, environmental and cost implications than widening into the centre median of the Westlink M7.

As a result, widening onto the shoulder of the Westlink M7 was not considered further in the options assessment. Three design options were considered, involving widening into the centre median. The do nothing option was also considered.

3.3.3 Design options considered

The alternative design options considered included:

- Option 1: Do nothing
- Option 2: Widening the Westlink M7 from the M5 Motorway to the M4 Motorway, using the centre median
- Option 3: Widening the Westlink M7 from the M5 Motorway to Richmond Road, using the centre median
- Option 4: Widening full length of the Westlink M7, from M5 Motorway to The Hills M2 Motorway Interchange, using the centre median.

The performance of each alternative against the objectives of the proposed widening is provided in Table 3-4.

Table 3-4 Performance of alternatives against project objectives

Objective	Performance of alternative options			
	Option 1: Do nothing	Option 2: Widening the Westlink M7 from the M5 Motorway to the M4 Motorway	Option 3: Widening the Westlink M7 from the M5 Motorway to Richmond Road	Option 4: Widening full length of the Westlink M7 from M5 Motorway to The Hills M2 Motorway interchange
Provide additional capacity on the Westlink M7 to meet future traffic growth, reduce congestion and improve connectivity and reliability	Does not achieve objective. In this scenario, these traffic impacts will worsen over time as the demand on the network increases due to regional population growth.	Partially achieves objective. This option would provide some level of additional capacity on the Westlink M7, including where congestion is worst. Traffic studies undertaken to assess the feasibility of this option show that this option is a minimum requirement to address congestion. Additional widening may be needed in the future.	Achieves objective. This option would provide additional capacity on the Westlink M7. Traffic studies undertaken to assess the feasibility of this option show that it would surpass the minimum requirement (Option 2, widening from the M5 Motorway to the M4 Motorway) in addressing congestion in the future.	Achieves objective. Full-length widening would provide additional capacity on the Westlink M7. Traffic studies undertaken to assess the feasibility of this option show that it would surpass the minimum requirement (Option 2, widening from the M5 Motorway to the M4 Motorway) in addressing congestion in the future, however provide a similar outcome to Option 3, given that capacity on the Westlink M7 beyond Richmond Road is not the main cause of congestion.
Avoid and minimise impacts on the road network, the community and environment during construction	Achieves objective. There would be no construction related impacts if no widening is to occur.	Partially achieves objective. The environmental and social impacts associated with this option would be less than Option 3 and Option 4, however more than the 'do nothing' option. Appropriate mitigation measures would minimise impacts on the road network, the community and environment during construction.	Partially achieves objective. The environmental and social impacts associated with this option would be less than Option 4, however more than the 'do nothing' option and Option 2. Physical construction impacts would be largely contained with median areas previously disturbed during construction of the existing	Partially achieves objective. The environmental and social impacts associated with this option would be more than the 'do nothing' option, Option 2, and Option 3. Additional areas of sensitive receivers beyond those associated with option 2 and option 3 would be impacted during construction. Given the

Objective	Performance of alternative options			
	Option 1: Do nothing	Option 2: Widening the Westlink M7 from the M5 Motorway to the M4 Motorway	Option 3: Widening the Westlink M7 from the M5 Motorway to Richmond Road	Option 4: Widening full length of the Westlink M7 from M5 Motorway to The Hills M2 Motorway interchange
			motorway, however additional areas of sensitive receivers would be impacted during construction. Appropriate mitigation measures would minimise impacts on the road network, the community and environment during construction.	Westlink M7 north of Richmond Road would provide limited capacity benefits, this option would not avoid or minimise potentially unnecessary impacts in the areas north of Richmond Road. Appropriate mitigation measures would minimise impacts on the road network, the community and environment during construction.
Integrate with the new M12 Motorway, minimising disruption during construction and providing safe and efficient connectivity in the operations phase	Does not meet objective. This option would not integrate with the new M12 Motorway and provide safe and efficient connectivity (beyond existing levels), however would avoid construction-related disruption.	Achieves objective. This option would be designed to integrate with the new M12 Motorway which is expected to increase demand and traffic volumes on the Westlink M7. Appropriate mitigation measures would minimise construction-related disruption.	Achieves objective. This option would be designed to integrate with the new M12 Motorway which is expected to increase demand and traffic volumes on the Westlink M7. Appropriate mitigation measures would minimise construction-related disruption.	Achieves objective. This option would be designed to integrate with the new M12 Motorway which is expected to increase demand and traffic volumes on the Westlink M7. Appropriate mitigation measures would minimise construction-related disruption.
Deliver a design that integrates with and respects the existing urban	Achieves objective. This option would result in no change and therefore maintain the existing urban	Achieves objective. This option would generally be integrated with and delivered within the existing Westlink M7 footprint and therefore would not significantly	Achieves objective. This option would generally be integrated with and delivered within the existing Westlink M7 footprint and therefore would not	Achieves objective. This option would generally be integrated with and delivered within the existing Westlink M7 footprint and therefore would not

Objective	Performance of alternative options			
	Option 1: Do nothing	Option 2: Widening the Westlink M7 from the M5 Motorway to the M4 Motorway	Option 3: Widening the Westlink M7 from the M5 Motorway to Richmond Road	Option 4: Widening full length of the Westlink M7 from M5 Motorway to The Hills M2 Motorway interchange
design and landscape features of the Westlink M7	design and landscape features of the Westlink M7.	<p>visually impact new areas.</p> <p>The existing vegetation within the median and near the bridge abutments and piers would be required to be permanently removed. The extent of vegetation removal for this alternative (median widening) would likely be less than Option 3 and Option 4, however more than the 'do nothing' option.</p> <p>Sections of the existing Australian Light Horse Sculpture Parade would be impacted by this option near to the M4 Motorway interchange. Impacted sections of this memorial would be removed during construction and reinstated and/or relocated elsewhere within the memorial area following construction, to respect the existing design intent. There would be fewer impacts than Option 3 and Option 4 as widening would stop at the M4 Motorway and avoid the sculpture north of the interchange.</p>	<p>significantly visually impact new areas.</p> <p>The existing vegetation within the median and near the bridge abutments and piers would be required to be permanently removed to facilitate construction. The extent of vegetation removal would be more than Option 2, but less than Option 4.</p> <p>Sections of the existing Australian Light Horse Sculpture Parade would be impacted by this option near the M4 Motorway interchange, to a larger extent than Option 2 as widening would occur north of the M4 Motorway and impact the sculpture north of there. Impacted sections of this memorial would be removed during construction and reinstated and/or relocated within the memorial area following construction, to respect the existing design intent.</p>	<p>significantly visually impact new areas.</p> <p>The existing vegetation within the median and near the bridge abutments and piers would be required to be permanently removed to facilitate construction. The extent of vegetation removal would be the greatest for this alternative as it would involve the full length of the Westlink M7.</p> <p>Sections of the existing Australian Light Horse Sculpture Parade would be impacted by this option near the M4 Motorway interchange. Sections impacted would be the same as Option 3. Impacted sections of this memorial would be removed during construction and reinstated and/or relocated within the memorial area following construction, to respect the existing design intent.</p>

Objective	Performance of alternative options			
	Option 1: Do nothing	Option 2: Widening the Westlink M7 from the M5 Motorway to the M4 Motorway	Option 3: Widening the Westlink M7 from the M5 Motorway to Richmond Road	Option 4: Widening full length of the Westlink M7 from M5 Motorway to The Hills M2 Motorway interchange
Provide a cost effective / affordable solution	<p>Partially achieves objective.</p> <p>While no costs would be incurred if no widening was to occur, traffic impacts would worsen over time due to regional population growth. The cost of deferring a solution for providing additional capacity on the road network may result in increased costs in the future.</p>	<p>Partially achieves objective.</p> <p>This option would be considered cost effective and an affordable solution. Widening within the median would minimise civil works, extensive excavations and related costs. This option would be more affordable than Option 3 and Option 4. However, it would not be the most cost-effective option in the longer term given it may require additional widening in the future.</p>	<p>Achieves objective.</p> <p>This alternative is considered cost effective and an affordable solution. Widening within the median would minimise civil works, extensive excavations, time and related costs. This option would be more affordable than Option 4, and would address congestion areas revealed in the traffic studies. This option would be more expensive than Option 2, however in the long term would be a more cost effective and affordable solution than staging additional widening that may be required in the future.</p>	<p>Partially achieves objective.</p> <p>This alternative is considered the least cost effective and affordable solution. The additional costs associated with the full-length widening alternative (Option 4) would not be justified given that the main source of congestion for the northern section of the road corridor past Richmond Road is not associated with the capacity of the Westlink M7 itself, but rather the M2 Motorway.</p>

A 'do nothing' option would not address the need or objectives for the project to provide additional capacity on the Westlink M7. While it may achieve other objectives including minimising and avoiding construction impacts, and minimising cost, it would not allow the Westlink M7 to accommodate future traffic growth and reduce existing congestion and enhance connectivity across Sydney. As such the option has not been considered further.

Traffic studies undertaken to assess the feasibility of each option showed that in order for the Westlink M7 to cope with increasing congestion, the Westlink M7 would need to be widened from the M5 Motorway to the M4 Motorway (Option 2) by 2026 at a minimum. However, this option may necessitate additional widening further north along the Westlink M7 in future (within the next 10 years).

Consideration was also given to widening the full length of the Westlink M7 from the M5 Motorway to The Hills M2 Motorway Interchange, however the main source of eastbound morning peak congestion experienced in the vicinity of The Hills M2 Motorway Interchange is due to existing capacity constraints of the two-lane section of the M2 Motorway between the Westlink M7 and Windsor Road, not the capacity of the Westlink M7 itself. As such, it was determined that there would be minimal benefit to widening the Westlink M7 beyond Richmond Road and the additional cost and impacts could not be justified.

Westlink M7/M4 Motorway (Light Horse) Interchange and 'Old Wallgrove Road Weave Area'

The design alternatives for the Westlink M7/M4 Motorway (Light Horse) Interchange were assessed separately given the complexity of the lane arrangements at this interchange.

The Westlink M7/M4 Motorway (Light Horse) Interchange connects the Westlink M7 with the M4 Motorway and enables high volumes of traffic to enter and exit the Westlink M7. Traffic volumes are particularly high coming off the Westlink M7 northbound as motorists exit onto the M4 Motorway.

Two alternatives were considered for this location, factoring in the preferred widening option for the greater Westlink M7:

- Alternative A: Widening the existing Westlink M7 through the Westlink M7/M4 Motorway (Light Horse) Interchange to include an additional lane in each direction
- Alternative B: Retaining two lanes in each direction on the Westlink M7 through the interchange, providing a two-lane northbound exit to the M4 Motorway and a third lane joining as an on-ramp from the M4 Motorway. Southbound lane configuration would include a dedicated single lane exit to the M4 Motorway.

Analysis of forecast traffic demands, as well as operational traffic modelling, found that provision of three mainline lanes through the Westlink M7/M4 Motorway (Light Horse) Interchange would be unwarranted, and the high entry and exit motorway-to-motorway ramp movements would be best suited to dedicated lane-drop/lane-gain arrangements. Furthermore, the anticipated traffic demands for the northbound exit from the Westlink M7 will exceed the capacity of a single lane into the future and hence a dual lane exit will be required to ensure the Westlink M7 and interchange ramps can facilitate the expected growth. As such, the preferred alternative at this location is to incorporate a two-lane northbound exit to the M4 Motorway and retain two lanes on the Westlink M7 through the interchange, with a third lane joining as an entry ramp from the M4 Motorway. Similarly, the southbound lane configuration would include a dedicated single lane exit to the M4 Motorway, retaining two lanes through the interchange with a third lane joining from the M4 Motorway. The results from the forecast traffic demands, as well as operational traffic modelling suggest that both alternatives would provide the required capacity on the road network and would integrate the Westlink M7 with the new M12 Motorway.

Retaining the existing two lanes (Alternative B) would also result in less environmental and social impacts, as construction of a third lane in either direction through this interchange would require further clearing, excavation, construction time and associated amenity impacts and traffic disruption.

Both alternatives would impact the Australian Light Horse Sculpture Parade on approach to the Westlink M7/M4 Motorway (Light Horse) Interchange. Alternative A would impact the entire length of the Australian Light Horse Sculpture Parade. Alternative B would impact most of the Australian Light Horse Sculpture Parade, with a section south of the interchange not being directly impacted. However, as the sculpture represents troops in formation this partial impact would also have an overall impact to the

remaining sculpture. Overall, Alternative B better aligns with the objective of integrating with and respecting the existing urban design and landscape features of the Westlink M7, relative to constructing additional lanes through the Westlink M7/M4 Motorway (Light Horse) Interchange which would result in more extensive impacts to this existing landscape feature.

The configuration of Alternative B is also the most effective and best value for money solution for the Westlink M7/M4 Motorway (Light Horse) Interchange. By maintaining two lanes through the interchange in each direction, instead of widening to three lanes in each direction, this arrangement avoids the need to widen the M4 Motorway bridges while also improving traffic flow, providing a more affordable and cost-effective solution. Avoiding the need to widen the M4 Motorway bridges also removes the potential disruption to throughflow users of the M4 Motorway travelling underneath the Westlink M7, resulting in less social impacts to road users during construction.

Old Wallgrove Road is located south of the Westlink M7/M4 Motorway (Light Horse) Interchange, and there exists only a short distance between the entry and exit ramps to/from M4 Motorway and Old Wallgrove Road (in both directions). Considerable merging and lane changing manoeuvres are required over this short section which can currently result in traffic flow disruption and congestion. While this arrangement does not remove the short distance between the interchanges or the inherent weaving movements which will need to occur, it will provide capacity and operational improvements compared to the current configuration. It is noted that options to eliminate the interactions between entry and exit ramp movements (for example through grade separation) would potentially incur significant infrastructure and associated costs. Alternatively, other alternatives could be considered into the future such as adoption of Smart Motorway technologies, or ramp closures, or similar to assist in managing flows throughout this section of the motorway.

3.4 Selection of preferred option

Extending the widening to Richmond Road (Option 3 was selected as the preferred option as it was assessed to better achieve the project objectives (refer to Table 3-4). Option 3 would:

- Deliver significant additional capacity on the Westlink M7 and prevent the need for a second round of widening works to relieve congestion in this section within a few years' time, while also avoiding additional work (i.e. widening north of Richmond Road) which is not considered justified. This improvement in capacity would enable reliable travel times and enhance access between residential, employment and growth areas
- Minimise environmental and social impacts from construction by reducing the length of widening to the extent considered necessary and justified from previous traffic studies
- Integrate with the M12 Motorway with potential concurrent construction timeframes to minimise disruption as well as providing an upgraded and safer connection point once operational
- Deliver a design that integrates with and respects the existing urban design and landscape features of the Westlink M7, as identified in **Section 3.4.1**
- Minimise the duration of construction and associated impacts, compared to a program which would be required for widening the full length of the Westlink M7 (from the M5 Motorway to The Hills M2 Motorway Interchange), providing a more affordable and cost effective solution.

Further, the preferred option supports the objectives of key transport and land use plans (refer to **Section 3.2** (Strategic context) for further detail).

3.4.1 Westlink M7/M4 Motorway (Light Horse) Interchange and 'Old Wallgrove Road Weave Area'

Retaining two lanes in each direction on the Westlink M7 through the interchange ('Alternative B') was selected as the preferred alternative as it would best achieve the objectives of the proposed widening. Alternative B would:

- Provide the required capacity on the road network and integrate with the new M12 Motorway
- Result in less environmental and social impacts than constructing a third lane in either direction through this interchange

- Impact a more limited portion of the Australian Light Horse Sculpture Parade relative to constructing additional lanes through this interchange
- Avoid the need to widen the M4 Motorway bridges, reducing impacts to road users travelling along the M4 Motorway underneath Westlink M7, while also improving traffic flow, providing a more affordable and cost-effective solution.

Alternative B would also minimise environmental, social, and urban design impacts, traffic disruption and unnecessary construction time and costs.

3.4.2 Design development and refinements to the preferred option

During the design development process for the proposed modification, consideration has been given to environmental and land use constraints along and around the Westlink M7 with the aims of:

- Mitigating environmental planning approval risks by minimising or avoiding key environmental constraints
- Balancing environmental, land use and engineering design factors
- Responding to the anticipated expectations of stakeholders, including Government, regulatory and public stakeholders, and reflecting good environmental practice.

Examples of how the design has been refined in this manner include:

- The proposed modification has focused construction within the disturbed motorway median, which has the potential to limit significant effects on environmental, social and land use values, particularly within undisturbed areas adjacent to the Westlink M7
- The number of proposed bridge widening locations has been reduced from 47 to 43 where sufficient width was available on existing bridges, to make use of existing infrastructure and minimise construction impacts where practicable
- The selection of construction compounds sought to avoid impact impacts to heritage and biodiversity, minimise the need for vegetation removal and reduce potential private property impacts.

3.4.3 Alternative construction methodologies

The construction methods for the proposed modification would be typical of standard road and bridge construction techniques. Alternative construction methodologies and considerations made in the early planning and design stages of the proposed modification included the following:

- Establishment and use of an on-site concrete batching plant, including the potential use of those to be established for the construction of the M12 Motorway project; however, due to space restrictions and proximity to sensitive receivers/receptors, the preferred method is to procure cement from existing facilities in the surrounding area.
- On-site concrete pouring of bridge sections and other road furniture; however, the preferred method of pre-cast sections was selected for constructability reasons and to reduce the duration of road closures required for the construction of the proposed widening.
- Temporary leasing of additional land for construction ancillary facilities; however given the relative lack of available land next to the existing Westlink M7 and the proposed construction of the M12 Motorway project, it is proposed to use some of the construction ancillary sites approved under the M12 Motorway project near the Westlink M7 at Cecil Hills.

Similarly, subject to construction planning, it is proposed to widen the Westlink M7 concurrently with the new interchange for the M12 Motorway, which would provide significant advantages compared to delivering these works separately (refer **Section 4.3.14**).

- Use of two additional construction ancillary facility sites were initially considered as part of the proposed modification but were subsequently discounted. These two sites are located adjacent to Pikes Lane and Richmond Road in Eastern Creek and Colebee respectively. These ancillary facility sites were removed from the proposed modification based on the results of the Aboriginal heritage archaeological survey.