

The background of the top section is a photograph of a multi-lane highway. In the foreground, a large orange semi-truck is driving away from the viewer. To its left, a white van is also on the road. A yellow sign with the text 'LONG VEHICLE' is visible. In the distance, another semi-truck is visible. The sky is clear and blue.

# M5 corridor expansion

*moving goods, people and the economy*



## M5 West Widening Preliminary Environmental Assessment

March 2010



Abbreviations and Glossary	i
<b>1 Introduction</b>	<b>1</b>
1.1 Background	1
1.2 Purpose of this document	2
<b>2 Planning and assessment process</b>	<b>7</b>
2.1 Planning approval process	7
2.2 Statutory planning	7
<b>3 Strategic context and need for the project</b>	<b>10</b>
3.1 Overview	10
3.2 Consistency with Federal and NSW Government strategic plans	10
3.3 Location and role of the M5 corridor	11
3.4 Strategic challenges addressed by the proposal	12
<b>4 Description of the project</b>	<b>15</b>
<b>5 Environmental risk analysis</b>	<b>17</b>
5.1 Environmental risk analysis process	17
5.2 Summary of key environmental issues	17
<b>6 Key environmental issues</b>	<b>19</b>
6.1 Noise and vibration	19
6.2 Traffic and Transport	21
6.3 Biodiversity	23
<b>7 Other environmental issues</b>	<b>27</b>
7.1 Soil and water management during construction	27
7.2 Aboriginal cultural heritage	29
7.3 Non-Aboriginal heritage	30
7.4 Air quality	30
7.5 Greenhouse gases	32
7.6 Visual impact, urban design and landscaping	32
7.7 Hydrology and flooding	33
7.8 Socio-economic and land use	34
7.9 Resources and waste management	35
<b>8 Community consultation</b>	<b>37</b>
<b>9 Proposed scope of environmental assessment</b>	<b>38</b>
<b>10 References</b>	<b>40</b>

## Abbreviations and Glossary

Term	Definition
AADT	Annual Average Daily Traffic
ARI	Average Recurrence Interval
CBD	Central Business District
CCTV	Closed Circuit Television
CEMP	Construction Environmental Management Plan
CO	Carbon monoxide
CO <sub>2</sub>	Carbon dioxide
DECC	Department of Environment and Climate Change (now DECCW)
DECCW	Department of Environment, Climate Change and Water
EEC	Endangered Ecological Community
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ESD	Ecologically Sustainable Development
FM Act	<i>Fisheries Management Act 1994</i>
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
LoS	Level of Service
LGA	Local Government Area
OMCS	Operations Management and Control System
PEA	Preliminary Environmental Assessment
REP	Regional Environmental Plan
RTA	Roads and Traffic Authority
SEPP	State Environmental Planning Policy
Study area	The area studied in the assessment of project impacts (direct and indirect).
TSC Act	<i>Threatened Species Conservation Act 1995</i>
WARR Act	<i>Waste Avoidance and Resource Recovery Act 2001</i>
VMS	Variable Message Sign

# 1 Introduction

## 1.1 Background

The M5 South West Motorway is a part of the National Highway Network connecting Sydney, the Southern Highlands, Canberra and Melbourne. The Roads and Traffic Authority of NSW (RTA) granted Interlink Roads Pty Ltd (Interlink Roads) a concession to build, own and operate the M5 South West Motorway. It was opened in August 1992 and spans approximately 21 km of Sydney's south west, from Prestons to Beverly Hills. Traffic volumes on the M5 South West Motorway have intensified due to ongoing development of Sydney's south west sector and the expansion of the Sydney orbital and freeway network. As a result, traffic volumes on the M5 South West Motorway are at a critical level of congestion during peak hours, resulting in increased travel time and fuel consumption.

Interlink Roads has approached the RTA with an unsolicited proposal to widen about 20 km of the M5 South West Motorway between King Georges Road, Beverly Hills and Camden Valley Way, Casula (the project). In accordance with the *Working with Government Guidelines for Privately Financed Projects* (December 2006), the RTA has commenced negotiations with Interlink Roads regarding this project.

Under the *Roads Act, 1993* the RTA is the roads authority with exclusive responsibility for certain classes of classified roads including freeways, highways and metropolitan main roads. As such, the RTA and Interlink Roads have agreed that the proponent for the project will be the RTA. The RTA as proponent has commenced the environmental assessment of the project and Interlink Roads is preparing the concept design.

The major features of the project are shown in Figure 1.1. The project would generally involve:

- Widening of the eastbound carriageway from two lanes to three lanes between Camden Valley Way and Hume Highway and between Moorebank Avenue and Fairford Road.
- Widening of the westbound carriageway from two lanes to three lanes between King Georges Road and Moorebank Avenue and between Hume Highway and Camden Valley Way.
- Provision of an Operations Management and Control System (OMCS) for the motorway.

There would be no widening between the Hume Highway and Moorebank Avenue as this section of the M5 South West Motorway is already four lanes wide in each direction.

The location and regional context of the F5/M5 corridor is shown in Figure 1.2.

The M5 South West Motorway is located in the Liverpool, Bankstown and Canterbury City local government areas (LGAs) in the south-west sector of Sydney. It traverses the Georges River Basin and crosses the Georges River and Salt Pan Creek. Land uses adjacent to the M5 South West Motorway include residential and industrial uses, and recreational uses such as golf courses and nature reserves.

The existing infrastructure includes interchanges, a number of on-load and off-load ramps, two major bridges over waterways and a number of underpass roads. The toll plaza is located at Hammondville, approximately 1.3 km west of the interchange at Henry Lawson Drive.

The benefits of the project would include:

- Providing relief to existing congestion on the M5 South West Motorway to improve travel conditions, reliability and speeds in peak hours and business hours for personal, business and freight trips.
- Providing relief to existing congestion on parallel routes such as Newbridge Road, Milperra Road, Hume Highway and Canterbury Road some of which operate as Strategic Bus Corridors.
- Providing necessary infrastructure to support forecast growth in Sydney's south west, in particular the South West Growth Centre, and Liverpool Regional City, and the intensification of employment lands along the M5 Corridor.
- Providing enhanced, high quality regional road connections and capacity between Sydney's south west and key destinations in Sydney's south east including inner Sydney, Port Botany and Sydney Airport.
- Improved capacity to manage road safety, traffic incidents, road maintenance and general traffic flow along the M5 South West Motorway through better roadside electronic communication between road users and the RTA's Transport Management Centre.
- Building on the anticipated benefits generated by widening the F5 Freeway and the planned M5 East Expansion and recognising the F5/M5 Corridor as part of the National Network.

## 1.2 Purpose of this document

This preliminary environmental assessment report has been prepared to support a major project application under Section 75E of the *Environmental Planning and Assessment Act, 1979* (EP&A Act). This report:

- Describes the project.
- Describes and analyses the findings of the preliminary environmental assessment and nominates key environmental issues.
- Proposes a scope for the subsequent environmental assessment report for the project.
- Aims to assist the formulation of environmental assessment requirements by the Director-General under Section 75F(2) of the EP&A Act.

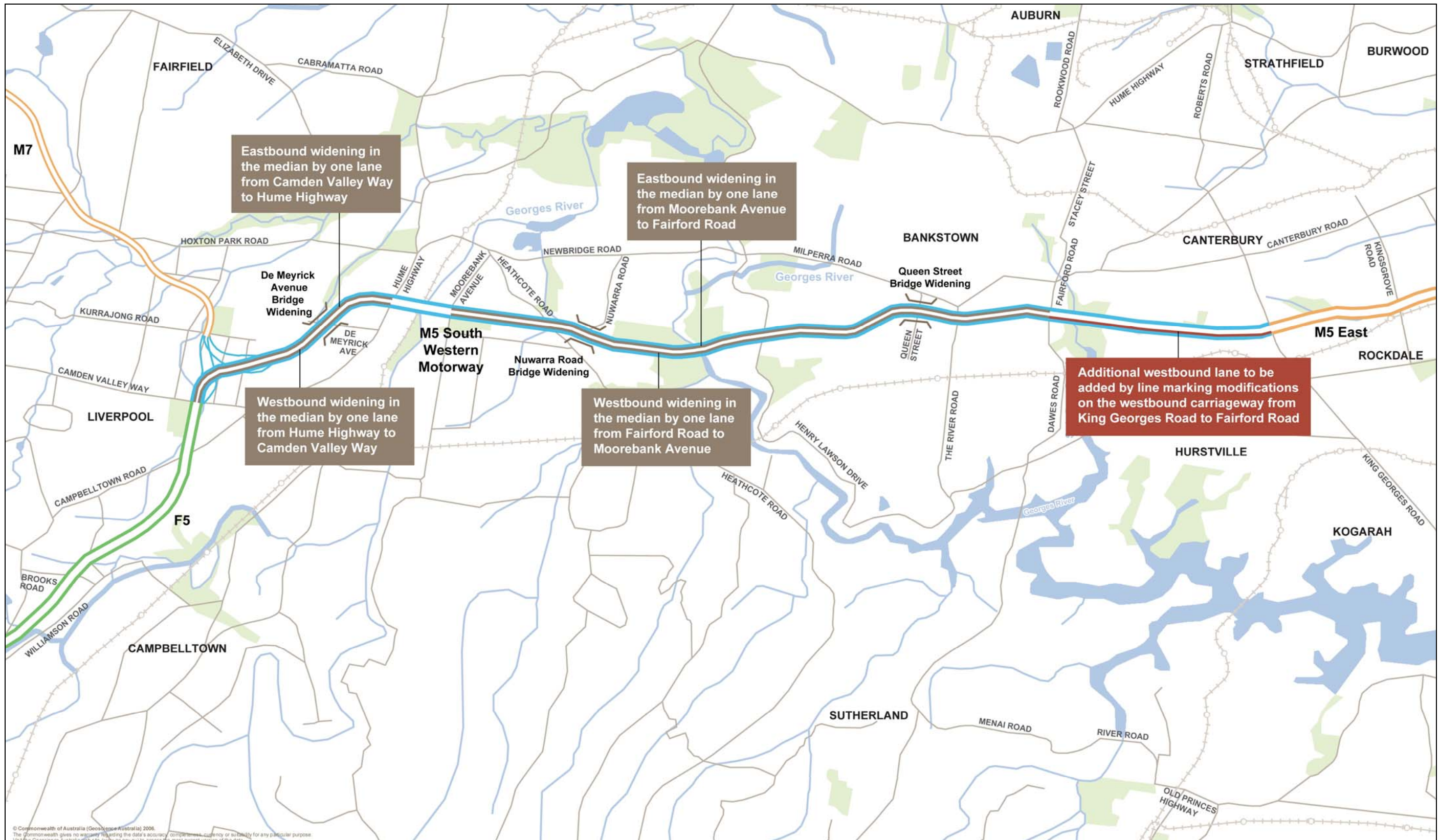


Figure 1.1: Project Overview



Figure 1.2: M5 Corridor in the context of the Metropolitan Transport Plan



Source: NSW Transport & Infrastructure Metropolitan Transport Plan – Connecting the City of Cities, February 2010



## 2 Planning and assessment process

### 2.1 Planning approval process

The planning approval process for the project is under Part 3A of the *Environmental Planning and Assessment Act, 1979* (EP&A Act). Section 75B (2) of the EP&A Act provides that for Part 3A:

*'The following kind of development may be declared to be a project to which this Part applies:*

- (a) major infrastructure or other development that, in the opinion of the Minister, is of State or regional environmental planning significance...'*

In accordance with the above provision, the Minister for Planning has declared by Order dated 10 March 2010 (copy attached in Appendix A) that the M5 South West Widening is a project to which Part 3A of the EP&A Act applies (the declared project).

Section 75C of the EP&A Act provides that the Minister for Planning may declare a project to be a critical infrastructure project because it is, in the opinion of the Minister, essential for the State for economic, environmental or social reasons. The Minister for Planning has formed the view that the project is essential to the State for economic and social reasons and declared it to be a critical infrastructure project on 10 March 2010 (copy attached in Appendix A).

### 2.2 Statutory planning

#### 2.2.1 State Environmental Planning Policies (SEPPs)

Section 75R(2) of the EP&A Act states that SEPPs apply to:

- '(a) the declaration of a project as a project to which [Part 3A] applies or as a critical infrastructure project, and*
- (b) the carrying out of a project, but (in the case of a critical infrastructure project) only to the extent that the provisions of such a policy expressly provide that they apply to and in respect of the particular project.'*

There are no SEPPs containing provisions which expressly apply to or in respect of the project and so, given the project has been declared to be critical infrastructure, the carrying out of the project would not be subject to the provisions of any SEPP.

SEPPs that may provide useful guidance, rather than statutory requirements, regarding potential issues to be addressed within the environmental assessment include the SEPP (Infrastructure) 2007.

The Greater Metropolitan Regional Environmental Plan No. 2 – Georges River Catchment (Greater Metropolitan REP No. 2), now a deemed SEPP under clause 120 of Schedule 6 of the EP&A Act, would also be considered during the environmental assessment.

## 2.2.2 Other environmental planning instruments

Section 75R(3) of the EP&A Act states that:

*'Environmental planning instruments (other than State environmental planning policies) do not apply to or in respect of an approved project.'*

Further, Section 75J(3) states:

*'In deciding whether or not to approve the carrying out of a project, the Minister may (but is not required to) take into account the provisions of any environmental planning instrument that would not (because of section 75R) apply to the project if approved. However, the regulations may preclude approval for the carrying out of a class of project (other than a critical infrastructure project) that such an instrument would otherwise prohibit.'*

The effect of Section 75R(2) and (3) is that, if the project is approved by the Minister under Section 75J of the EP&A Act, then the provisions of any local environmental plans (LEPs), which would have otherwise applied to the project, would no longer apply.

If the project is declared to be a critical infrastructure project then the Minister, when determining whether to approve the project under Section 75J, cannot be precluded from granting such approval by the provisions of any LEP or SEPP. However, the Minister may, but need not, consider these plans in the determination of the application.

The following LEPs may apply to land on which the project would be located and would be reviewed where relevant as part of the environmental assessment:

- Canterbury Planning Scheme Ordinance 1970
- Bankstown Local Environmental Plan 2001
- Liverpool Local Environmental Plan 1997

## 2.2.3 Other State legislation

NSW legislation other than the EP&A Act may be relevant to the project. Part 3A of the EP&A Act limits the application of some provisions from other State legislation. Provisions of other legislation that would have applied to the project but for the application of Part 3A will be reviewed and considered in the detailed environmental assessment where relevant.

The following NSW legislation may have relevance to the project:

- *National Parks and Wildlife Act, 1974*
- *Native Vegetation Act, 2003*
- *Protection of the Environment Operations Act, 1997*
- *Roads Act, 1993*
- *Threatened Species Conservation Act, 1995*
- *Waste Avoidance and Resource Recovery Act, 2001*
- *Water Act, 1912*
- *Water Management Act, 2000*
- *Heritage Act, 1977*

## 2.2.4 Environment Protection and Biodiversity Conservation Act, 1999

The Federal *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act) provides controls for impacts on:

- Matters of national environmental significance.
- The 'environment', where a proposed project would be carried out by the Australian Government or agency or on Commonwealth land.

If the proponent considers that there is likely to be a significant impact on any of the above matters (or if it is unclear whether a significant impact would occur), a referral is required to be made to the Australian Government Minister for Environment Protection, Heritage and the Arts to determine if the proposed project is considered to be a 'controlled action'. Should the project be deemed a controlled action then approval to carry out the works is required from the Australian Government Minister, in addition to the necessary State approval(s).

Matters of national environmental significance of potential relevance to the project include possible impacts upon nationally threatened species (see Section 6.3). Based on investigations completed to date, a referral to the Australian Department of the Environment, Water, Heritage and the Arts is not considered necessary.

## 3 Strategic context and need for the project

### 3.1 Overview

The F5/M5 Corridor is one of Sydney's key east-west corridors. It not only serves as a corridor 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 by Auslink as a vital artery of the national transport system. The M5 Corridor also connects the economic centres of Sydney CBD, Sydney Airport and Port Botany with Greater Western Sydney which is Australia's third largest economy after Sydney CBD and South East Queensland.

The rationale for prioritising the enhancement of the M5 South West Motorway as part of a broader transport strategy for Sydney is essentially threefold:

- (1) The proposal would provide enhanced capacity to complement improvements to the Sydney Motorway Network, including opening of the four lane M7 Motorway and the current program of works for widening from four lanes to eight lanes the F5 Freeway to Campbelltown, both of which directly feed into the M5 South West Motorway at Prestons.
- (2) The proposal would provide enhanced capacity in the M5 Corridor to better serve existing and future demands generated by release areas in the South West Growth Centre and the Western Sydney Employment Hub, development of Liverpool as one of five Regional Citi-es in Sydney, intensification of employment lands along the M5/F5 Corridor and growth at Sydney Airport and Port Botany.
- (3) The proposal would progress the NSW Government's plans, in collaboration with the Australian Government, to progressively enhance the M5 Corridor extending capacity improvements substantially completed with the F5 Widening between Campbelltown and Prestons and the planned M5 East Enhancement from Beverly Hills to Mascot.

The original Environmental Impact Statement for the M5 South West Motorway (1991) anticipated 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 Consistency with Federal and NSW Government strategic plans

The NSW Government has released a number of plans and strategies in recent years to guide the growth and development of Sydney, which is forecast to continue to experience significant population, economic and travel growth. The concept for the proposal has been developed within the context of these strategic plans and seeks to respond to the existing and emerging demands in this dynamic area of Sydney.

The *Auslink Sydney-Melbourne Corridor Strategy* identifies the Sydney-Melbourne Corridor as vital to the Australian economy. The proposal is consistent with the AusLink Network objectives as it would increase infrastructure handling capacity and efficiency, improve transport productivity and improve the reliability of travel along the corridor.

In relation to the *State Plan*, released in 2010, the proposal would contribute to four of the NSW Government's priority areas:

- *Maintain and invest in infrastructure:* Providing new infrastructure to the benefit of freight, business and passenger travel.
- *Improve the road network:* Reducing congestion on the M5 South West Motorway and adjacent arterial roads allowing for more efficient and reliable travel.
- *Increase the number of jobs close to home:* Improving access to jobs in the east for residents in Sydney's south west where residents are required to travel longer distances for employment.
- *Improve road safety:* Increasing road capacity and introducing an Operations Management and Control System along the M5 South West Motorway would result in safer, more reliable trips.

The *State Infrastructure Strategy NSW 2008-09 to 2017-18*, released in June 2008, identified the continuation of planning for major road proposals including a corridor improvement study for the M5 Transport Corridor, jointly funded by the Australian Government. The study has identified the proposed M5 West Widening as a priority for development.

It is consistent with the NSW Government's *Metropolitan Strategy – City of Cities*, released in December 2005, which identifies the need to enhance the capacity of the M5 South West Motorway under Actions D1.3 and D7 – Connect regions and economic gateways within the Greater Metropolitan Region.

The *Metropolitan Transport Plan – Connecting the City of Cities*, released by the NSW Government in February 2010, provides a strategy to effectively link Sydney's land use planning with its transport network. The plan identifies the delivery of an extra lane in each direction on the M5 to provide more capacity to meet travel demand.

### 3.3 Location and role of the M5 corridor

The F5/M5 Corridor from Campbelltown to the CBD currently serves a population of around 1.5 million people, representing around one third of Sydney's population and almost 8 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. Forecasts for 2026 indicate that population in the F5/M5 Corridor will increase by around 300,000 to around 1.8 million and jobs will increase by 100,000 to 1.1 million.

The M5 Corridor in Sydney's south and south west plays a key role in the metropolitan transport system, Figure 1.2. Current major transport elements within the F5/M5 Corridor include the F5 Freeway, M5 South West Motorway, M5 East Tunnel, the East Hills Rail Line and the Airport Rail Line. The M5 South West Motorway and M5 East form part of the Sydney Orbital Motorway. The F5/M5/M5 East connects Sydney's south west, including Campbelltown, Minto, Ingleburn, Liverpool, Moorebank and Bankstown with Sydney's south east, including Hurstville, Botany, Randwick, South Sydney, Sydney Airport and Port Botany and Sydney CBD.

Regional public transport demand in the corridor is serviced by the existing rail lines in the corridor. The rail lines have been upgraded in recent years to four tracks, 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/Canterbury Road. Rail freight is serviced by a dedicated line between Port Botany and Enfield/Chullora 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 freight line for a distance of 36 km between Sefton and Macarthur in Sydney's south and south west.

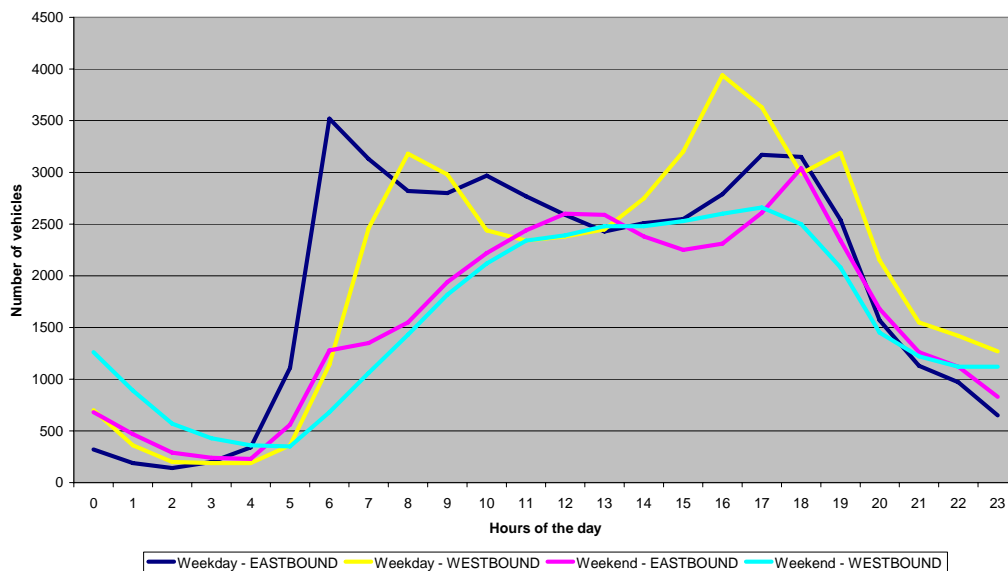
### 3.4 Strategic challenges addressed by the proposal

#### Current pressures

The F5/M5 Corridor provides for a whole range of travel including a mix of local and regional travellers, as well as passenger, commercial and freight related trips. At its western end the F5 Freeway, between Campbelltown and Prestons, has average annual daily traffic (AADT) of around 80,000 vehicles per day. The weekday proportion of heavy vehicles is considered very high with around 16,000 vehicles per day (or 20 percent of vehicles) at the southern end at Menangle and around 9,600 vehicles per day (or 12 percent of vehicles) at the northern end at The Cross Roads.

Hourly traffic volumes are consistently high during daytime hours on the M5 South West Motorway on weekdays and weekends in both directions, Figure 3.1. During the middle of the day, traffic volumes decline by only a small proportion compared with peak hours, demonstrating the extent to which business and freight are reliant on corridor access on weekdays. High volumes during the middle of the day on weekends demonstrates the very high volumes of leisure and recreational trips that take place as motorists seek to access key destinations in the east.

Figure 3.1: M5 Motorway at Revesby (October 2006)



The M5 South West Motorway experiences levels of existing demand that exceed capacity in the AM peak with volume to capacity ratio exceeding one in the peak direction. Compared to other parts of the road network the M5 Corridor is amongst the most heavily constrained corridors. Traffic volumes on the M5 South West Motorway have increased over the five years between 2004 and 2008 from an AADT of around 100,000 to 110,000 representing a growth rate of around two percent per annum (based on traffic counts at Hammond 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.

Travel speeds along the M5 South West Motorway are approximately 55 km/hour in the citybound direction during the morning and 75 km/hour westbound in the afternoon. This compares to a sign posted speed of up to 110 km/hour. Around 6,000 to 8,000 (or seven to eight percent) of vehicles are heavy vehicles transporting local, regional and interstate freight making the F5/M5 Corridor and the M7 Corridor the dominant freight corridors on the Sydney Motorway Network.

## Emerging pressures

In future, a very high level of growth in 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*.

### *South West Growth Centre and Liverpool Regional City*

The South West Growth Centre (SWGEC), which spans the local government areas (LGAs) 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 approximately 17,000 hectares of land that will require an extensive transport network to support the need for access to education, work, recreation and health facilities. Progressive land release has already commenced at Edmondson Park.

The South West Rail Link from Glenfield to Leppington is currently proposed to be staged with the first stage including construction of a rail flyover north of Glenfield Station allowing for increased and more reliable train services and a commuter car park. Some of the benefits from Stage 1 are already being realised with a commuter car park at Seddon Park completed and already open to the public. Work on Stage 2, which includes the planned extension to Leppington, is expected to commence in mid 2010 and is due for completion by 2016. It will provide for personal travel, mainly weekday commuter trips. For personal journeys not suitable for the rail network and for business and freight, existing roads will be placed under pressure. Growth in the SWGEC would rely heavily on access via the M5 Motorway and M5 East to the eastern parts of Sydney.

The NSW Government's South West Sub Regional Plan 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. A target of doubling the number of CBD 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 has been set. Liverpool is already served by a heavy rail station, the Liverpool to Parramatta Transit way and several strategic bus corridors running parallel to the M5 Motorway. These include those running along Canterbury Road/Milperra Road/Newbridge Road which would benefit from traffic reductions resulting from the Proposal.

### *Western Sydney Employment Hub (M4/M7) and intensification of employment lands along the M5 corridor*

Located at the junction of the M7 and M4 Motorways, the Western Sydney Employment Hub currently contains 1,500 hectares of land for industrial use and has the potential to generate more than 1,000 net hectares of additional employment land. In particular, distribution centres for major companies that import goods from overseas are attracted to the site, being at the junction of two motorways and offering a large area of land suitable for major warehousing uses. For example, LG Electronics is operating on the site and a national distribution centre for Coles Myer is being 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 terminates at Strathfield.

The NSW Government's *Metropolitan Strategy* identifies that, along the M5 South West Motorway, land is being protected to enable the enhancement of employment lands. Protection of employment lands is required to preserve the M5 Corridor for potential important industrial areas and avoid rezonings for conversion to residential uses. The major strategic areas of Milperra, Bankstown Airport, Moorebank, Ingleburn, Minto and Campbelltown along with the Port and Airport provide potential for agglomeration of transport and distribution activities along the M5 Corridor. Intermodal freight terminals currently operate at Minto and Ingleburn and a further terminal is planned at Moorebank in the medium to long term. As these develop into more intense business and industrial uses they will need to be supported by more road capacity in the M5 Corridor.

### *Sydney Airport and Port Botany*

Sydney Airport passengers are forecast to grow by two and half times (from 31 million to 79 million per year), air freight by more than double (from 471,000 tonnes to 1,077,000 tonnes) by 2029 and Port Botany container trade to nearly double (from 1.8 million Twenty-foot Equivalent Units (TEUs) to three million TEUs per year) by the early 2020s. This quantum of growth will place significant pressure on the M5 East and M5 Motorway.

The mode split for 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 gaining access by rail (SACL, 2006). The 2009 Sydney Airport Master Plan commits to increasing public transport access by five per cent. Even if this growth in public transport usage is achieved the growth in total passengers would leave a very greatly increased task for the road system to meet. Further, given the nature of air freight (typically perishable, high value and/or time dependent), it is serviced by road based movements which are similarly forecast to more than double in future.

Dependence on road access is similarly the case for the land side transport of containerised freight at Port Botany. 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 the strong growth in overall container numbers. 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, representing around one-third of all imports. Both of these destinations are directly serviced by the M5 Motorway.

## 4 Description of the project

The project would widen about 20 km of the M5 South West Motorway between Camden Valley Way, Prestons and King Georges Road, Beverly Hills.

The original design of the M5 South West Motorway allowed for the future provision of additional lanes in the central median. This design ensured two additional lanes could be constructed within the median without any major alteration to the existing two carriageways.

A new eastbound lane would be constructed between Camden Valley Way and Hume Highway and between Moorebank Avenue and Fairford Road and a new westbound lane would be constructed between King Georges Road and Moorebank Avenue and between Hume Highway and Camden Valley Way. The majority of widening would be into the existing median as envisaged in the original design of the Motorway. As the motorway is already four lanes in each direction between Hume Highway and Moorebank Avenue, no widening would be required in that section (refer to Figure I-1). The additional lanes between King Georges Road and Fairford Road would be provided within the existing pavement width with construction limited to re-linemarking, minor civil works and potentially resheeting.

The widening works would involve the removal of vegetation from the central median, modifications to the drainage system, construction of new pavements for the additional traffic lanes and the installation of a central safety barrier.

Structural works associated with the widening are limited to upgrading of the De Meyrick Avenue Bridge and modifications to the Nuwarra Bridge and Queen Street underpasses. All other bridges will accommodate the additional lanes without structural modification.

The existing access to and from the M5 South West Motorway would remain unchanged during operation of the project, although there may be some minor alterations to motorway access and traffic conditions during construction.

The project would also provide an Operations Management Control System (OMCS) on and in the vicinity of the M5 South West Motorway to provide enhanced traffic monitoring and management, including:

- Signage, including Variable Message Signs (VMS) and directional signage.
- Other roadside infrastructure including emergency telephones, CCTV and speed detection equipment.
- A control centre, control equipment (computers) and supporting infrastructure at Hammondville.

The proposed control room would be located adjacent to the existing motorway management offices at Hammondville, in proximity to the M5 toll plaza. It is anticipated that the building would be a conventional single storey building providing approximately 100 square metres of office space.

The need for noise mitigation measures including alterations and additions to noise walls will be identified during the environmental assessment.

The project may be subject to refinement due to findings from the environmental assessment and ongoing design development.

The project would be designed and constructed in accordance with *Beyond the Pavement, RTA urban design policy, procedure and design principles* (RTA 2009). The urban design principles outlined below would be refined for the project and would inform concept design development and the procurement process:

- Contributing to urban structure and revitalisation
- Fitting with the built fabric
- Connecting modes and communities
- Fitting with the landform
- Responding to natural patterns
- Incorporating heritage and cultural context
- Designing roads as an experience in movement
- Creating self explaining road environments
- Achieving integrated and minimal maintenance design

Construction of the project is anticipated to take approximately two years and would likely progress in rolling continuous sections. While the exact construction staging has yet to be determined, it would focus on minimising disruption and inconvenience to road users and other affected parties. Staged opening of the project to traffic is not anticipated.

The project would require ancillary facilities such as construction compounds, material laydown areas, offices and amenities and stockpile sites. The potential locations and use of these sites would be identified and assessed in the environmental assessment. They will be located so as to avoid areas within 50 m of any natural waterways or areas prone to flash flooding.

Existing sedimentation basins would be upgraded where required as part of the project to accommodate run off from the increased impervious pavement surface area.

Utility works and adjustments are anticipated for the project and would include the installation of conduits for electrical and communications services between King Georges Road and Camden Valley Way, mainly on the northern edge of the road reserve.

## 5 Environmental risk analysis

### 5.1 Environmental risk analysis process

A preliminary environmental risk analysis was undertaken for the project to identify key environmental issues. It comprised a qualitative assessment based on information gathered during preliminary investigations. The level of environmental risk was assessed by considering potential environmental impacts of the project and the ability to manage those impacts in a way that minimises harm to the environment.

While the approach is qualitative, it provides an important step in the process of project planning and assessment of environmental impact. In particular, it facilitates scoping of environmental investigations and assessments, guides project design, and assists in identifying appropriate mitigation measures and management responses. The identified risks are based on the following risk categories summarised in Table 5.1

**Table 5.1 Environmental risk categories**

Risk Category	Description
A	May have high or moderate impacts, actual or perceived. Assessment necessary to determine the level of potential impact and to develop appropriate measures to mitigate and manage the impacts.
B	May have high or moderate impacts. These can be mitigated by the application of standard environmental management measures.
C	Has low impacts. These can be managed by standard environmental management measures.

Those issues assigned risk category A are nominated as key issues.

The environmental risk analysis is an ongoing process that will continue as more detailed information becomes available during preparation of the environmental assessment.

### 5.2 Summary of key environmental issues

Preliminary environmental assessment indicates that the following key environmental issues will require further detailed assessment and may require project specific impact mitigation measures:

- Noise and vibration
- Traffic and transport
- Flora and fauna

These key environmental issues are outlined in Section 6.

A number of other environmental issues have also been identified in the preliminary environmental assessment. These issues are outlined in Section 7 and are generally considered to be common issues frequently encountered in road construction projects. The potential impact of these additional environmental issues will be mitigated during construction and/or operation, largely through the application of best practice impact mitigation and management measures.

## 6 Key environmental issues

### 6.1 Noise and vibration

#### **Background noise**

The M5 South West Motorway has heavy and continuous traffic flows. Existing noise walls are located along much of the M5 South West Motorway. Background noise at nearby residences and other sensitive land uses is dominated by traffic on the M5 South West Motorway and on other major arterial roads.

Preliminary noise and vibration investigations for the project in 2007 identified sensitive receivers and noise catchment areas. Noise catchment areas are areas with similar noise exposures. Long term noise monitoring was performed over eight to eleven days at representative residences in each noise catchment area. Short term attended noise measurements were carried out at John Mountford Reserve. An assessment of potential noise impacts was undertaken against the NSW Government's noise and vibration criteria.

The main type of sensitive receiver adjacent to the motorway is residential. Other sensitive land uses include Sir Joseph Banks High School, Revesby and recreational parks and reserves, including sporting facilities at John Mountford Reserve, Narwee. It is noted that John Mountford Reserve consists of tennis courts and therefore is considered to be an active recreation receiver. Measured existing noise levels ranged from 53 to 65 dBA during daytime ( $L_{Aeq}(15hr)$ ) and from 51 to 61 dBA at night ( $L_{Aeq}(9hr)$ ).

#### **Operational noise considerations**

Preliminary operational noise assessment indicates that, while there would be exceedances of the base noise criteria at residences located adjacent to the M5 South West Motorway, natural traffic growth in the absence of the project would likely result in many exceedances should the project not go ahead. The project is likely to result in noise levels at some residences that would require investigation of feasible and reasonable noise mitigation measures.

#### **Construction noise considerations**

Construction activities for the project would include delivery and removal of plant and equipment, installation of concrete barriers, clearing and grubbing, bulk earthworks, bridgeworks, pavement construction, concrete works, installation of drainage and utilities and use of compound and stockpile sites. Some aspects of these activities would need to be undertaken at night time to ensure driver safety and to minimise impacts on traffic.

Noise levels would vary during the construction period due to the large range of plant and equipment used and the intermittent and progressive nature of works. Noise levels at individual receivers would be determined by the type of works, the proximity of those works to the receiver, topography and shielding. The construction noise criteria are likely to be exceeded at the nearest residences to noisy works while those works are being undertaken.

### **Construction vibration considerations**

Construction equipment including excavators, vibratory rollers and compactors would be used for the project. These have potential to cause vibrations at sensitive receivers. Vibration levels from heavy vibratory rollers may potentially exceed the set limits for human comfort if used less than 25 m from sensitive receivers. However, as construction works are likely to be at least 25 m from sensitive receivers, vibration levels are not expected to exceed the set limits for human comfort. No structural damage to buildings is expected as a result of the project.

#### **6.1.1 Summary of potential issues identified**

Potential operational noise issues for the project are:

- Existing noise levels in the study area exceed the relevant criteria at some locations, including at residential dwellings.
- The project is likely to require additional noise mitigation which may include alterations and additions to existing noise barriers.

Potential construction noise and vibration issues for the project are:

- There would be construction noise and vibration impacts on sensitive receivers over the period of construction which is around two years. Construction noise and vibration impacts are likely to be intermittent as works sections are completed and move progressively along the project.
- Noisy works could be required outside of standard working hours, including at night time. The need for night works would be minimised where possible.

#### **6.1.2 Scope of detailed assessment**

A detailed operational noise assessment will be undertaken in accordance with the NSW Government's *Environmental Criteria for Road Traffic Noise* (ECRTN) and the RTA's *Environmental Noise Management Manual* (ENMM).

The scope of the assessment will include:

- Identification of nearby residences and other sensitive noise and vibration land uses.
- Identification of the applicable noise criteria in accordance with the ECRTN.
- Identification of the existing noise environment through monitoring at representative locations.
- Predictions of likely noise levels at project opening and ten years after project opening.
- Identification of reasonable and feasible mitigation strategies for consideration during design development. Mitigation measures that would be considered include:
  - Low noise pavements.
  - Noise barriers.
  - Architectural treatments to individual buildings.

A detailed construction noise and vibration assessment will be undertaken with consideration to the NSW Government's *Interim Construction Noise Guideline* (ICNG) and *Assessing Vibration, A Technical*

*Guideline* (AVTG) and in accordance with the RTA's *Environmental Noise Management Manual* (ENMM).

The scope of the assessment will include:

- Identification of nearby residences and other sensitive noise and vibration land uses.
- Identification of the applicable noise management levels in accordance with the ICNG.
- Consideration of the expected types, intensities, locations and duration of construction noise, including identification of high impact noise activities.
- Prediction of noise levels following mitigation and management and comparison of the predicted noise levels against the applicable noise management levels.
- A framework for management of construction noise and vibration will be developed and will include a focus on major construction sites and activities likely to require night works. The framework will include:
  - Construction site lay out including incorporating noise barriers where practicable.
  - Induction of construction workers on quiet work practices.
  - Scheduling of noisy works to minimise potential impacts.
  - Regular maintenance of plant and equipment.
  - Consideration of respite periods, particularly for high impact noise activities.
  - Consideration of alternative broadband reversing alarms.
  - A community notification and complaints handling process.
  - Monitoring of noise and vibration levels during construction.

## 6.2 Traffic and Transport

The M5 South West Motorway is a part of the National Highway Network, connecting Sydney with Canberra and Melbourne. It also forms an important component of the Sydney orbital network, connecting south western Sydney with Port Botany and Sydney Airport. Since the motorway opened in August 1992, there has been sustained and significant growth in traffic, influenced by changes in land use and economic activity. Growth is continuing in Sydney's south west where it is predicted that 80,000 new jobs will be created and around 155,000 new dwellings constructed over the next 25 to 30 years. This will continue to place increasing demands on the motorway.

Average annual daily traffic along the corridor is over 110,000 vehicles per day, making it one of the most heavily trafficked roads in Australia. Approximately eight percent of this traffic comprises heavy vehicles transporting local, regional and interstate freight.

In 2007 measured travel speeds indicated that a trip in the morning peak along the M5 South West Motorway from Casula to King Georges Road was calculated to take 36 minutes to drive 18.6 kilometres, a travel speed of 55 kilometres per hour. This compares to a sign posted speed of up to 110 km/hour.

### **Operational traffic considerations**

The project would increase capacity and reduce congestion on the M5 South West Motorway. This is expected to improve travel conditions, reliability and speeds in peak hours and during business hours. Associated benefits for alternative routes are also expected, including reduction in congestion on the Newbridge Road-Milperra Road-Canterbury Road route as motorists divert to or remain on the M5 South West Motorway. Existing access to and from the M5 South West Motorway would remain unchanged.

### **Construction traffic considerations**

Construction traffic would include delivery and removal of materials and equipment, movements of construction vehicles and equipment and access for construction workers, including in the vicinity of work compounds and other ancillary sites.

As the majority of works would be located within the existing median, it is envisaged that the existing inside lane (closest to the central median) would be closed to allow a safe working space for construction in the median. This closure would likely be balanced by creating a replacement traffic lane in the existing outside shoulder of the motorway. Construction traffic management and access plans would be determined prior to commencement of construction and in accordance RTA requirements.

## **6.2.1 Summary of potential issues identified**

Potential operational traffic and transport issues identified are:

- The project has the potential to change traffic distribution on the surrounding road network due to reduced congestion and improved reliability of travel times on the M5 South West Motorway.
- The project has a minor potential to induce traffic and this would be considered in the environmental assessment.

The NSW Government is investigating a proposal to duplicate the M5 East Freeway and provide a connection from it to Sydney Airport. Any expansion of the M5 East would complement the M5 South West Widening project.

Potential construction traffic and transport issues identified include:

- Delays in traffic resulting from lane closures and altered traffic conditions.
- Changes to existing traffic arrangements including provision for cyclists during construction.
- Traffic congestion due to construction traffic switches, however these impacts are likely to be minimal and short term whilst road users adjust to changed traffic arrangements.

## **6.2.2 Brief scope of the Environmental Assessment**

An operational traffic and transport study will be undertaken to identify potential impacts and management and mitigation measures. The study will include:

- Estimation of operational traffic flows on the local and regional road network (including the project) for the present and representative future years.
- Identification and assessment of operational traffic and transport implications for the local and regional road network (including the project) including any requirement for local area traffic management schemes, impacts on public transport including bus travel times and connections with other transport modes.

- Sensitivity analysis of the impacts of assumptions in the traffic assessment, including induced traffic, changes in land use, various tolling scenarios and other potential major road projects (such as a potential M5 East expansion).
- Identification of potential traffic and transport impacts during construction on the local and regional road network (including the project) including bus infrastructure and routes and pedestrian and cyclist access.

A framework for management of construction traffic and transport will be developed. The framework will include:

- Strategies to minimise delays during peak travel periods.
- Strategies to avoid and minimise impacts on bus infrastructure and routes where practicable.
- Consideration of the potential for cumulative impacts across the road networks.
- Maintenance of pedestrian and cyclist access or provision of alternative pedestrian and cyclist access where required.
- Traffic management measures including directional signage and variable message signs.

### 6.3 Biodiversity

Flora and fauna investigations undertaken in 2008 for the project included literature and database review, field survey and assessment of the likelihood of occurrence of threatened species. The main findings of the investigations are summarised below.

The M5 South West Motorway corridor is highly modified and was cleared for construction of the motorway. The road verges, batters, central median and areas adjacent to the existing noise barriers have been planted with species including exotic grasses and native shrubs and trees.

#### **Vegetation community issues**

Three endangered ecological communities (EECs) listed under the *Threatened Species Conservation Act, 1995* (TSC Act) and/or the *Commonwealth Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act) have been previously recorded in the local area including adjacent to the M5 South West Motorway. These are:

- Cumberland plain woodland EEC which is listed under the TSC Act and the EPBC Act.
- Sydney coastal river-flat forest EEC which is listed under the TSC Act.
- Coastal Saltmarsh EEC which is listed under the TSC Act.

The project would remove approximately six hectares of highly modified vegetation to make way for the additional lanes in the median. There is a minor potential that indirect impacts on EECs such as sedimentation may occur, however indirect impacts can be avoided and managed through standard management measures.

#### **Fauna issues**

A total of nine threatened fauna species are found to potentially occur within the M5 South West Motorway road reserve. These are shown in Table 7.1 below.

Seven-part tests were prepared for those five threatened fauna listed under the TSC Act and found that the project is likely to have no significant impact due to the poor quality of potential habitat present and with implementation of standard management measures.

Table 7.1: Potentially occurring threatened and migratory fauna species

Common name	Scientific name	Listing <sup>1</sup>		Summary of issues
		TSC Act	EPBC Act	
Green and golden bell frog	<i>Litoria aurea</i>	E	V	There is potential habitat in a number of areas adjacent to the motorway.
Grey headed flying fox	<i>Pteropus poliocephalus</i>	V	V	Potentially forages in young trees that would be removed as part of the project, however use would be infrequent due to the disruptive environment and the young age of the trees present.
Eastern free-tailed bat	<i>Mormopterus norfolkensis</i>	V	-	Potential foraging habitat is present however roosting habitat is unlikely to be present.
Greater broad-nosed bat	<i>Scoteanax rueppellii</i>	V	-	Potential foraging habitat is present however roosting habitat is unlikely to be present.
Rainbow bee-eater	<i>Merops ornatus</i>	-	M	Potential foraging habitat is present however it is poor quality due to the disruptive environment.
Cattle egret	<i>Ardea ibis</i>	-	M	Limited potential habitat present.
Latham's snipe	<i>Gallinago hardwickii</i>	-	M	Limited potential habitat present.
Painted snipe	<i>Rostratula benghalensis s. lat</i>	-	M	Limited potential habitat present.
Eastern bent-wing bat	<i>Miniopterus schreibersii oceanensis</i>	V		Potential foraging habitat is present however roosting habitat is unlikely to be present.

<sup>1</sup> E – Endangered, V – Vulnerable, M - Migratory

### **Flora issues**

One threatened flora species, Downy wattle (*Acacia pubescens*), occurs sporadically in the M5 South West Motorway road reserve. This species is listed as vulnerable under the TSC Act and the EPBC Act. Approximately 87 stems are present, comprising around 55 stems on batter areas and 32 stems in the median. All stems present in the median would be cleared as a result of the project.

The Downy wattle in the M5 South West Motorway road reserve was planted from seed believed to have been sourced from the local area. The plantings were part of rehabilitation following construction of the motorway. None of the Downy wattle present is remnant vegetation, however, as it has been sourced from seeds collected on site, it may differ genetically from other populations of Downy wattle.

A preliminary review of likely impacts suggests that the project is not likely to significantly impact on the Downy wattle. It is noted the individuals present have been planted and occur in a highly modified environment. Section 6.3.2 below outlines management and mitigation measures that would be implemented to ensure that any genetic diversity present in the planted population is preserved. It is not considered that the project would require a referral to the Minister for the Environment, Heritage and the Arts for impact to the Downy wattle.

### **Aquatic issues**

The project crosses the Georges River and Salt Pan Creek, which are tidally affected saline environments. The Georges River supports wetland areas of mangrove and saltmarsh communities. Little Cantello Reserve Estuarine area is located adjacent to the M5 South West Motorway at the Georges River. It has brackish wetlands on estuarine sediments and shallow marine to tidal flat areas. The Little Salt Pan Creek Estuarine area supports large areas of mangroves (around 39.5 ha) and some small areas of saltmarsh. No pavement works are proposed at waterway crossings and potential impacts are therefore limited to changes to water quality, which are further discussed in Section 7.

### **Noxious weed issues**

One noxious weed species, Chilean needle grass (*Nassella neesiana*) occurs in the M5 South West Motorway road reserve. It is listed as a class 4 noxious weed in the Liverpool, Bankstown and Canterbury LGAs.

## **6.3.1 Summary of potential issues identified**

The potential biodiversity issues for the project are summarised below:

- Clearing of Downy wattle (*Acacia pubescens*) which is listed as vulnerable under the TSC Act and the EPBC Act.
- The presence of potential green and golden bell frog habitat. This frog is listed as endangered under the TSC Act and vulnerable under the EPBC Act. The project may result in sedimentation impacts during construction or change to run-off regimes during operation of the project.
- Clearing of approximately six hectares of highly modified vegetation including some areas of potential habitat for threatened and migratory fauna species.
- Potential impact on water quality including in the Georges River and Salt Pan Creek affecting fish and crustaceans.

## **6.3.2 Brief scope of the Environmental Assessment**

A biodiversity assessment will be undertaken to identify potential impacts and management and mitigation measures. The study will include:

- Assessment of the ecological characteristics of the study area including flora and fauna species, habitat, populations and ecological communities occurring or considered likely to occur within the study area.
- Assessment of the potential direct and indirect impacts of the proposal (including nature, extent, frequency, duration and timing) on terrestrial and aquatic flora and fauna species, populations, critical habitats, ecological communities and their habitats.
- Identification of amelioration measures.
- Significance assessment for all potentially impacted threatened species would be undertaken in accordance with the draft *Guidelines for Threatened Species Assessment under Part 3A* (DECC 2006) and the EPBC Act 1999 *Significant Impact Guidelines (DEWHA 2006)*.

A framework for management of biodiversity will be developed including:

- Erosion and sedimentation management controls would focus on preventing impact on green and golden bell frog habitat and adjacent waterways.
- Strategies for managing any fauna found on site would be developed and implemented.
- Targeted surveys for the green and golden bell frog and threatened bat species.
- Identify management and mitigation measures to avoid and minimise impacts, particularly for Downy wattle (*Acacia pubescens*) and the green and golden bell frog (*Litoria aurea*).
- Noxious weeds would be managed in accordance with the *Noxious Weeds Act, 1993*.

## 7 Other environmental issues

### 7.1 Soil and water management during construction

Preliminary investigations of the soils and landscape in the study area included:

- Review of aerial photography.
- Review of the Soil Landscapes of the Penrith and Sydney 1:100000 map sheets (Bannerman and Hazleton, 1990).
- Search of the DNR Acid Sulfate Soils database.
- Search of the DNR Map of Salinity Potential in Western Sydney.
- DECCW Contaminated Lands register.

Based on preliminary information and consideration of RTA's erosion and soil assessment procedure, it is likely the project would have a low risk for erosion and sedimentation. The risk of impact on water quality is also considered to be low. Further, these risks can be managed using standard best practice erosion and sedimentation control measures.

The landform is generally undulating with broad and rounded crests and ridges grading into concave lower slopes. The M5 South West Motorway has cut and fill batters at various locations on the road edge and a depressed median. The project crosses two main waterways, being the Georges River and Salt Pan Creek.

The soil landscapes within the study area include the Blacktown, Birrong, Richmond, Berkshire Park, Luddenham and Disturbed terrain. The soil erosion hazard for these soils ranges from moderate to high and Berkshire Park soils have a very high hazard for wind erosion when exposed. It is noted, however, that construction activities would be largely within previously disturbed areas and in areas containing fill material placed during construction of the original motorway.

Where there is disturbed terrain there is potential that contaminated materials may occur. This is because waste materials may have been used as fill in these areas. No registered contaminated sites are in the project area. However, three registered sites are located within 300 m of the M5 South West Motorway, including two sites in Revesby and one site in Moorebank.

The project would pass through areas where salinity and potential salinity occurs, however no potential acid sulfate soils are mapped as occurring.

Water quality in the Georges River and Salt Pan Creek is impacted by urbanisation of the catchment and also by the level of tidal flushing. As tidal flushing increases downstream, water quality improves. After periods of rain, an increase in stormwater run-off and surcharges from the sewage system impact water quality by increasing sedimentation and bacterial content.

### 7.1.1 Summary of potential issues identified

As outlined above, based on a preliminary assessment the project has been identified as a low risk for erosion and sedimentation and for water quality impacts. The potential soil and water impacts associated with construction of the project are:

- Erosion of exposed soils by wind or water causing generation of dust and sedimentation or pollution of waterways.
- Exposure of saline materials including solidic topsoils.
- Discovery of previously unknown contaminated soils.

### 7.1.2 Management and mitigation measures

It is anticipated that the majority of soil and water issues during construction would be managed with the following management and mitigation measures:

- A desktop preliminary hazard assessment (PHA) would be undertaken to identify the potential for contamination to occur. If contamination is found likely to occur, a detailed contamination assessment would be included in the environmental assessment. Investigations would be undertaken with regard to a range of relevant statutes, policies and guidelines including the *Contaminated Land Management Act, 1997*, SEPP 55 and Managing Contaminated Land: Planning Guidelines.
- Consideration of construction soil and water impacts during detailed design and construction planning.
- Implementation of erosion and sediment control measures in accordance with Landcom's *Managing Urban Stormwater, Soils and Construction Guidelines* (the Blue Book) where practicable to:
  - Prevent sediment moving off-site and sediment laden water entering any water course, drainage lines, or drain inlets.
  - Reduce water velocity and capture sediment on site.
  - Minimise the amount of material transported from site to surrounding pavement surfaces.
- Divert clean water around the site.
- Erosion and sedimentation controls would be inspected and maintained on a regular basis (including clearing of sediment from behind barriers).
- Erosion and sediment control measures would not be removed until the works are complete or areas are stabilised.
- Work areas would be stabilised progressively during the works, if practicable.
- The maintenance of established stockpile sites during construction is to be in accordance with the RTA *Stockpile Site Management Procedures, 2001*.
- Where possible, works with potential to cause erosion and sedimentation would not be undertaken prior to or during high rainfall or wind events.

Additional standard management and mitigation measures will be identified during the environmental assessment process.

## 7.2 Aboriginal cultural heritage

Preliminary investigations of Aboriginal heritage included:

- A search of the Aboriginal Heritage Information Management System (AHIMS).
- A search of the National Native Title Register.
- A search of the State Heritage Inventory.
- A search of the Australian Heritage Database.

The investigations did not identify any Aboriginal objects or places occurring within the road corridor or its immediate vicinity. A number of sites were identified about 500 m outside of the road corridor. These items are considered to be located a sufficient distance from the project to avoid any impact.

The site visit found that the study area has been highly disturbed by construction of the motorway and adjacent land uses.

### 7.2.1 Summary of potential issues identified

No Aboriginal cultural heritage impacts are expected as a result of the project. There is a minor potential that previously unidentified Aboriginal objects may be encountered during construction.

### 7.2.2 Management and mitigation measures

It is anticipated that the majority of Aboriginal cultural heritage impacts would be managed with implementation of the following standard management and mitigation measures:

- Consultation with relevant Local Aboriginal Land Councils (LALC) including, where necessary, site visits to determine whether any unlisted Aboriginal objects or places of cultural significance to the Aboriginal community are present.
- If Aboriginal heritage objects are uncovered during the works, all works in the vicinity of the find would immediately cease and the RTA's Aboriginal Cultural Heritage Advisor and the Senior Regional Environmental Officer immediately contacted. Works in the vicinity of the find must not recommence until clearance has been received from those RTA officers and DECCW.
- All site staff would be trained in Aboriginal cultural heritage awareness specific to the project.
- All measures would be in accordance with the RTA Procedure for Aboriginal Cultural Heritage Consultation and Investigation (RTA 2008).

Additional standard management and mitigation measures will be identified during the environmental assessment process.

## 7.3 Non-Aboriginal heritage

A preliminary analysis of historical aerial photography and statutory heritage listings has been undertaken including searches of:

- Australian Heritage Database.
- NSW State Heritage Register/Inventory.
- Register of the National Estate.
- Local Environmental Plans.
- RTA s170 Heritage and Conservation Register.

The investigations did not identify any non-Aboriginal heritage items within the road corridor or its immediate vicinity. The study area has been highly disturbed by construction of the motorway and adjacent land uses. As a result, it is unlikely that any non-Aboriginal heritage items, relics or archaeology would be encountered during construction.

### 7.3.1 Summary of potential issues identified

No non-Aboriginal heritage impacts are expected as a result of the project. There is a minor potential that previously unidentified non-Aboriginal heritage items including relics or archaeological items may be encountered during construction.

### 7.3.2 Management and mitigation measures

It is anticipated that the majority of non-Aboriginal heritage impacts would be managed with implementation of the following standard management and mitigation measures:

- Further, more detailed, searches of the Department of Land's records, parish maps, historical aerial photography and historic plans for any potential non-Aboriginal heritage items that may occur in the study area.
- Review historical aerial mapping of development activities to predict the risk of encountering archaeological heritage items.
- If a relic as defined under the *NSW Heritage Act, 1977* or archaeological remains are uncovered during the works, all works must immediately cease in the vicinity of the material/find and the RTA's Senior Regional Environmental Officer would be immediately contacted.

Additional standard management and mitigation measures will be identified during the environmental assessment process.

## 7.4 Air quality

The dominant source of emissions within the study area is from cars and trucks travelling along the M5 South West Motorway and the nearby arterial road network. The main pollutants are carbon monoxide and oxides of nitrogens, which are greenhouse gases. Vehicle emissions and industry also contribute particulate matter and greenhouse gases to the airshed.

Air quality data for the project is sourced from the RTA's station at Earlwood, which is part of the M5 East air quality monitoring network. During 2002 – 2004, all values were within the air quality goals determined by the DECCW.

A preliminary air quality assessment was conducted in 2007. The study showed that concentrations of CO, NO<sub>2</sub> and PM<sub>10</sub> would be within the DECCW criteria in 2007 and 2017, both with the M5 West Widening and without. The preliminary assessment predicted minor increases in pollutant concentrations resulting for the project at 10 metres from the kerb, for example an increase of only 0.08 mg/m<sup>3</sup> (one hour) was predicted for CO (an increase from 1.10 to 1.18 mg/m<sup>3</sup> or 6.30 to 6.38 mg/m<sup>3</sup> with background concentration included) where the maximum concentration permitted under the DECCW criteria is 30 mg/m<sup>3</sup>.

As outlined in Section 7.1, soils occurring in the project area, particularly the Berkshire Park soil landscape group, have a high to very high risk of generating dust when exposed. Refer to Section 7.1 for further discussion of issues associated with mobilisation of soils.

#### **7.4.1 Summary of potential issues identified**

The potential air quality impacts associated with the project are:

- Dust would potentially be generated from exposed soils e.g. during earthworks, stockpile and moving of materials.
- There would be a temporary increase in release of pollutants during construction of the project due to the use of resources including concrete, diesel and petrol.
- Slowing of traffic for short periods during construction may increase fuel consumption and therefore the release of pollutants.

#### **7.4.2 Management and mitigation measures**

It is anticipated that the majority of air quality would be managed with implementation of the following standard management and mitigation measures:

- Measures (including watering or covering exposed areas) would be used to minimise or prevent air pollution and dust where practicable.
- Works that generate dust would not be carried out during strong winds.
- Vehicles transporting materials that may produce dust would be covered during transportation.
- Stockpiles or areas that may generate dust would be managed in accordance with the RTA's *Stockpile Management Procedure* (RTA 2001).
- Plant and equipment would not be left idling when not in use.

Additional standard management and mitigation measures will be identified during the environmental assessment process.

## 7.5 Greenhouse gases

Existing greenhouse emission sources within the study area include cars and trucks travelling along the M5 South West Motorway and the nearby arterial road network. The main greenhouse gas pollutants from vehicles are carbon monoxide and oxides of nitrogens. Greenhouse gases are also embodied in vegetation occurring in the study area.

### 7.5.1 Summary of potential issues identified

Greenhouse gas issues include emissions from:

- Fuel consumption, e.g. by construction machinery and vehicles.
- Electricity use e.g. at construction compounds, temporary lighting and construction plant and equipment powered by electricity.
- Transport of materials to and from the project.
- Ancillary construction activities and embodied emissions in construction materials.
- Slowing of traffic for short periods during construction.
- Construction materials such as concrete and asphalt.
- Upstream emissions from fuel and energy supply (e.g. from extraction, production and transport of fuels and in the production of electricity).
- Vegetation clearance.

### 7.5.2 Management and mitigation measures

It is anticipated that the majority of greenhouse gas issues would be managed with implementation of the following standard management and mitigation measures:

- Use of biofuels (such as biodiesel, ethanol or blends such as e10 and b80) to run plant and equipment where practicable.
- Minimising spoil generation and requirement for imported materials.
- Use of recycled materials (e.g. fly ash, spoil etc) where practicable.
- Materials would be sourced from local areas where practicable.
- Detailed design would take into account the natural environment including considering additional landscaping.

Additional standard management and mitigation measures will be identified during the environmental assessment process.

## 7.6 Visual impact, urban design and landscaping

### 7.6.1 Existing environment

The study area is characterised by the existing motorway which is surrounded by a variety of land uses including residential, commercial and industrial, large recreational areas and other open space uses such as parks, reserves, golf courses and remnant bushland.

When viewed from beyond the corridor, the road structures associated with the motorway are largely evident through a series of bridges, noise walls and other road related furniture.

## **7.6.2 Summary of potential issues identified**

During construction there would be temporary impacts to visual amenity throughout the study area, primarily limited to motorists using the motorway.

The vegetation currently within the central median is largely functional, providing drainage via swales with the existing landscaping providing limited contribution to the visual amenity of the area. While construction of the additional lanes in the median will further limit the potential for improvements to the visual amenity of the area, opportunities for improvements will be identified and visual impacts minimised where appropriate, including the provision of road related structures, furniture and noise walls.

The potential visual impacts of the VMS would also be considered in determining suitable locations for these devices.

## **7.6.3 Management and mitigation measures**

The visual impact, urban design and landscaping studies will include:

- Review of the existing context and character of the M5 South West Motorway including describing the character of existing built elements and open spaces.
- Visual impact assessment, including identification of visual catchments, key viewpoints and evaluation of the level of potential impact.
- Identification of urban design objectives and concepts for the proposal.

It is anticipated that potential impacts on the visual amenity would be managed with implementation of standard management and mitigation measures, including the following:

- Compounds would be contained within defined areas and occupy the minimum area practicable for their intended use.
- Temporary lighting would be screened or directed so as to reduce unnecessary spill.
- Existing vegetation, trees and urban fabric would be identified, protected and maintained where practicable.
- Restoration of sites (work areas and construction compounds) would be completed progressively where practicable.

Additional standard management and mitigation measures will be identified during the environmental assessment process.

## **7.7 Hydrology and flooding**

### **7.7.1 Existing environment**

The study area contains a number of natural and modified watercourses, including the Georges River and Salt Pan Creek. Stormwater drains and pipes form an extensive underground network that transfers

urban runoff to these waterways, including around 30 km of stormwater infrastructure associated with the motorway.

A number of the watercourses have been modified and/or disturbed due to their association with urban development in the region.

### **7.7.2 Summary of potential issues identified**

The proposal would result in an increase to the impervious surface area and increased runoff draining to receiving waters. This has the potential to alter hydrology and flooding characteristics in affected catchments. In addition, climate change may alter storm intensity over time. These risks are expected to be minor following appropriate drainage design and implementation of standard mitigation measures.

### **7.7.3 Management and mitigation measures**

The proposal would be designed in accordance with appropriate standards and the reasonable requirements of relevant authorities. Drainage systems would be designed to meet relevant design standards where possible. Hydrology and flooding investigations will include:

- Consideration of existing hydrology and flooding characteristics and any change in storm intensity due to climate change.
- Assessment of the extent of change to hydrology and flooding characteristics associated with the proposal.

Potential impacts on flooding and hydrology would be managed with implementation of standard management and mitigation measures, including the following:

- Resizing of existing detention basins or provision of new basins, where necessary.
- Preparation (and/or revision) and implementation of operational incident response plans.

Additional standard management and mitigation measures will be identified during the environmental assessment process.

## **7.8 Socio-economic and land use**

### **7.8.1 Summary of potential issues identified**

Surrounding land use zonings include residential, commercial, industrial, special use, mixed use and open space. The M5 South West Motorway has heavy and continuous traffic flows. Background noise at nearby residences and other sensitive land uses is dominated by traffic on the M5 South West Motorway and on other major arterial roads.

Most new project elements would be located wholly within the existing road reservation, with some elements of the OMCS potentially located outside of the motorway.

While compound sites may be required outside of the road corridor, the construction of the majority of the project within the existing road corridor would minimise the need for property impacts and property acquisition.

The main potential adverse social impact associated with the proposal would be the potential for disruption during construction. Increased noise, traffic and dust levels, access impacts and reduction in visual amenity during construction activities could temporarily adversely affect local residents, businesses and other sensitive land uses.

Positive economic impacts are expected as part of the proposal including increased economic activity and employment opportunities during both the construction stage and operation. Wider economic benefits, derived from reducing the perceived distance between localities, are expected to include the facilitation of expanding residential and employment areas through enhanced capacity and connectivity. As outlined in Section 3, the proposal would increase the accessibility of the South West Growth Centre and Liverpool Regional City, in addition to employment land in and around Sydney Airport and Port Botany, and south-west to Canberra to Melbourne.

The project would be constructed by Interlink Roads and the roadworks could be delivered without any direct cash cost contribution by the NSW Government. The assessment will consider the implications of any proposed changes to the tolling regime, including the terms of any agreement to extend Interlink Roads' concession term and/or any increase in toll.

## **7.8.2 Management and mitigation measures**

It is anticipated that potential socio-economic and land use impacts would be managed with implementation of standard management and mitigation measures, including the following:

- Consider local community (services, access and amenity) related changes during construction planning and identify appropriate mitigation measures to minimise impacts.
- Minimise impacts on property and the need for property acquisition during design development.
- Undertake any property acquisition in accordance with the NSW *Land Acquisition (Just Terms Compensation) Act, 1991*.
- Should any partial property acquisition be required, any reasonable property adjustments would be carried out at no cost to the owner.
- Any damage to property resulting from the proposal will be rectified at no cost to the owner.

Additional standard management and mitigation measures will be identified during the environmental assessment process.

## **7.9 Resources and waste management**

### **7.9.1 Summary of potential issues identified**

The project would generate waste from a number of streams including spoil, building materials, green waste and office waste.

## 7.9.2 Management and mitigation measures

- Measures to minimise use of resources would be considered as part of design development, procurement and construction planning.
- Waste management would be undertaken in accordance with the resources management hierarchy outlined by the NSW *Waste Avoidance and Recovery Act, 2002* and other relevant policies and guidelines.
- Water would be captured for reuse during construction where practicable.

## 8 Community consultation

In November 2009 the RTA released the *M5 Corridor Expansion: moving goods, people and the economy Overview* and invited submissions on this strategy, which includes the M5 West Widening. Initial community consultation commenced after the announcement including posters located in councils locations including council offices, community centres and libraries in suburbs surrounding the M5 as well as postcard drop to over 190,000 residents and local businesses. Summary booklets were delivered to 12,000 residents 100 metres each side of the corridor and advertisements were placed in the local papers, websites and radio.

A website ([www.M5corridorexpansion.com.au](http://www.M5corridorexpansion.com.au)) and a dedicated telephone line (1800 633 332) were set up to answer queries, find out more information and send through submissions. Community information days were also held along the M5 corridor to raise awareness of the project and provide the community with an opportunity to speak with project managers about any concerns or issues.

During the preparation of the Environmental Assessment community and stakeholder consultation will continue. The purpose of this consultation is to inform stakeholders of the project scope, the approvals process, likely environmental impacts and to gain an understanding of areas of interest and concern for further consideration in preparing the Environmental Assessment.

The Environmental Assessment will be publicly exhibited for a minimum of 30 days. Advertisements will be placed in newspapers circulating locally and throughout the State and relevant State agencies and local councils notified.

Community consultation and notification will also be a focus during detailed design and construction.

## 9 Proposed scope of environmental assessment

Table 9.1 summarises the proposed scope of the detailed Environmental Assessment having regard to the issues identified throughout this report.

**Table 9.1** Scope of the Environmental Assessment

Issue	Scope of the Environmental Assessment
General	<ul style="list-style-type: none"> <li>• Strategic justification for the project.</li> <li>• Description of the project.</li> <li>• Consideration of planning and statutory requirements.</li> <li>• Discussion of project options.</li> <li>• Consideration of the principles of ecologically sustainable development in the context of the project.</li> <li>• Consideration of any potential cumulative impacts.</li> </ul>
Stakeholder consultation	<ul style="list-style-type: none"> <li>• Description of consultation activities conducted during the Environmental Assessment.</li> <li>• Outline of consultation and community strategy.</li> </ul>
Traffic and transport	<ul style="list-style-type: none"> <li>• Estimation of operational traffic flows on the local and regional road network (including the project) for the present and representative future years.</li> <li>• Identification and assessment of operational traffic and transport implications for the local and regional road network (including the project) including any requirement for local area traffic management schemes, impacts on public transport including bus travel times and connections with other transport modes.</li> <li>• Sensitivity analysis of the impacts of assumptions in the traffic assessment, including induced traffic, changes in land use, various tolling scenarios and other potential major road projects (such as a potential M5 East expansion).</li> <li>• Identification of potential traffic and transport impacts during construction on the local and regional road network (including the project) including bus infrastructure and routes and pedestrian and cyclist access.</li> </ul>
Noise and vibration	<ul style="list-style-type: none"> <li>• Identification of nearby residences and other sensitive noise and vibration land uses.</li> <li>• Identification of the applicable noise criteria in accordance with the ECRTN.</li> <li>• Identification of the existing noise environment through monitoring at representative locations.</li> <li>• Predictions of likely noise levels at project opening and ten years after project opening.</li> <li>• Identification of reasonable and feasible mitigation strategies for consideration during design development.</li> <li>• Detailed construction noise and vibration assessment with consideration to the NSW Government's <i>Interim Construction Noise</i></li> </ul>

Issue	Scope of the Environmental Assessment
	<p><i>Guideline (ICNG); Assessing Vibration, A Technical Guideline (AVTG); and in accordance with the RTA's Environmental Noise Management Manual (ENMM).</i></p>
Biodiversity	<ul style="list-style-type: none"> <li>• Assessment of the ecological characteristics of the study area including flora and fauna species, habitat, populations and ecological communities occurring or considered likely to occur within the study area.</li> <li>• Assessment of the potential direct and indirect impacts of the proposal (including nature, extent, frequency, duration and timing) on terrestrial and aquatic flora and fauna species, populations, critical habitats, ecological communities and their habitats.</li> <li>• Identification of amelioration measures.</li> <li>• Significance assessment for all potentially impacted threatened species would be undertaken in accordance with the draft <i>Guidelines for Threatened Species Assessment under Part 3A</i> (DECC 2006) and the EPBC Act 1999 <i>Significant Impact Guidelines (DEWHA 2006)</i>.</li> </ul>
Other environmental issues	<ul style="list-style-type: none"> <li>• Aboriginal heritage.</li> <li>• Non-Aboriginal heritage.</li> <li>• Operational air quality and health impacts.</li> <li>• Energy and greenhouse gases.</li> <li>• Visual impact, urban design and landscaping.</li> <li>• Hydrology and flooding.</li> <li>• Construction water management.</li> <li>• Construction air quality.</li> <li>• Land use and socio-economic.</li> <li>• Property impacts.</li> <li>• Resources and waste management.</li> </ul>
Environmental risk analysis	<ul style="list-style-type: none"> <li>• Identification of potential environmental impacts associated with the project, proposed mitigation measures and any potentially significant residual impacts after the application of proposed mitigation measures.</li> <li>• Should any additional key issues be identified, an appropriately detailed impact assessment would be included in the Environmental Assessment.</li> </ul>
Draft Statement of Commitments	<ul style="list-style-type: none"> <li>• A draft list of the measures to avoid, minimise, manage, mitigate, offset and/or monitor impacts.</li> </ul>

## 10 References

Chapman, G. A. and Murphy, C. L. 1989, *Soil Landscapes of the Sydney 1:100 000 Sheet*, Soil Conservation Service of NSW, Sydney.

Department of Planning, 2005, *Metropolitan Strategy – City of Cities a Plan for Sydney's Future*.

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Environment Protection Authority, 1999, *Environmental Criteria for Road Traffic Noise*.

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Federal Government (2007) *AusLink Sydney-Melbourne Corridor Strategy 2007: Building our National Transport Future*, Department of Transport and Regional Services, Commonwealth of Australia.

Landcom, 2004, *Soils and Construction, Managing Urban Storm Water*.

NSW Government, 2010, *State Plan 2010 – Investing In A Better Future*.

NSW Government, 2006, *State Infrastructure Strategy NSW 2006-07 to 2015-16*.

Roads and Traffic Authority, 2008, *Procedure for Aboriginal Community Consultation and Investigation*.

Roads and Traffic Authority, 2001, *Environment Noise Management Manual*.

**Attachment A**  
M5 West Widening  
Preliminary Environmental Assessment

# ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

## DECLARATION OF CRITICAL INFRASTRUCTURE PROJECT

I, the Minister for Planning, declare under section 75C of the *Environmental Planning and Assessment Act 1979*, that the project referred to in the Schedule is a critical infrastructure project, having formed the opinion that the project is essential for the State for economic and environmental and social reasons.

Dated, this      day of      10 MAR 2010



The Hon Tony Kelly MLC,  
Minister for Planning,  
Sydney.

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### SCHEDULE

Development for the purposes of the M5 West Widening, in conjunction with the existing M5 South West Motorway and generally involving:

- An additional westbound lane on sections of the existing M5 South West Motorway from approximately King Georges Road, Beverly Hills to Camden Valley Way, Casula.
- An additional eastbound lane on sections of the existing M5 South West Motorway from approximately Camden Valley Way, Casula to Fairford Road, Padstow.

The Development also includes associated or ancillary works, activities, uses, structures or facilities for the purposes of the Project, including (but not limited to) any of the following:

- (a) Construction and associated demolition works.
- (b) Access for construction of the Project.
- (c) Roadworks required to integrate the project into the surrounding road network.
- (d) Environmental management and pollution control for the Project.
- (e) Provision of an operational management and control system and associated structures.

The Development does not include:

- i) Preliminary works of any kind associated with the design and/or environmental assessment of the Project occurring prior to the commencement of construction (including but not limited to surveys, test drilling, test excavations, preliminary geotechnical investigations, contamination investigations, utility identification and location and pavement investigations).
  - ii) Maintenance of the Project.
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