

12 Justification and conclusion

This chapter presents a justification of the project and a conclusion to the Environmental Assessment. It considers a range of issues including project benefits, protection of the environment and ecologically sustainable development.

Director General's requirements	Where addressed
Project Justification – the Environmental Assessment must justify the project and its components taking into consideration the objects of the <i>Environmental Planning and Assessment Act 1979</i> . This justification must include an assessment of	Section 12.1.7
travel demand, induced traffic, traffic congestion and road network efficiency (within and adjoining the corridor);	Section 12.1.3
employment and population growth and	Section 12.1.2
wider transport interactions (local and regional roads and public and freight transport).	Section 12.1.4

12.1 Strategic justification

Justification at the strategic level is established by reference to the relationship of the project to existing and planned transport infrastructure as well as its consistency with relevant NSW Government policy and strategy.

These aspects are discussed in detail in Chapter 3 and are reviewed below.

12.1.1 Relationship to existing and planned transport infrastructure

The project would complement existing and planned transport infrastructure, whether it be investment in roads or public transport. In particular, the project would:

- Support other road improvements aimed at servicing the South West Growth Centre including the F5 Freeway widening and the upgrading of Camden Valley Way.
- Complement public transport investment 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.
- Benefit the strategic bus corridors and the Metrobus network by improving travelling conditions on major arterial roads. As a consequence, there may be further opportunities for bus priority on these roads.

Further detail about the relationship of the project to existing and planned transport infrastructure is provided at sections 3.4.1 and 3.4.2.

12.1.2 Consistency with NSW Government policy and strategy

The project is consistent with the NSW Government's land use and transport policy framework. It is specifically recognised in the *Metropolitan Transport Plan – Connecting the City of Cities* (NSW Government, 2010b) as a priority project that is required to increase the efficiency of the road network, address existing traffic congestion and accommodate future travel demand.

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).

Further detail about the relationship of the project to the strategic planning framework is provided in section 3.2.

12.2 Project justification

The project justification is established by reference to the:

- Degree to which the project objectives are satisfied.
- Strength of the project need.
- Degree to which it addresses elements of the project need.
- Performance of the project relative to potential alternatives.
- Relationship to ecologically sustainable development principles.
- Relationship to the objects of the EP&A Act.

12.2.1 Achieving the project objectives

The project objectives are outlined in section 3.7 and focus on supporting growth, improving transport efficiency, minimising impacts and facilitating improved incident management. The way in which the project meets the set objectives is presented in Table 12.1.

Table 12.1 How the project meets the project objectives

Project objective	Comment
Support growth in the South West Growth Centre.	The <i>Draft South West Subregional Strategy</i> recognises that the major radial roads in the subregion, including the M5 South West Motorway, suffer from severe traffic congestion. It notes the need to upgrade these roads to service the South West Growth Centre and facilitate the operation of strategic bus corridors. The project addresses this issue by improving capacity that would complement improvements to the F5 motorway and Camden Valley Way.
Improve travel efficiency between key residential and employment areas.	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.
Enhance the strategic road network.	The Sydney Orbital Network, of which the M5 South West Motorway is a component, is the centrepiece of the strategic road network in Sydney. The project represents a major improvement to that network.
Improve freight transport capacity and efficiency.	The project would improve the capacity of links between major freight-generating areas of Sydney and would support the development of the proposed intermodal terminal at Moorebank.
Minimise environmental and social impacts.	Potential impacts on the environment have been assessed and a range of safeguards and mitigation measure are proposed.
Improve incident management and road safety on the M5 corridor.	The project would deliver improved capacity to manage road safety, traffic incidents and general traffic flow through better roadside electronic communication between road users, motorway operators and the RTA's Transport Management Centre.

12.2.2 Need for the project

A variety of current and future pressures are driving the need for the project. In the absence of additional capacity, travel times will increase and reliability will continue to diminish as congestion worsens.

Recognising these issues, a large section of the community noted their support for the project and its aims during consultation undertaken in 2009 and early 2010.

These current and future pressures are presented in detail in section 3.5 and are reviewed below.

High levels of travel demand

Currently, 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 has 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.

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 have identified 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.

Growth pressures

Further reinforcing the need for the project is the very high level of demand growth that 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. This demand growth stems from employment, population and freight transport growth in the region, as outlined below.

Employment growth

Section 3.5.2 analyses the need for additional transport infrastructure to serve increasing employment around the M5 corridor. The project would provide additional capacity to key employment lands at the junction of the M4 and M7 and would have significant follow-on effects by providing access to the planned intermodal terminal at Moorebank. The ability of the project to support businesses operating around the corridor and increase access to the Western Sydney Employment Hub would directly support employment.

Employment growth is discussed in more detail in section 3.5.2.

Population growth

The project would provide direct access to areas of planned housing in the South West Growth Centre as well as indirect access to the North West Growth Centre via the M7 at Prestons. The project would be an important part of the suite of transport measures to support an extra 110,000 homes in the South West growth Centre, directly providing for population growth.

Population growth is discussed in more detail in section 3.5.2.

Freight transport growth

Sydney Airport and Port Botany are key drivers of growth in freight transport demand; major increases in air and shipping container freight are also forecast. This demand, coupled with generated in other parts of Sydney

translates to a steady forecast growth in forecast freight trips. Freight vehicle movements in Sydney are predicted to increase by 2.2 per cent per annum to 2031 with western Sydney, including the Liverpool area, to experience amongst the highest growth within the region.

Growth in the freight transport task is discussed in more detail at section 3.5.2.

12.2.3 Traffic and transport performance

Travel demand

Population, employment and freight transport growth are broad drivers of travel demand. When these drivers are understood, traffic and transport modelling can indicate how that demand is likely manifest in terms of travel on the transport network.

Modelling indicates that, even without the project, annual average daily traffic at the Hammondville toll plaza will grow by 16 per cent between 2009 and 2016 and by 15 per cent between 2016 and 2026. At a more detailed level, predictions of movements on and around the M5 South West Motorway (using screenlines that consider traffic on adjacent roads) show that growth in demand in the corridor is expected to be above average for the next 10 years and then accelerate further from 2016 to 2026.

Consideration of the AM peak shows a forecast growth in traffic of 12 per cent (2009 to 2016) and 17 per cent (2016 to 2016) at the Hammondville toll plaza. Forecast traffic growth on the parallel route averages 14 per cent across the Hume Highway, Newbridge Road and Canterbury Road. Forecast growth in the AM peak is therefore strong for both the M5 South West Motorway and the parallel route and is above the expected Sydney average.

The M5 West widening project would address this growing demand and would improve traffic and transport performance. The effect it is expected to have on travel speeds and travel times is considered below.

Traffic congestion

Traffic congestion occurs when parts of the road network approach their capacity and is characterised by slower speeds, longer trip times and increased queuing.

Modelling indicates that without the M5 West widening project, the travel time on the motorway eastbound during the AM peak would increase from 22 minutes in 2016 to 32 minutes in 2026. Travel time on the parallel route would increase from 38 minutes in 2016 to 44 minutes in 2026.

Without the project, levels of service on the motorway are forecast to decrease markedly to the point where queues and congestion would be expected almost the full length of the motorway, in both directions during AM and PM peak periods.

The M5 West widening project would relieve some of the expected congestion with significant reductions in peak period travel times predicted for both the motorway and the parallel route (see section 8.1.4). It would achieve this while maintaining acceptable operational conditions on feeder routes (see section 8.1.4).

Road network efficiency

Across the whole network the M5 West widening is expected to result in an overall marginal increase in vehicle kilometres travelled. At the same time it is expected to reduce vehicle hours travelled, which indicates some improvements in overall journey times. Some improvement in average travel speeds across the network is also expected following the widening of the motorway.

Consideration of the M5 corridor sees the same trend as the network statistics (above) but, as might be expected, the impacts observed are more pronounced. In 2026 the M5 West widening project would result in 15 per cent increase in vehicle kilometres travelled in both the AM and PM peak periods with a corresponding 6 per cent reduction in vehicle hours travelled.

Travel patterns

Overall there is expected to be minimal change in the origins and destinations of traffic using the M5 South West Motorway. However, without the M5 West Widening project, about 40 per cent of cars passing through the toll plaza in the peak direction (2026) would be expected to use the M5 East. With the project that proportion drops to about one-third indicating that the additional traffic attracted to the widened motorway has more local destinations. Modelling indicates that a similar conclusion can be drawn for commercial traffic. This underlines the importance of the M5 West widening as a project that is justifiable in its own right, irrespective of improvements to the east.

Induced traffic

The project could lead to a small increase in private vehicle trips of between 0.1 and 0.3 per cent. Some of this would be attributable to diversion from public transport (or mode shift), which is estimated to drop by between 0.2 and 0.8 per cent, depending on year and time of day.

These amounts are relatively small, especially when considered in the context of future travel demand increases driven by population, employment and freight transport growth; and associated land use changes.

12.2.4 Wider transport interactions

Local and regional roads

Major arterial roads adjacent to the corridor (such as King Georges Road and Newbridge Road) are indirectly affected by congestion on the M5 South West Motorway, and in congested conditions these roads accommodate traffic that would otherwise use the motorway.

The project would reduce congestion on surrounding regional roads, enabling them to serve the vital function of providing access to local roads and as traffic distributors. The inclusion of variable messages signs placed at strategic locations around the motorway would better inform drivers of conditions, reducing impacts on local roads through better education and reduced congestion.

Feeder and cross-routes would see a mixture of increases and decreases in traffic volumes following implementation of the M5 West widening project. Across all links and in both directions there would be a slight (around 1 per cent in the AM peak) decrease in traffic on the feeder routes and this demonstrates that the project is unlikely to have an adverse effect on these routes.

Public transport

The project would reduce congestion on radial roads as demonstrated in section 8.1. This would improve travel times and speeds along strategic bus corridors on the arterial roads around the motorway.

Strategic bus corridors 28, 25, 31 and 33 would realise the most direct benefits. It is anticipated that traffic volumes on the parallel route would reduce by 5.6 per cent in the AM peak eastbound in 2026, with a corresponding increase in travel speeds of 6.7 per cent

Reduced demand and travel times on the parallel route present an opportunity to implement bus priority measures that can exploit this increased capacity.

Freight

The freight task in Sydney is forecast to more than double in the next 20 years. Substantial increases in freight originating at Sydney Airport and Port Botany require that transport infrastructure is upgraded to maintain the economic competitiveness of the city and broader region. The project would complement the upgrade of the Botany Goods Railway Line and the planned mode shift of more freight from road to rail. While this shift will occur, the total volume of freight relying on the M5 corridor will still increase because of the overall growth in the freight task. Section 3.5.2 outlines how the project would provide much needed capacity to key

destinations in the industrial areas along the corridor at, namely Bankstown, Campbelltown and the planned intermodal terminal at Moorebank.

12.2.5 Potential alternatives

The project complements other existing and proposed transport infrastructure, whether it is road or rail. It serves a particular type of travel demand – being better placed to accommodate off-centre employment, multi-purpose trips and commercial travel. It is also central to supporting the increased use of rail for the movement of freight. This is because, particularly in the case of non-bulk freight, it is necessary to transport cargo to or from the railhead (or both) by truck.

When considered in the context of potential alternatives, the project represents a lower cost, lower impact and better performing approach. Many of the alternatives considered are capital intensive and would have substantial impacts associated with widening existing corridors or creating new corridors. In contrast, the project utilises an existing corridor that was designed to accommodate widening in the manner proposed.

Section 3.4 establishes how the project relates to and complements existing and planned transport infrastructure. Alternatives to the project are reviewed in more detail in section 4.1.

12.2.6 Ecologically sustainable development

Ecologically sustainable development is development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends. The principles of ecologically sustainable development have been an integral consideration throughout the development of the project and are an important element in its justification.

The EP&A Act recognises that ecologically sustainable development requires the effective integration of economic and environmental considerations in decision-making processes. The four main principles supporting the achievement of ecologically sustainable development are:

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

These principles are discussed below.

Precautionary principle

The precautionary principle deals with certainty in decision-making. It provides that where there is a threat of serious or irreversible environmental damage, the absence of full scientific certainty should not be used as a reason to postpone measures to prevent environmental degradation.

The environmental risk analysis (Chapter 10) covers the potential impacts of the project. That analysis and the Environmental Assessment as a whole identify no threat of serious or irreversible environmental damage.

The threat of serious or irreversible environmental damage is one of the essential preconditions to the engagement of the precautionary principle. As the Environmental Assessment does not identify a threat of serious or irreversible environmental damage the precautionary principle does not operate in relation to the project. A conservative approach has however been taken in relation to the management of potential impacts on *Litoria aurea* (Green and Golden Bell Frog) and *Acacia pubescens* (Downy Wattle) (section 8.3).

Inter-generational equity

Social equity is concerned with the distribution of economic, social and environmental costs and benefits. Inter-generational equity introduces a temporal element with a focus on minimising the distribution of costs to future generations.

While the project would have some impacts, they are not of a nature or extent that would result in disadvantage to any specific section of the community or to future generations.

Conservation of biological diversity and ecological integrity

The twin principles of biodiversity conservation and ecological integrity have been a consideration during the design and assessment process with a view to identifying, avoiding, minimising and mitigating impacts.

The specialist assessment for the project concluded that the overall impact on threatened biodiversity would be low. The following is noted from that assessment:

- The project is unlikely to exacerbate any key threatening processes.
- The project would lead to a loss of about 40 per cent of the planted population of threatened *Acacia pubescens* (Downy Wattle) within the motorway corridor. Impacts would be addressed through the implementation of a propagation and translocation program.
- The project would likely affect potential habitat for *Litoria aurea* (Green and Golden Bell Frog). Therefore, a conservative approach has been taken with a range of measures proposed to address potential impacts.
- The project would have negligible impacts on *Chalinolobus dwyeri* (Large-eared Pied Bat), *Mormopterus norfolkensis* (Eastern Freetail Bat) and *Miniopterus schreibersii oceanensis* (Eastern Bent-wing Bat). Affected habitat would be limited to opportunistic foraging habitat, which is well represented within the broader area.
- The project would have insignificant impacts on vegetation communities, having regard to the scale of expected impacts and the condition, past and current disturbances, fragmentation and isolation of each affected area.
- The project is unlikely to result in any adverse impacts on the connectivity of identified ecological corridors.

Improved valuation and pricing of environmental resources

The principle of internalising environmental costs into decision-making requires consideration of all environmental resources that may be affected by a project, including air, water, land and living things.

While it is often difficult to place a reliable monetary value on the residual, environmental and social effects of the project, the value placed on environmental resources within and around the corridor is evident in the extent of environmental investigations, planning and design of impact mitigation measures to prevent adverse environmental impacts.

Vehicle usage results in the production of environmental emissions, such as air pollution and greenhouse gases. Environmental impacts are measured in economic terms by kilometres travelled. By increasing the length of the average journey as a result of the proposed widening, the environmental cost is increased. This increased environmental cost was considered in the economic analysis of the project (refer to section 3.6).

12.2.7 Objects of the EP&A Act

The objects of the EPA&A Act provide a framework within which the justification of the project can be considered. A review of the project in the context of the objects of the EP&A Act is presented in Table 12.2.

Table 12.2 How the M5 West widening project addresses the objects of the EP&A Act

Object	Comment
Encourage the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment.	The project makes efficient use of urban land by utilising an existing transport corridor. It promotes social and economic welfare by reducing congestion and improving transport efficiency for both people and goods. A range of safeguards and mitigation measures are proposed to address potential environmental impacts.
Encourage the promotion and co-ordination of the orderly and economic use and development of land.	The project makes use of an existing transport corridor that was designed to accommodate the proposed widening. The benefits that would result from the project have economic value.
The protection, provision and co-ordination of communication and utility services.	The project is designed to minimise impacts on communication and utility services.
Encourage the provision of land for public purposes.	The project would occur within a corridor set aside for public infrastructure.
Encourage the provision of co-ordinated community services and facilities.	The project would improve an element of the transport network that currently experiences heavy congestion and on which the community relies.
Protect and conserve native animals and plants, including threatened species, populations and ecological communities, and their habitats.	The potential impacts of the project on threatened species, populations, endangered ecological communities and their habitats are reviewed in section 8.3. A range of safeguards and mitigation measures are proposed.
Ecologically sustainable development.	The principles of ecologically sustainable development have been considered in the development of the project.
Provide and maintain affordable housing.	Part of the NSW Government's approach to housing affordability has been to set goals for housing and land supply. While the project does not involve the provision or maintenance of affordable housing, it does improve access to new housing areas.
Share the responsibility for environmental planning between the different levels of government in the State.	The responsibility for environmental planning and approval in relation to the project rests with the NSW Government. Consultation has, however, occurred across all levels of government.
Provide increased opportunity for public involvement and participation in environmental planning and assessment.	The project development process has involved extensive consultation with relevant parties. Consultation undertaken and proposed is outlined in Chapter 7.

12.3 Conclusion

The M5 West widening project would address key elements of the project need and the project objectives by improving travel efficiency, increasing freight capacity, supporting growth and enhancing the ability to manage incidents on the motorway.

It would deliver benefits that outweigh the initial upfront construction cost and ongoing operational cost, and would create the potential for the realisation of wider economic benefits.

Potential adverse impacts associated with the project have been fully assessed and strategies to avoid, minimise and mitigate those impacts have been an integral part of the project development process.

This project includes a number of commitments to ensure the best possible environmental outcomes are achieved during its construction and operation.

