

3 Strategic justification

This chapter provides the strategic planning framework, identifies the need for the project, and presents the objectives of the project.

Director General's requirements	Where addressed
Strategic Justification – the Environmental Assessment must outline the strategic need and justification for the project, taking into account existing and proposed transport infrastructure and services within the adjoining subregions, and as relevant the outcomes and objectives of	Section 3.2 Section 3.3 Section 3.4 Section 3.5
<i>State Plan</i> (2006),	Section 3.2.1
<i>City of Cities: A Plan for Sydney's Future</i> (2005) (the 'Metropolitan Strategy')	Section 3.2.3
and the accompanying draft subregional strategies,	Section 3.2.5
the <i>Metropolitan Transport Plan Connecting the City of Cities</i> (2010)	Section 3.2.4
and <i>Action for Air</i> (2009).	Section 3.2.8

3.1 Overview

The M5 corridor is one of Sydney's key transport corridors. It not only provides a vital transport function within Sydney but also forms a key part of the link between three of Australia's major cities – Sydney, Canberra and Melbourne. The Sydney–Melbourne corridor is recognised as a vital artery in the national transport system. The M5 corridor also connects the economic centres of Sydney's central business district, Sydney Airport and Port Botany with greater western Sydney. The area of greater western Sydney is Australia's third largest economy after the Sydney central business district and South East Queensland.

There are three main reasons why the NSW Government considers it necessary to prioritise the enhancement of the M5 South West Motorway as part of a broader transport strategy for Sydney:

- The project would complement other improvements to the Sydney Motorway Network, including the M7 Motorway and the current program of works for widening the F5 Freeway to Campbelltown, from four lanes to eight lanes. Both of these roads feed directly into the M5 Motorway at Prestons.
- The project would provide greater capacity in the M5 corridor to better serve existing and future demand. Major sources of demand include land release areas in the South West Growth Centre and the Western Sydney Employment Hub, development of Liverpool as one of five regional cities in Sydney, intensification of employment lands along the M5/F5 corridor and future growth at Sydney Airport and Port Botany.
- The project would progress the NSW Government's plans, in cooperation with the Commonwealth Government, to enhance the M5 transport corridor by linking the capacity improvements substantially completed with the F5 widening project between Campbelltown and Prestons and those planned as part of M5 East expansion between Beverly Hills and Mascot.

The original environmental impact statement for the M5 South West Motorway (RTA, 1991) acknowledged the need for future widening of the motorway and the carriageways were designed and constructed to allow for widening into the central median.

3.2 Relationship to strategic planning and policy

Significant growth is forecast for Sydney. In response the NSW Government has released a number of plans and strategies to guide growth and development. The concept for the project has been developed with reference to these strategic plans and seeks to respond to the existing and emerging demands in this dynamic area of Sydney.

The strategic planning framework underpins the project objectives that have guided the project through options assessment, concept design and (now) detailed environmental assessment. The project objectives are described in section 3.7.

3.2.1 NSW State Plan

The *NSW State Plan: A Direction for NSW* (NSW Government, 2010b) identifies priorities and targets for the NSW Government over the next 10 years in the following areas:

- Better transport and liveable cities.
- Supporting business and jobs.
- Clever State.
- Healthy communities.
- Green State.
- Stronger communities.
- Keeping people safe.

The M5 West widening project would contribute to identified priorities in three of the above areas as outlined below.

Better transport and liveable cities

The M5 West widening project would:

- Improve the road network. The project would reduce congestion on the M5 South West Motorway and adjacent arterial roads allowing for more efficient and reliable travel. It would also allow for more effective management of incidents through improved monitoring, the early provision of information to motorists and the capacity to implement traffic switches.
- Improve road safety. The project includes an operations management control system, which would improve safety by allowing a more coordinated response to incidents.
- Increase the number of jobs closer to home. The project would support employment generators in western Sydney and in doing so could help bring jobs closer to some of Sydney's fastest growing areas.

Supporting business and jobs

The M5 West widening project would:

- Maintain and invest in infrastructure. The project would provide new infrastructure to the benefit of freight, business and passenger travel.
- Maintain AAA rating. The involvement of the private sector in funding and delivering the project would help the state to manage its finances and, consequently, help maintain the state's AAA credit rating.

Green state

The M5 West widening project would:

- Improve air quality. The project would improve traffic flow and reduce traffic on alternative routes and local streets. Reducing congestion would have the effect of reducing vehicle emissions.

The State Plan also specifically identifies the widening of the M5 South West Motorway as an initiative which will minimise congestion and which is being delivered alongside public transport improvements so that commuters will have better transport choice.

3.2.2 NSW State Infrastructure Strategy

The *State Infrastructure Strategy – New South Wales 2008–09 to 2017–18* (NSW Government, 2008) provides strategic direction for planning and delivery of infrastructure in NSW in response to population growth. The strategy, which comprises a rolling 10-year plan for infrastructure projects, was first published in 2006 and is updated every two years. The strategy highlights the need to continue planning for major road proposals including a corridor improvement study for the M5 East corridor.

The improvement study took the form of the M5 Transport Corridor Feasibility Study (RTA, 2009a), which considered both the M5 East and M5 West corridors. Widening of the M5 South West Motorway was identified as a priority component of the indicative preferred option.

3.2.3 Metropolitan Strategy – City of Cities

The *Metropolitan Strategy – City of Cities: A Plan for Sydney's Future* (Metropolitan Strategy) (DoP, 2005) is a broad framework to facilitate and manage Sydney's growth and development over the next 25 years. It identifies strategic transport corridors and major centres best placed to focus commercial and residential growth. The strategy for transport addresses and benefits all five aims of the Metropolitan Strategy. These include enhanced liveability, economic competitiveness, environmental protection and improved governance.

The objectives of the strategy include improving transport between Sydney's centres by connecting regions and economic gateways within the Greater Metropolitan Region, and planning for the provision of sufficient freight transport capacity in key corridors.

The project is consistent with the objectives of the Metropolitan Strategy as it aims to enhance the capacity of the M5 South West Motorway, improve connectivity between regions in Sydney and reduce traffic on existing alternative routes to the motorway.

3.2.4 Metropolitan Transport Plan

The *Metropolitan Transport Plan – Connecting the City of Cities* (NSW Government, 2010a) was released on 21 February 2010 and sets a vision for the city of Sydney in the future. The plan aims to effectively link Sydney's land use planning with its transport network in the long term. It outlines a 25-year vision for land use planning in Sydney together with a 10-year fully-funded package of transport infrastructure to support it.

The Metropolitan Transport Plan will be incorporated into the Metropolitan Strategy to ensure that housing and employment areas are provided in the right locations, including along key transport corridors, and that land use decisions will help get the best value from investment in transport infrastructure.

The vision of the Metropolitan Transport Plan is for commuting to work to be easy and quick; for transport and services to be accessible to all members of the community; for an efficient, integrated and customer-focused public transport system; and for revitalised neighbourhoods with improved transport hubs. Six main objectives are outlined to achieve this vision. These are to:

- Manage population and employment growth.
- Reduce congestion on our roads.

- Increase capacity on public transport.
- Improve pedestrian and cycle links.
- Improve the customer experience.
- Improve governance structures.

The plan identifies the widening of the M5 South West Motorway as a priority project that is required to increase the efficiency of the road network and, in particular, address existing traffic congestion and future travel demand.

The plan also identifies transport infrastructure that will complement the widening of the M5 South West Motorway by improving public transport availability and increasing patronage. Initiatives include:

- Implementing strategic bus corridors in south-western Sydney.
- Building the South West Rail Link.
- Providing more air-conditioned train carriages.

3.2.5 Metropolitan subregional strategies

Subregional planning translates some of the objectives of the Metropolitan Strategy's long-term planning to the local level. The M5 West widening project traverses the Bankstown, Canterbury and Liverpool local government areas within three metropolitan Sydney subregions:

- South West Subregion – Wollondilly, Camden, Campbelltown, Liverpool local government areas (DoP, 2007a).
- South Subregion – Kogarah, Hurstville, Canterbury, Rockdale, Sutherland, Marrickville local government areas (DoP, 2007b).
- West Central Subregion – Auburn, Bankstown, Fairfield, Holroyd, Parramatta local government areas (DoP, 2007c).

Draft strategies have been prepared for these three subregions, as presented below.

Draft South West Subregional Strategy

The South West Subregion is a major growth area within the Greater Metropolitan Region. This subregion encompasses the South West Growth Centre, with over half the centre within the Liverpool local government area. Liverpool also includes the growth areas of Bringelly and Austral, future employment areas and the southern portion of the Western Sydney Parklands.

The subregional strategy recognises that the M5 South West Motorway currently has severe traffic congestion in peak periods, and that peaks are becoming longer as a result. It also recognises that even with planned public transport corridors, the arterial road network will need to be upgraded and extended to serve the South West Growth Centre and existing urban areas.

The project would help to address this need, as explained further in section 3.3.

Draft South Subregional Strategy

The South Subregion is a key economic driver and lifestyle area of the Greater Metropolitan Region. It plays an important economic role as it forms part of the Global Economic Corridor. It is well serviced by existing transport infrastructure.

This subregion includes a significant number of key employment lands, including land used for warehousing and manufacturing. There is pressure to rezone these warehousing and manufacturing areas for residential use to provide for population growth. Such areas include Zetland and the planned urban renewal area around

Green Square. In addition, employment around Sydney Airport is expected to grow by around 18,000 jobs by 2031. Growth in employment is expected to place significant pressure on existing and future infrastructure.

The subregional strategy recognises that options need to be investigated to improve road links between Port Botany–Sydney Airport and western Sydney. The M5 West widening project would help to meet this aim.

Draft West Central Subregional Strategy

The West Central Subregion is a key economic driver of the Greater Metropolitan Region. Major transport corridors such as the M4 and M5 South West motorways, the Main Western Line, parts of the South Line and East Hills Line and Parramatta River make this subregion one of the most accessible and connected in greater Sydney.

The strategy recognises that connections should be planned between regions and economic gateways in the Greater Metropolitan Region and that potential projects relevant to the West Central Subregion include widening parts of the M5 South West Motorway.

The M5 West widening project would improve accessibility from the subregion to the regional City of Liverpool and provide road access to a planned intermodal freight terminal at Moorebank.

3.2.6 Sydney–Melbourne Corridor Strategy

The Australian Government Department of Transport and Regional Services (DoTaRS) developed the *Sydney – Melbourne Corridor Strategy* (DoTaRS, 2007a) with input from the NSW Department of Planning, RTA, NSW Ministry of Transport, Victorian Department of Infrastructure, VicRoads and the ACT Department of Territory and Municipal Services.

The strategy identifies the Sydney–Melbourne corridor as the busiest inter-capital road corridor in Australia. It also identifies transport deficiencies along the M5 corridor, including road safety issues and the impact of urban growth on congestion and transport efficiency.

Key objectives of the strategy are to manage traffic congestion around the fringes of Sydney, facilitate infrastructure handling capacity and efficiency, improve transport productivity and improve the reliability of travel along the corridor. The project addresses all of these objectives.

3.2.7 Sydney Urban Corridor Strategy

The *Sydney Urban Corridor Strategy* (DoTaRS, 2007b) identifies that Sydney plays a key role in Australia's economy and transport systems. The strategy identifies the east–west link between the inter-city corridor and Port Botany/Sydney Airport consisting of the M5 South West Motorway, M5 East, General Holmes Drive and Foreshore Road. The corridor serves the dual purpose of major commuter movement and freight traffic.

The strategy recognises the continued and sustained growth of Sydney's population and increased trade through Port Botany and Sydney Airport and the industrial areas adjacent to the M5 Motorway. The strategy further recognises that the M5 Motorway is at capacity and demand is expected to exceed current levels by 20–50 per cent by 2016.

The strategy recognises that capacity should be enhanced along the M5 Motorway corridor to address future urban road congestion. The project would help achieve that strategy.

3.2.8 Action for Air

The NSW Government initiative *Action for Air* (EPA, 1998) is a 25-year plan to improve air quality in the Greater Metropolitan Region. The plan, which was updated in 2009 (DECCW, 2009a), identifies the reduction of motor vehicle emissions as a priority action and sets specific targets for reducing the per capita vehicle kilometres travelled.

The M5 West widening project would support *Action for Air* by improving the efficiency of traffic movements in the corridor. The widening of the M5 Motorway would result in lower vehicle emissions for each kilometre travelled, mainly because it would ease congestion.

The project would also provide improved traffic flow to the South West Growth Centre and Western Sydney Employment Hub. The location of jobs closer to residential areas would reduce the need to travel and the distance travelled.

3.2.9 Local government plans

The M5 South West Motorway passes through three local government areas: Canterbury, Bankstown and Liverpool.

Each council has produced local environmental plans to guide land use planning in order to ensure the most efficient and harmonious use of land within their respective jurisdictions. None of the three local environmental plans specifically mentions the development of the M5 South West Motorway corridor. However, all three zone the corridor for infrastructure purposes. As the permanent features of the M5 West widening project would occur within land zoned for infrastructure, it is considered to be consistent with local government strategy.

3.3 Metropolitan and regional transport context

The F5/M5 corridor extending from Campbelltown to the central business district serves a population of around 1.5 million people, representing around 30 per cent of Sydney's population and almost eight per cent of Australia's population. There are around one million jobs in the corridor, representing around 45 per cent of Sydney's jobs and 10 per cent of Australia's jobs. Based on updated forecasts published by the Department of Planning (DoP, 2010), Sydney's population is predicted to approach six million by 2036, with the population of south-western Sydney predicted to increase by 464,000.

Between 2001 and 2006, Sydney's South West Subregion experienced a very high rate of jobs growth of 12 per cent. A target of over 550,000 new jobs for Sydney has been set, with around half of these new jobs expected to be located in western Sydney up to 2031.

The M5 South West Motorway plays a key role in the metropolitan transport system, as shown in Figure 3.1. Current major transport elements surrounding the motorway include the F5 Freeway, M5 East tunnel, the East Hills Line and the Airport Line. The M5 South West Motorway and M5 East form part of the Sydney Orbital Motorway. The M5 Motorway connects Sydney's south west (including Campbelltown, Minto, Ingleburn, Liverpool, Moorebank and Bankstown), Sydney's south east (including Hurstville, Botany, Randwick, South Sydney, Sydney Airport and Port Botany) and Sydney's central business district.

The existing rail network services regional public transport demand surrounding the M5 South West Motorway. Sections of the rail network have been upgraded in recent years, and the East Hills Line has been extended to Campbelltown. Bus services are focused on connecting to the train stations in the corridor and on parallel routes including strategic bus corridors on Newbridge Road, Milperra Road and Canterbury Road. A dedicated line between Port Botany and Enfield/Chullora services rail freight with a freight line extension to Sefton. This is currently being extended with the \$309 million Southern Sydney Freight Rail Line, which will provide a dedicated 36-kilometre freight line between Sefton and Macarthur in Sydney's south and south west.

3.4 Relationship to existing and proposed infrastructure

The M5 West widening project has been developed within the context of existing and planned transport infrastructure. Some of this related infrastructure has a direct functional relationship to the M5 South West Motorway (such as existing and proposed roads) while other elements are complementary and address broader regional travel and transport demand.

3.4.1 Existing and planned road network

The M5 South West Motorway is a central link in the motorway network and there is a close relationship between its performance and that of connecting road network infrastructure to the east, in the areas adjacent to the M5 transport corridor and to the south west.

While the M5 West widening project is a standalone project, it is clearly complementary to the NSW Government's proposal to expand the M5 corridor east of King Georges Road. The M5 Transport Corridor Feasibility Study (RTA, 2009a) recognises the need for both elements as part of an overall strategy to address congestion and accommodate increasing demand.

Major arterial roads adjacent to the corridor (such as King Georges Road and Newbridge Road) are indirectly affected by congestion on the M5, and in congested conditions these roads accommodate traffic that would otherwise use the motorway. Improved capacity on the M5 South West Motorway has the potential to relieve congestion on major arterials, allowing them to more effectively provide access to the areas through which they pass and to serve specialised functions such as the support of strategic bus corridors.

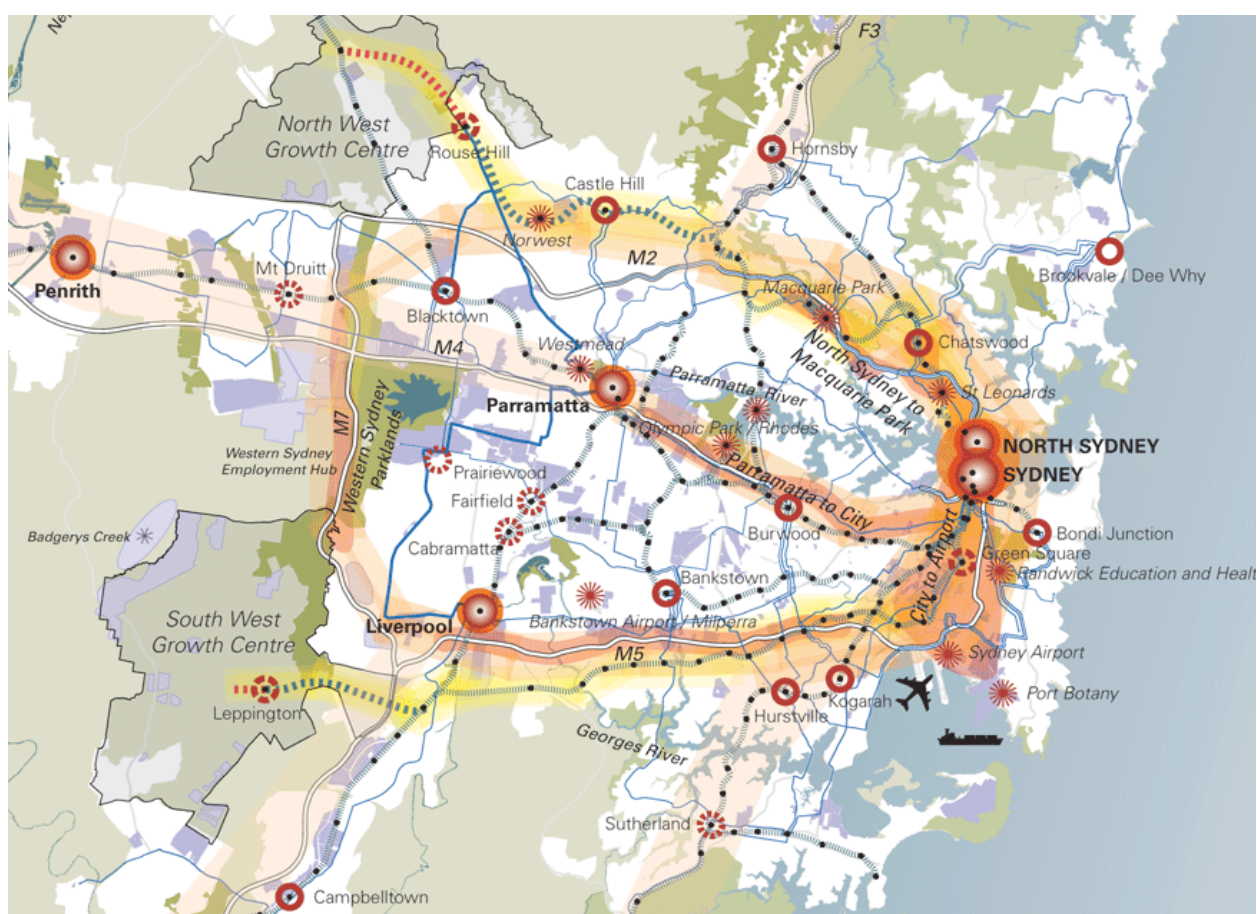


Figure 3.1 M5 corridor in the context of Sydney's Metropolitan Strategy

The Draft South West Subregional Strategy (DoP, 2007a) recognises that the major radial roads in the subregion, including the M5 South West Motorway, suffer from severe traffic congestion and notes the need for upgrades to both service the South West Growth Centre and to facilitate the operation of strategic bus corridors. Improvements identified by the strategy include:

- Widening the F5 northbound between Brooks Road and Camden Valley Way (now completed).
- Upgrading and widening Camden Valley Way (occurring progressively).

In addition to the above, the RTA is currently widening a further 11 kilometres of the F5 Freeway between Brooks Road, Ingleburn and Narellan Road, Blair Athol. All these improvements convey traffic to the M5 South West Motorway and further reinforce the need to increase capacity on the motorway.

3.4.2 Existing public transport infrastructure and planned improvements

There has already been substantial public transport investment in and around the corridor. Further public transport projects are also proposed. Relevant improvements include:

- The quadrupling of the East Hills Line between Turrella and Kingsgrove (completed).
- Revesby Turnback (completed) and the Kingsgrove to Revesby Quadruplication (under construction and due for completion in 2013), which provide additional capacity for more train services.
- The proposed South West Rail Link, which would deliver new rail services to the outer metropolitan area and access for new communities located in the South West Growth Centre.
- The NSW Government's Commuter Car Park Program, which is delivering commuter park-and-ride facilities at a range of CityRail stations including Campbelltown, Holsworthy and Revesby (with facilities at Macarthur to be delivered as part of the Macarthur Station upgrade and interchange).
- Commuter Car Park Program, which has or will deliver park-and-ride capacity at a range of CityRail stations including Macarthur, Campbelltown, Holsworthy and Revesby.
- Improved bus priority on strategic bus corridors (including corridor 31 Liverpool to Campbelltown; corridor 33 Liverpool to Bankstown; corridor 28 Bankstown to Burwood; and corridor 25 Hurstville to Bankstown).
- The Metrobus network (including route M90 connecting Liverpool, Moorebank, Bankstown, Strathfield and Burwood) which provides high-frequency bus services service running seven days a week. Buses run every 10 minutes during peak periods, every 15-minutes during the weekday off-peak, and every 20 minutes in the evening and on weekends.

The M5 West widening project would complement these projects by improving access to off-centre employment and making it easier for more people to interchange with the public transport network. Many commuters, for example, access the park-and-ride facilities at Holsworthy and Revesby via the motorway.

In addition, bus services using the strategic bus corridors and Metrobus network would benefit from improved travelling conditions on major arterial roads. As a consequence further opportunities for bus priority on these roads may also be possible.

Most importantly, while public transport investment is central to accommodating future growth, it cannot eliminate the need for improvements to the road network. This is expressly recognised by both the Metropolitan Strategy (DoP, 2005) and, more specifically, by the Draft South West Subregional Strategy (DoP, 2007a).

3.4.3 Existing and planned freight transport infrastructure

It has long been the NSW Government's view that a 40 per cent freight shift to rail from road is required if Sydney is to remain economically competitive and sustainable (NSW Government, 2008). As a result, there is already significant investment directed at achieving this target. Initiatives include:

- Southern Sydney Freight Line, which will provide a dedicated freight line for a distance of 36 kilometres between Macarthur and Sefton in southern Sydney. The Southern Sydney Freight Line will provide a third track in the rail corridor specifically for freight services, allowing passenger and freight services to operate independently.
- The Moorebank intermodal freight terminal with connections to the motorway network and the Southern Sydney Freight Line. It was allocated \$71 million in the 2010–11 federal budget.

While in some instances it is possible to use rail alone to carry goods from origin to destination, in most instances – and particularly in the case of non-bulk freight – it is necessary to transport cargo to or from the railhead (or both) by truck. Any increase in the rail share of the freight task therefore implies a greater role for intermodal terminals (Meyrick and Associates, 2006). It also underscores a continued central role for the road network, particularly the M5 South West Motorway, in the context of the proposed Moorebank intermodal freight terminal.

3.5 Need for the project

3.5.1 Current pressures

The M5 South West Motorway provides for a variety of travel including a mix of local and regional travellers, passenger, commercial and freight related trips. The motorway is among the most heavily constrained roads in Sydney. The annual average weekday traffic volume (excluding public holidays) at the Hammondville toll plaza is 91,000 (2009). Around 7,000 vehicles (about eight per cent) are heavy vehicles transporting local, regional and interstate freight, making the motorway one of the most dominant freight corridors on the Sydney motorway network.

The NSW Government has identified the need to develop the entire M5 corridor. It has commenced planning for additional connections and capacity in the eastern section of the corridor which would further benefit the operation of the M5 South West Motorway. However, the project is not dependant on the development of the eastern M5 corridor.

The addition of the M5 East and Westlink M7 to the motorway network has contributed to growing congestion on the M5 South West Motorway. Traffic volumes on the M5 South West Motorway have increased at around three per cent per annum over the last five years (based on traffic counts at Hammondville toll plaza and ramps at Henry Lawson Drive, River Road and Fairford Road). Constrained capacity during peak hours has limited the extent of traffic growth in the corridor over the last five years.

Hourly traffic volumes are consistently high during daytime hours on the M5 South West Motorway on weekdays and weekends, in both directions. These volumes have been increasing steadily since the road opened in 1992 and traffic count and travel time data suggest that the motorway may have exceeded its optimum capacity during peak periods. This is because the motorway was, in broad terms, designed to accommodate a maximum of around 4000 vehicles per hour in each direction (noting that capacity of a road is contingent upon a multitude of factors). It is also noted that as traffic volumes increase, particularly around conflict points such as ramps, flow breakdown can occur, which effectively reduces throughput.

As outlined above, during the middle of the day, traffic volumes decline only marginally compared with peak hours, demonstrating the extent to which business and freight are reliant on the corridor on weekdays. High

volumes during the middle of the day on weekends demonstrate the very high demand for leisure and recreational trips as motorists seek to access key destinations along the corridor.

Traffic surveys between Camden Valley Way and King Georges Road identify travel speeds of about 47 kilometres per hour in the eastbound direction during the morning peak period. This compares to a sign posted speed limit of 110 kilometres per hour and equates to a travel time of about 25 minutes in 2010. The surveys identify an average travel speed of about 56 kilometres per hour for westbound traffic in the evening peak.

Traffic congestion impacts not only on economic development, but also on the liveability of communities. A survey of 500 residents in the M5 corridor conducted for Interlink Roads in 2009 indicated 92 per cent support for upgrading the M5 South West Motorway (UMR, 2009).

3.5.2 Emerging pressures

A very high level of demand is forecast as a result of growth in the South West Growth Centre, Liverpool Regional City, Western Sydney Employment Hub, employment lands in the M5 Corridor and at Sydney Airport and Port Botany. All of these growth areas are identified in the NSW Government's Metropolitan Strategy (refer section 3.2.3) and population projections published by the Australian Bureau of Statistics.

Population growth

South West Growth Centre and Liverpool Regional City

The South West Growth Centre, which spans the local government areas of Liverpool, Camden and Campbelltown, is planned to accommodate around 110,000 new homes in the next 30 years in greenfield areas including Leppington and Oran Park. It covers about 17,000 hectares of land and requires an extensive transport network to support access to education, work, recreation and health facilities. Progressive land release has already commenced at Edmondson Park and Oran Park.

The South West Rail Link from Glenfield to Leppington is being built in stages. Stage 1 involves construction of a rail flyover north of Glenfield Station to enable increased and more reliable train services and a commuter car park. Work on Stage 2, which includes the planned extension to Leppington, is expected to commence in 2010 and is due for completion by 2016. It will mainly provide for weekday commuter trips. For personal journeys not suitable for the rail network and for business and freight, existing roads will be placed under pressure. As discussed in section 3.4.1, a number of arterial road upgrades are being implemented in response. Growth in the South West Growth Centre would also rely heavily on access via the M5 South West Motorway and M5 East to the eastern parts of Sydney.

The draft South West Subregional Strategy (DoP, 2007a) identifies the development of Liverpool as a regional city over the next 25 to 30 years as a key direction for the South West region. Targets have been set to double the number of Liverpool central business district jobs from over 15,000 in 2001 to 30,000 by 2031 and to increase the number of homes from 11,180 up to 22,000. An expanded M5 South West Motorway would be an important element within a range of transport measures servicing this growth.

Employment growth

Western Sydney Employment Hub and intensification of employment lands along the M5 corridor

Located at the junction of the M4 and M7 motorways, the Western Sydney Employment Hub contains 1500 hectares of land for industrial use and has the potential to generate more than 1000 net hectares of additional employment land. Distribution centres for major companies that import goods from overseas are particularly attracted to the site, being at the junction of two motorways and offering a large area of land suitable for major warehousing uses. LG Electronics is currently operating on the site and a national distribution centre for Wesfarmers has been constructed. Currently, the most reliable freight route between Eastern Creek and Port Botany–Sydney Airport is via the M7 Motorway and M5 corridor, as the M4 Motorway ends at Strathfield.

The NSW Government's Metropolitan Strategy (refer section 3.2.3) states that land along the M5 South West Motorway is being protected to enable the enhancement of employment lands. The major strategic areas of Milperra, Bankstown Airport, Moorebank, Ingleburn, Minto and Campbelltown along with Port Botany and Sydney Airport - provide potential for agglomeration of transport and distribution activities along the M5 corridor. Intermodal freight terminals currently operate at Minto and Ingleburn and, as already outlined, a further terminal is planned at Moorebank. As these develop into more intense business and industrial uses they will need to be supported by increased road capacity in the M5 corridor.

Wider transport and infrastructure interactions

Sydney Airport and Port Botany

Sydney Airport passenger numbers are forecast to grow by nearly two and half times (from 33 million to 79 million per year). In addition, air freight is forecast to substantially increase (from 647,000 tonnes to 1,077,000 tonnes by 2029) and Port Botany container trade is forecast to nearly double (from 1.8 million twenty-foot equivalent units (TEUs) to three million TEUs per year) by the early 2020s (FIAB, 2007). This growth will place significant pressure on the M5 East and M5 South West Motorway.

Access to Sydney Airport is currently around 88 per cent per cent by road-based modes, including car, taxi and bus, with 11 per cent by rail (SACL, 2006). The 2009 Sydney Airport Master Plan (SACL, 2009) commits to increasing public transport access by five per cent. Even if this growth in public transport use is achieved, the total growth in passenger numbers will stress the existing road network. Further, given the nature of air freight (which is generally perishable, high value and/or time dependent), it is typically serviced by road-based movements which are similarly forecast to more than double.

The transport of containerised freight from Port Botany is also heavily dependent on road access. At present, just under 20 per cent of these containers are moved by rail with the remaining 80 per cent on road. A target has been set in the NSW Government's Metropolitan Strategy to increase the rail mode share to 40 per cent. Even if this target is achieved the number of containers moved by road will still increase significantly by the early 2020s because of strong overall growth. Furthermore, the destination for around 25 per cent of full import containers through Port Botany is the Bankstown area and a further seven per cent are destined for Campbelltown. This represents around one-third of all imports from Port Botany and has clear implications for motorway demand.

3.5.3 Increasing congestion

In the absence of additional capacity, travel time reliability will continue to diminish as congestion worsens, with heavy vehicles driven onto local arterial roads as a result of reduced travel time reliability on the M5 South West Motorway. Traffic modelling (see Appendix D) indicates that without the M5 West widening project:

- Traffic volumes on the M5 South West Motorway will increase constantly up to 2026.
- During the AM peak period, travel times on M5 South West Motorway eastbound will increase by 4.1 minutes between 2006 and 2016 and by 9.8 minutes between 2016 and 2026, without M5 West widening project. The equivalent travel times on the parallel arterial road route will also increase, by 2.5 minutes between 2006 and 2016 and by 5.9 minutes between 2016 and 2026.
- Average morning travel speeds in the M5 corridor will drop to 47 kilometres per hour westbound and 38 kilometres per hour eastbound by 2026.

3.6 Economic performance of the project

Economic appraisal assists decision-makers to understand the economic worth of a proposal in monetary terms. It helps determine what is 'value for money' and allows the economic worth of a particular initiative to be considered in the context of other potential benefits and impacts. A favourable economic appraisal often forms a key element of the project justification.

An economic appraisal was undertaken in accordance with the relevant guidelines for cost benefit analysis as provided by NSW Treasury and the Australian Transport Council (Ernst and Young, 2010).

The economic appraisal framework is based on a generalised cost benefit analysis methodology. This approach requires appraisal of projects on an incremental basis, which compares the economic benefits with and without the project by considering the following parameters:

- The direct costs of a project to the community, which include:
 - Capital costs, including construction costs.
 - Operating and maintenance costs.
- The indirect costs of a project, which include:
 - Costs of disruption to normal traffic service through the construction phase of a project.
 - Costs that local businesses incur as a result of disruptions during the construction phase, or diversions of traffic which could make it more difficult in the future for their customers to gain access to their business premises as a result of road diversions that move traffic flows away from their premises.
 - Costs that residents of surrounding neighbourhoods bear during the construction and operating phases of the project. These costs include any reduction in the amenity of the surrounding neighbourhood arising from noise pollution; reductions in the visual appeal of the region; increases in road congestion or air pollution; and the costs of any damage to the natural environment caused during the construction and operation phases of the project.
- The direct benefits of a project, which include:
 - Travel time saved by freight and passenger users.
 - Reductions in vehicle operating costs.
 - Reductions in accident costs.
 - Reductions in environmental emissions.
- The indirect benefits of a project to the community. These external benefits include:
 - Benefits that other transport users derive from an expansion in the road network.
 - Reductions in travel times and congestion costs on surrounding road links used by other users.
 - Benefits that neighbouring businesses derive from better access to their businesses.
 - Reductions in accident costs.
 - Benefits that neighbouring communities derive from better access to retail outlets, workplaces and leisure activity locations.

The economic analysis found that the proposed widening of the M5 South West Motorway would create benefits, realised by the general community, that would outweigh the initial upfront construction cost and ongoing operational costs.

It was noted that operational emission reduction benefits would not be realised. This is because environmental impacts are measured economically by reference to vehicle kilometres travelled. By increasing the length of the average journey, the project would result in a corresponding increase in environmental costs. This is factored into the overall cost benefit results.

The results of the economic analysis are summarised in Table 3.1.

Table 3.1 Cost benefit analysis results

Attribute	Value
Present value of costs (\$ M)	\$425
Present value of benefits (\$ M)	\$1058
Net present value (\$ M)	\$633
Benefit-cost ratio	2.5
Internal rate of return	16%
First year rate of return	11%

There are a number of potential benefits that have not been included in the assessment. These include:

- The productive advantages for local businesses arising from the spatial concentration of economic activity ('agglomeration' benefits).
- The multiplier effect realised by businesses through the reduced costs of transporting goods and services as inputs to their business operations.
- Improvements to the supply of labour that would result from improving access to markets and increasing the net benefit of working (reducing the cost to travel to work); and improvements to the productive work time of the labour force.
- Improved access to services such as educational facilities and hospitals.
- The effects of economic stimulus arising from the substantial private sector investment proposed.

3.7 Project objectives

As noted in section 3.2, the project objectives have been informed by the plans and strategies discussed above and have guided the project from its inception.

The objectives of the M5 West widening project are to:

- Support growth in the South West Growth Centre.
- Improve travel efficiency between key residential and employment areas.
- Enhance the strategic road network.
- Improve freight transport capacity and efficiency.
- Minimise environmental and social impacts.
- Improve incident management and road safety on the M5 corridor.

Chapter 12 considers the findings of this environmental assessment and evaluates how well the project - as proposed meets the objectives set. This is a key element of the project justification.

