A01 Pt 2 - Summary
M5 Expansion

IA Submission Cover Sheet
Date 29/10/08

Initiative: M5 Expansion

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Infrastructure Australia proformas:	M5 Expansion - IA Proformas 29_10_2008.doc or M5 Expansion - IA Proformas 29_10_2008.pdf
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Preliminary Overview Report	M5 Expansion - Overview Report 29_10_2008.pdf
1. Preliminary Overview Report	
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References (on CD):

1. Economic Analysis Manual. Version 2, July 1999 as amended NW Roads and Traffic Authority – Refer Appendix B – Economic Parameters for 2007
2. 2007 Sydney Urban Corridor Strategy, Auslink
3. National Guidelines for Transport System Management in Australia. Australian Transport Council 2006 – 4 Urban Transport
4. NSW Premier's State Plan – November 2006

5. City of Cities – A plan for Sydney's Future, Metropolitan Strategy – December 2005
6. NSW Government Urban Transport Statement, November 2006
7. NSW Government State Infrastructure Strategy – 2006-07 to 2015-16
8. Review of Future Provision of Motorways in NSW – December 2005
9. Sydney Airport Master Plan – Preliminary Draft – 2009
10. CityRail – A Compendium of CityRail Travel Statistics – Six Edition, June 2008
11. Sydney Ports - Logistics Centre at Enfield
12. Sydney Ports - Port Botany Container Terminal Expansion Overview
13. M5 Transport Corridor – Needs Background Paper – October 2008
14. RTA Annual Report – 2007
15. Review of Urban Congestion Trends, Impacts and Solutions by the Competition and Regulation Working Group – December 2006
16. Austroads Report. Update of RCU Unit Values to June 2007

Additional References (<u>not</u> on CD):

Document	File Name
17. Information Sheet 16: Urban Congestion – the Implications for Greenhouse Gas Emissions, Bureau of Transport Economics, 2000	BITRE IS16 Urban Congestion.pdf
18. Cycling in Sydney: Bicycle Ownership and Use, NSW Ministry of Transport and Roads & Traffic Authority of NSW, April 2008	cyclinginsydney_bicycleownershipanduse.pdf
19. Action for Bikes: Bike Plan 2010, NSW Ministry of Transport and Roads & Traffic Authority of NSW, September 1999	Action_for_Bikes.pdf

Submission to Infrastructure Australia

M5 Expansion

Infrastructure Australia Proformas

Version 1.1 (Draft 29-Oct-2008)

RTA Motorway Projects Branch

About this document

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Approval and authorisation	Position	Name	Date
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1.0	27-Oct-08	First draft
1.1	29-Oct-08	Second draft

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Section 1 – Summary of Initiative Profiling

Summary of Initiative Profiling

Part A - Overview

Title of Initiative – M5 Expansion

Background – The M5 transport corridor includes a motorway which is part of the AusLink National Network connecting Sydney-Canberra and Melbourne. The motorway also forms part of the Sydney Orbital Network, which connects western and south western Sydney to Port Botany, Sydney Airport and the CBD.

The corridor has significant traffic congestion, particularly during peak periods, which will increase with the future expansion of Port Botany and Sydney Airport and population growth in south west Sydney and intensification/agglomeration of employment land along the corridor.

Summary of Initiative – Feasibility assessment is continuing, but the indicative preferred options for the expansion are expected to include:

- Widening of the existing M5 South-West Motorway from King Georges Road, Beverly Hills to the F5 Freeway, Prestons. The widening would involve the provision of generally three lanes each way.
- Duplication of the M5 East Freeway from Cooks River, Mascot to King Georges Road, Beverly Hills. Several options are still under consideration, but for the purposes of this submission the assumed scope is:
    - a new three lane westbound tunnel with portals in the vicinity of the current ones;
    - the existing eastbound tunnel connected to the Princes Highway and Marsh Street only;
    - the existing westbound tunnel converted to eastbound and connected to General Holmes Drive only;
    - widening to three lanes each way at the western end from the portals to the King Georges Road ramps;
    - maintaining two lanes each way at the western end under King Georges Road; and
    - maintaining two lanes each way at the eastern end from the portals to General Holmes Drive.

  The cost of this assumed scope of the duplication of the M5 East Freeway is expected to be around $2B in 2008 dollars.

The indicative preferred options may also include

- A northern link along the F6 corridor from the M5 East Freeway, Mascot to Euston Road, St Peters and Gardeners Road, Mascot. Several options are still under consideration, but for the purposes of this submission the assumed scope is:
    - upgrading Marsh Street from the M5 East Freeway to Cooks River;
    - a new road, two lanes each way along the F6 corridor from Marsh Street to Euston Road at Campbell Street;
    - upgrading Euston Road to two lanes each way from Campbell Street to Sydney Park Road; and
    - Connections from the new road south of Campbell Street to Gardeners Road at Bourke Road.

  The cost of this assumed scope of the northern link is expected to be around $1B in 2008 dollars.

A locality plan of the M5 Expansion is included as Attachment 1.

The initiative has been developed in accordance with the Infrastructure Australia Audit Framework:

Stage	Short Description	Response
1. Goal Definition	Definition of the fundamental economic, environmental and social goals that society seeks to achieve.	Key goals have been defined flowing from the Infrastructure Australia goals and strategic priorities as well as from NSW Government strategies, policies and plans. The goals are included in the Overview Report. Refer Section 3.1 of the Overview Report, Page 7.
2. Problem Identification	Objective, specific, evidence – based, and data rich investigation of deficiencies with the condition, operation and services provided by infrastructure that may hinder achievement of those economic, environmental and social goals.	A detailed problem definition investigation has been undertaken. A summary is included in the Overview Report. Refer Section 3.3 and 3.4 of the Overview Report, Page 11.
3. Problem Assessment	Objective and quantified appraisal of the economic, environmental and social costs of those deficiencies.	This assessment is ongoing and will be addressed in the mid November submission to Infrastructure Australia.
4. Problem Analysis	Objective policy and economic analysis of why these deficiencies exist, ie what is the underlying cause.	This assessment is ongoing and will be addressed in the mid November submission to Infrastructure Australia.
5. Option Generation	Development of a full range of interventions that might address the issue.	A full list of potential interventions has been generated. A summary is included in the Overview Report. Refer Section 4 of the Overview Report, Page 24.
6. Solution Assessment	Use of cost-benefit analysis to assess these options / solutions.	The solution assessment is ongoing. For the purpose of the submission to Infrastructure Australia at the end of October, a cost-benefit analysis has been undertaken on the duplication of the M5 East Freeway. See the Summary of Initiative Appraisal below. Solution assessment will be further addressed in the mid November submission to Infrastructure Australia.
7. Solution Prioritisation	Identification of policy and project priorities from the list of solutions, on an objective basis.	The solution prioritisation is ongoing. For the purpose of the submission to Infrastructure Australia at the end of October, an expected indicative preferred option has been identified. Solution prioritisation will be further addressed in the mid November submission to Infrastructure Australia.

Part B – Rating and Justification

Item	Rating	How does the initiative meet/does not meet the strategic priority?	Provide data and evidence of how the initiative meets/does not meet the strategic priority
Expand Australia's productive capacity	Moderately Beneficial	Reduction in overall travel times and costs and thus increased efficiency of transportation of goods and people between Sydney's south, southwest and west will be a positive outcome for Australia's productive capacity. This expansion in productivity can be achieved through: • Removing the transport bottleneck along the M5 Corridor between Port Botany/Sydney Airport and Western Sydney which has considerable economic cost in terms of lost productivity, particularly with regards to the movement of freight • Improved connection between Port Botany/Sydney Airport, freight distribution centres and the National AusLink Network. • Enabling expansion of business clusters along the corridor by encouraging trade between markets in goods, services and information • Linking Western Sydney (third largest economy in Australia) with Port Botany, Sydney Airport and central CBD.	Average travel speeds along the M5 Motorway Growth of employment centres along the corridor Port Botany expansion and growth in container trade Future intermodal terminals Growth in air freight from Sydney Airport See table of supporting data below
Increase Australia's productivity	Highly Beneficial	Investing in new infrastructure within the existing M5 Transport Corridor will increase the capacity of the transport network with a resultant reduction in congestion, improved traffic flow and increased productivity. The increased productivity will principally be achieved through: • Improved transfer of freight from Port Botany to the logistic centres in the Western Sydney • Improved distribution of goods from the logistic centres and intermodal terminals at Enfield and Moorebank to the wider Sydney area The improved traffic flow will also enable: • Better utilisation of existing land in the M4 and M7 Motorway corridors	Proportion of containers to and from Sydney inner western suburbs Proportion of freight moved by Road Increasing freight to and from Port Botany See table of supporting data below

Item	Rating	How does the initiative meet/does not meet the strategic priority?	Provide data and evidence of how the initiative meets/does not meet the strategic priority
		• Improved connections with markets between and along the corridor from Western Sydney to the CBD which will promote greater competition • Opportunities to utilise the corridor for installing communication infrastructure and other ancillary services Provision of the northern link between the M5 East Motorway and inner south-western CBD will provide increased capacity and redundancy to the transport corridor during incidents and periods of heavy congestion, improving productivity	
Diversify Australia's economic capabilities	Moderately Beneficial	Increased transport efficiency and the resulting improved productivity may lead to opportunities to encourage diversification of Australia's economy This may be achieved by: • Improving connectivity between major importing centres such as Port Botany and Sydney Airport which can deliver a wide range of goods for various commercial entities • Improved access through reduced travel times between importing centres and growth centres such as the Western Sydney Employment Hub and the South West Growth Centre	Increase in air freight through Sydney Airport See table of supporting data below
Build on Australia's global competitive advantages	Highly Beneficial	Increased capacity of the transport network will support Australia's global competitive advantage by improving the efficiency of access to key centres within the corridor and across broader Sydney This will be achieved by: • Supporting the predicted future development of Port Botany and Sydney Airport which will result in a significant growth in freight movements through the corridor and passenger movements throughout Sydney • Improving access by providing high quality transport links to freight distribution and warehousing centres along the M5 and M7 corridors including the Western Sydney Employment Hub and the proposed intermodal terminals at Enfield and Moorebank	Increase in passengers through Sydney Airport See table of supporting data below

Item	Rating	How does the initiative meet/does not meet the strategic priority?	Provide data and evidence of how the initiative meets/does not meet the strategic priority
		• Improve connectivity to markets along the eastern seaboard by improving access to the National AusLink Network at the junction of the M5 corridor with the M7 Motorway and F5 Freeway • Improved access from western Sydney and Sydney Airport to the Global Economic Corridor along eastern and northern Sydney. Potential opportunities for export of high value products may increase utilisation of better technology and highly skilled labour force	
Develop our cities and/or regions	Moderately Beneficial	The expansion of the capacity of the transport network will relieve the existing congested travel conditions and cater for future demand on the corridor, between the CBD and western Sydney. An efficient and well functioning transport network will encourage continued growth in population and trade in and between the key centres of: • South West Growth Centre • Sydney CBD • Western Sydney, particularly Bankstown, Moorebank, Liverpool Ingleburn, Minto and Campbelltown An efficient and reliable transport network will also provide opportunities for improved • public transport through the corridor • social equity through access to jobs and services, higher property values and greater social inclusion • urban form along the existing transport corridor and the surrounding road network • employment distribution across Western Sydney and the CBD for local populations Improved access to and from Sydney Airport supports Sydney as the major gateway to Australia for overseas tourists	Predicted increase in population growth centres Average travel speeds along the M5 Motorway Reduced travel times, improved access efficiency and reliability, and drawing traffic from the surrounding road network See table of supporting data below

Item	Rating	How does the initiative meet/does not meet the strategic priority?	Provide data and evidence of how the initiative meets/does not meet the strategic priority
Reduce greenhouse emissions	Slightly beneficial	Support the reduction of greenhouse gases from vehicles emissions, particularly heavy vehicles, through improved traffic flow along the corridor, including reduced congestion on existing M5 Corridor, Expansion of the existing Motorway infrastructure provided greater opportunities for promoting pedestrian and cycle facilities in the corridor.	Predicted change in total vehicle kilometres travelled Reduced travel times and congestion See table of supporting data below
Improve social equity, and quality of life, in our cities and our regions	Highly Beneficial	The improved travel conditions for all road users through the corridor will result in significant benefits through: • reduced noise and improved air quality due to the reduced congestion on the M5 Corridor • catering for the predicted increase in transport demand through the corridor will reduce the potential for encroachment of vehicles onto the surrounding surface arterial road network, particularly heavy vehicles. • travel time savings and reliability for transport on the corridor will result in health and well-being benefits for local and regional transport users • Maintaining current access to local business on the surrounding arterial road network • Increased opportunity for promoting pedestrian and cycle facilities in the corridor. Improved connectivity between residential areas and centres of community activity such as the eastern and southern beaches, the Western Sydney Parkland and educational and health facilities	Average travel speeds along the M5 Motorway Drawing traffic from the surrounding road network Rail lines operating at capacity See table of supporting data below

Provide an outline of how the initiative is dependant on policy, regulatory, demand pricing, efficiency and/or capital investment initiatives	An assessment of strategic options to reduce congestion along the M5 Transport Corridor included evaluation of options comprising: • Improving the operation of the existing arterial road network. • Expanding the capacity of the existing surface Motorway and road tunnel • Improving the operation of the existing rail and public transport network • Demand Management, including tolling of the existing Motorway The evaluation of the strategic options and further assessment identified that expanding the capacity of the existing motorway through the corridor would deliver the economic, environmental and social objectives. Rail has a major role to play in meeting the forecast travel demand. For moving passengers, the rail mode share is high on the south-west rail lines and load factors (volume/seating capacity) are reasonable and better than on most other Sydney lines. For moving freight, rail has a particular role in distribution through intermodal terminals including those proposed at Enfield and Moorebank. Developments are in progress to extend and expand rail capacity to the south-west including the Rail Clearways Program, the South West Rail Link, the Southern Sydney Freight Line and the Botany Freight Line duplication. The M5 Expansion is complementary to these developments: a major motorway expansion is required to meet the forecast demand even with a significant freight mode shift to rail. The NSW Government has developed much of Sydney's motorway network as tolled roads, which has resulted in a quasi demand management / road pricing regime. Approximately 110 km out of 160 km or 68% of the Sydney Orbital network is tolled road. The tolls not only generate revenues to help fund motorways but also ensure there is a balance between public and private transport by making car usage relatively more expensive. Potential tolling regimes for an expanded M5 motorway are being considered. The option of tolling the existing M5 East freeway as an alternative to a major motorway upgrade would limit the planned growth in people and jobs in the corridor and the development of Sydney in line with Government strategies. It would hamper improvements in Australia's productivity and productive capacity and reduce quality of life through the redistribution of traffic, and particularly heavy vehicles, onto surrounding non-tolled roads with consequent noise air quality issues, severance and congestion. It would also negatively impact social equity in areas of southern and south western Sydney that are high in relative socio-economic disadvantage.
Linkages (to State and Federal Government Policies)	The project is consistent with the implementation of the following State and Federal Government policies and strategies: • NSW State Infrastructure Strategy NSW 2006-07 to 2015-16 (NSW Government released May 2006) • Urban Transport Statement (NSW Government released November 2006) • 2007 Sydney Urban Corridor Strategy (DOTARS 2007) • Sydney Airport Master Plan 2009 (SACL released October 2008) • NSW Government State Plan (released November 2006) • City of Cities – Sydney Metropolitan Strategy (released December 2005)

	Table of Supporting Data
Expand Australia's productive capacity	Average travel speeds along sections of the M5 Motorway have reduced over recent years. The average travel speed in the eastbound direction for the AM peak along the corridor has been measured as 32 kph. ***(Ref Section 3.3.2 Overview Report, Page 14)*** Preliminary traffic modelling for the year 2026 predicts significant improvements to travel speeds along the M5 East Freeway with the proposed M5 Expansion as compared with the "do nothing" case. ***(Ref Section 5.1 Overview Report, Page 31)*** Several of the employment centres along the corridor which are predicted to increased growth between 2006 and 2031 are: Campbelltown/Macarthur 22% Liverpool 73% Sydney Airport/Port Botany 40% ***(Ref Section 3.4.4 Overview Report, Page 19)*** During 2006/07 container trade through Port Botany was 1.6 million TEU and with the expansion of Port Botany this trade is predicted to exceed 3 million TEU's by 2020. ***(Ref Section 3.4.1 Overview Report, Page 16)*** Future intermodal terminals identified for development in the future will be located at Moorebank and Enfield which are directly or indirectly accesses to the M5 corridor. ***(Ref Section 3.4.1 Overview Report, Page 16)*** Air freight from Sydney Airport in 2007 was 471,000 tonnes this is predicted to increase by 129% to 1,077,000 tonnes by 2029 ***(Ref Section 3.4.1 Overview Report, Page 17)*** 25,880 freight trips currently during 2 hour AM peak, Increase 46% to 37,700 in 2021, Increase 85% to 47,935 in 2031 ***(Ref Section 3.4.1 Overview Report, Page 16)***
Increase Australia's productivity	50 – 60 percent of full imported containers and up to 30 percent of full export containers are delivered to or originate from the inner-western suburbs of Sydney. ***(Ref Section 3.4.1 Overview Report, Page 16)*** 86 percent of freight moved by road, with proportion of freight moved by road increasing over time relative to rail ***(Ref Section 3.4.1 Overview Report, Page 16)***

	Table of Supporting Data
Increase Australia's productivity (Continued)	Movement of freight to and from Botany Bay will increase by up 187% and 196% respectively from movements in 2006. Enhancements to the Motorway will provide more efficient access to and from the airport to the distribution centres in Sydney's south west and west regions ***(Ref Section 3.4.1 Overview Report, Page 16).*** Predicted increases in distribution to and from key centres along and connecting to the corridor include:

	2031	
	Origin	Destination
Liverpool	4495 (194%)	4400 (194%)
Campbelltown	2429 (209%)	2404 (202%)
Penrith	7655 (276%)	6102 (313%)

Diversify Australia's economic capabilities	Air freight from Sydney Airport, which are typically high value products, in 2007 was 471,000 tonnes this is predicted to increase by 129% to 1,077,000 tonnes by 2029. ***(Ref Section 3.4.1 Overview Report, Page 17)***
Build on Australia's global competitive advantages	In 2007 31.9 million passengers travelled through Sydney Airport and this is forecast to increase by 2029 by up to 149% to 78.9 million ***(Ref Section 3.4.1 Overview Report, page 17)***

	Table of Supporting Data
Develop our cities and/or regions	Predicted increases of population growth centres between 2006 and 2031 are Campbelltown – South West Growth Centre (2.54% growth) and Liverpool – Campbelltown North (1.2% growth) ***(Ref Section 3.4.3 Overview Report, Page 18)*** Average travel speeds along sections of the M5 Motorway have reduced in recent years. For example the average travel time in the eastbound direction for the AM peak along the corridor has been measured as 32 kph. ***(Ref Section 3.3.2 Overview Report, Page 14)*** Preliminary traffic modelling for the year 2026 predicts significant improvements to travel speeds along the M5 East Freeway with the proposed M5 Expansion as compared with the "do nothing" case. ***(Ref Section 5.1 Overview Report, Page 31)*** It is anticipated, and will be confirmed by further traffic modelling, that an Increase in the capacity of the Motorway along the corridor will: • reduce travel times • improving access, efficiency and reliability • draw traffic from the surrounding arterial road network Cycling provides an environmentally friendly alternative mode of transport while delivering health and fitness benefits to the community. A series of connecting cycleways has been created for cyclists, with an average of 233 kilometres per annum being delivered in recent years. **(NSW Ministry of Transport and Roads & Traffic Authority, Cycling in Sydney: Bicycle Ownership and Use, April 2008)** The M5 Transport Corridor includes cycleways. **(NSW Ministry of Transport and Roads & Traffic Authority, Action for Bikes: Bike Plan 2010, September 1999)**. The M5 Expansion will result in improved opportunity for promoting pedestrian and cycle facilities in the corridor.
Reduce greenhouse emissions	A comparison of the traffic models between the 2026 "do nothing" model and the 2026 model with the initiative included indicates no discernable change in total vehicle kilometres travelled (VKTs) across the network. Reduced greenhouse emissions would result from travel time savings and less congested travel conditions. The Australian Bureau of Transport Economics has stated that "congestion has the potential to double the output of greenhouse gas emissions from a stream of vehicle traffic". **(Commonwealth of Australia, Bureau of Transport Economics, Information Sheet 16: Urban Congestion – the Implications for Greenhouse Gas Emissions, 2000, Page 2)**

	Table of Supporting Data
Improve social equity, and quality of life, in our cities and our regions	Average travel speeds along sections of the M5 Motorway have reduced in recent years. For example the average travel time in the eastbound direction for the AM peak along the corridor has been measured as 32.6 kph. ***(Ref Section 3.1 Overview Report, Page 14)*** Preliminary traffic modelling for the year 2026 predicts significant improvements to travel speeds along the M5 East Freeway with the proposed M5 Expansion as compared with the "do nothing" case. ***(Ref Section 5.1 Overview Report, Page 31)*** It is anticipated, and will be confirmed by further traffic modelling, that an increase in the capacity of the Motorway along the corridor will draw commuter/commercial and freight traffic from the surrounding road network improving the overall amenity and quality of life for residents along the corridor. All rail lines through the study area operate over capacity during the one hour peak period and many operate close to capacity for the 3.5 hour period. Therefore, increases in patronage will have an impact on these load factors and consequently service operation ***(Ref Section 3.2 Overview Report, Page 12)***

Section 2 – Summary of Initiative Appraisal

Summary of Initiative Appraisal - Key Results and Assumptions

Part A - Overview

Title of Initiative – M5 Expansion

The summary of the initiative appraisal only focuses on the element of the project being the expansion of the 10 kilometre M5 East Freeway connecting the M5 Motorway at King Georges Rd, Beverly Hills with General Holmes Drive and on to the Eastern Distributor. The scope of the proposed project includes:

- A new three lane westbound tunnel with portals in the vicinity of the current ones;
- The existing eastbound tunnel connected to the Princes Highway and Marsh Street only;
- The existing westbound tunnel converted to eastbound and connected to General Holmes Drive only;
- Widening to three lanes each way at the western end from the portals to the King Georges Road ramps;
- Maintaining two lanes each way at the western end under King Georges Road; and
- Maintaining two lanes each way at the eastern end from the portals to General Holmes Drive.

The first stage of the project, a widening of the M5 Motorway, is assumed to be completed first and therefore the benefits are assumed in both the base case and the proposed case. The northern link along the F6 corridor is not incorporated in either case.

Stakeholder –

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Summary of submission

The M5 Expansion project delivers substantial economic benefits to the Sydney Metropolitan area by addressing key areas of network congestion and future travel demands from and to the Port Botany and Sydney Airport. The M5 Expansion provides quicker and safer journeys between Sydney's south-west and the city, Sydney Airport, Port Botany and surrounding areas. Cutting up to 20 minutes from a trip between Liverpool and Sydney Airport, the M5 Expansion bypasses more than 20 sets of traffic lights. Local communities also benefit, with freight and other traffic removed from nearby residential streets.

The capital cost for the scope of the proposed project is estimated to cost $2 billion and construction is forecasted to take place from 2012 to 2014.

The BCR of the project is 2.12. The main economic benefit is travel time saving with a net present value of $3.3 billion over the 30 year operating period. This demonstrates significant network congestions benefits.

The RTA's BCR calculations are conservatively based due to the following reasons:

- The land use and demographics data used in the analysis does not incorporate the recent Australian Bureau of Statistics data which estimates a significantly higher Sydney Metropolitan population by 2036 which will result in significantly higher growth in transport demand than currently forecast, and
- The base case analysis does not take into account the impact of increased network volatility as capacity is reached which may reduce base case volumes as people change or defer trips.

Part B – Cost Benefit Analysis (CBA) – Monetised Benefits and Costs

B.1 Key Assumptions

Item	Assumption
Key drivers	The M5 transport corridor is part of the Auslink National Network and also forms part of the Sydney Orbital Network, which connects western and southwestern Sydney to Port Botany, Sydney Airport and the CBD. The road corridor has significant traffic congestion and operates at design capacity, particularly during current peak periods with AADT of approximately 100,000 vehicles. The congestion problem will only worsen with the future expansion of Port Botany and Sydney Airport and the population growth in western Sydney.
	The average travel speed in the eastbound direction during AM peak along the corridor has been measured at 32.6 kph (RTA Travel Time Surveys March 2004 and March 2007). Several of the employment centres along the corridor, Campbelltown/Macarthur, Liverpool and Sydney Airport/Port Botany are predicted to grow between 2006 and 2031 by 22%, 73% and 40% respectively (TDC Employment Forecasts, 2006). The 2006/07 container trade through Port Botany was 1.6 million TEU and is predicted to exceed 3 million TEU by 2020 with the expansion of Port Botany. Future intermodal terminals identified for development in the future will be located in Moorebank and Enfield which are accessible by the M5 corridor. Air freight from the Sydney Airport in 2007 was 471,000 tonnes and is predicted to increase by 129% to 1,077,000 tonnes by 2029 (Sydney Airport Master Plan 2009, Preliminary Draft, September 2009). The current freight trips of 25,880 during a 2 hour AM peak period are predicted to increase 46% to 37,700 in 2021 and 85% to 47,935 in 2031. Movements of freight to and from Botany Bay will increase by 187% and 196% respectively from movements in 2006 (TDC Freight Database 2006). In 2007, 31.9 million passengers travelled through Sydney Airport and this is forecasted to increase by 149% to 78,9 million passengers by 2029 (Sydney Airport Master Plan 2009, Preliminary Draft, September 2009). The predicted increases of population growth centres between 2006 and 2031 are Campbelltown- South West Growth Centre (2.54% growth) and Liverpool- Campbelltown North (1.2% growth) (TDC Population Forecasts, 2006).

Item	Assumption
	Increasing the capacity of the M5 corridor aims to: • Reduce travel times; • Improve access, speed, efficiency and reliability; and • Draw traffic from surrounding arterial road network and improve overall amenity and quality of life for residents along the corridor. The M5 Expansion proposal meets transport deficiencies identified by both the Federal and NSW State Governments through planning studies for the Sydney Region and connections between the expanding Port and Airport and the National Road Network. The AusLink Sydney Urban Corridor Strategy (p.20) identifies east/west connectivity as a short-term deficiency in Sydney with peak periods especially congested. The identified strategic response to this priority is to "enhance the east-west road corridors to service the Airport/Port Precinct, for example, the M5 and M5 East corridor. Further, the AusLink Sydney Urban Corridor Strategy (p.26) identifies as a short term priority (to 2016) the need to "improve road and rail links from Port Botany and Sydney Airport to western Sydney". The M5 Expansion project presented herein would implement this strategic response.
Base case	Without the M5 Expansion, the base case shows a significant deterioration in travel times in the corridor resulting from a reduction in current average travel speeds. Incorporated in the base case of this project is that the first stage assumes that the concession holder of the M5 Motorway, Interlink Roads, will widen the M5 Motorway to increase capacity by 50%. Without the M5 Expansion, the M5 East will become a bottleneck in the whole M5 corridor.

Item	Assumption
	The base case does not incorporate the building of the M4 Extension. The base case model for this project is based on the Sydney Metro Strategic traffic model. This model is maintained by the RTA's independent traffic modellers (Halcrow MWT). The model is developed in EMME/2 software which is an interactive multi-modal transport planning modelling package which provides information on Vehicle Kilometres Travelled (VKT) and Vehicle Hours Travelled (VKT) which are the drivers of the assessed economic benefits. The model takes land use planning information and modal share information prepared by NSW governments Transport Data Centre's strategic model. This information is then calibrated against current actual traffic counts from RTA's network of Sydney Basin traffic count stations. Overlayed against this information is a forecast of the baseline network expansion projects currently planned. These projects are primarily targeted to meeting the forecast demands from the North West and South West growth areas and also to complete the links around Menai.\ It includes future transport projects in the TDC strategic transport model for all model runs including: • Epping to Chatswood Rail Link • North West Rail Link • South West Rail Link • Clearways Rail Timetable • Northwest Transitways • Unsworth Report Bus Services • Main North Line Upgrade
First year of construction	2012

Item	Assumption
Last year of construction	2014
Appraisal period	Appraisal period is from construction period (2012 to 2014) and 30-year operating timeline as advised by Infrastructure Australia.
Remaining life	Tunnel structures are designed to have useful lives of 100 years, therefore the project will have an estimated 70 years remaining life after the 30-year operating timeline. Elements of other components of the project will have similar remaining life at the end of the operating period.
Benefit ramp up	The expansion in this proposal opens to traffic in full at one time, therefore no benefit ramp up during construction period is modelled.

Item	Assumption
Benefit components	The majority of the benefits are derived by commuters who receive travel time benefits from the expanded capacity. In addition, freight movement around the Port and Airport receive benefits in both travel time and vehicle operating cost. The assumptions used in the calculation of these benefits are described below: Travel time benefits – the calculation of travel time benefits is travel time savings x hourly rate. Travel time savings are calculated by a network model used to calculate traffic on the extension. The model looks at hours of travel at a base case AM peak for different types of roads and compares that against modelled vehicle hours. This calculated value is then expanded out to annual amount of travel time hours saved. The expansion factor used is 3,000, as advised by Halcrow MWT.

Item	Assumption

Item	Assumption
Cost and benefit time streams	See the detailed worksheet included in Appendix B to the Overview Report.
Related initiatives	The M5 Expansion project assists in relieving traffic congestion around the Port Botany and Sydney Airport area. In addition, the NSW Government is also submitting the M4 Extension project which also services these strategic assets. Economic modelling has been undertaken of staging options which demonstrated that the economic benefits of the project are not significantly altered through the incorporation of this project.

Part E –Information Sources

(A copy of all of the information sources is provided separately on CD)

- Economic Analysis Manual. Version 2, July 1999 as amended NW Roads and Traffic Authority – Refer Appendix B – Economic Parameters for 2007
- 2007 Sydney Urban Corridor Strategy, Auslink
- National Guidelines for Transport System Management in Australia. Australian Transport Council 2006 – 4 Urban Transport
- NSW Premier's State Plan – November 2006
- City of Cities – A plan for Sydney's Future, Metropolitan Strategy – December 2005
- NSW Government Urban Transport Statement, November 2006
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- Sydney Ports - Logistics Centre at Enfield
- Sydney Ports - Port Botany Container Terminal Expansion Overview
- M5 Transport Corridor – Needs Background Paper – October 2008
- Review of Urban Congestion Trends, Impacts and Solutions by the Competition and Regulation Working Group – December 2006
- RTA Annual Report- 2007
- Capital Expenditure Estimates undertaken by Mark Raven
- Project Traffic Models undertaken by Halcrow Masson Wilson Twiney

Section 3 – Further Inputs for Initiative Selection

Further inputs for Initiative Selection

Part A - Overview

Title of Initiative – M5 Expansion

Background – The M5 transport corridor includes a motorway which is part of the AusLink National Network which connects Sydney-Canberra and Melbourne. The motorway also forms part of the Sydney Orbital Network, which connects western and south western Sydney to Port Botany, Sydney Airport and the CBD.

The corridor has significant traffic congestion, particularly during peak periods, which will increase with the future expansion of Port Botany and Sydney Airport and population growth in south west Sydney and intensification/agglomeration of employment land along the corridor.

Summary of Initiative – Feasibility assessment is continuing, but the indicative preferred options for the expansion are expected to include:

- Widening of the existing M5 South-West Motorway from King Georges Road, Beverley Hills to the F5 Freeway, Prestons. The widening would involve the provision of three lanes generally each way.
- Duplication of the M5 East Freeway from Cooks River, Mascot to King Georges Road, Beverly Hills. Several options are still under consideration, but for the purposes of this submission the assumed scope is:
    - a new three lane westbound tunnel with portals in the vicinity of the current ones;
    - the existing eastbound tunnel connected to the Princes Highway and Marsh Street only;
    - the existing westbound tunnel converted to eastbound and connected to General Holmes Drive only;
    - widening to three lanes each way at the western end from the portals to the King Georges Road ramps;
    - maintaining two lanes each way at the western end under King Georges Road; and
    - maintaining two lanes each way at the eastern end from the portals to General Holmes Drive.

The indicative preferred options may also include:

- A northern link along the F6 corridor from the M5 East Freeway, Mascot to Euston Road, St Peters and Gardeners Road, Mascot. Several options are still under consideration, but for the purposes of this submission the assumed scope is:
    - upgrading Marsh Street from the M5 East Freeway to Cooks River;
    - a new road, two lanes each way along the F6 corridor from Marsh Street to Euston Road at Campbell Street;
    - upgrading Euston Road to two lanes each way from Campbell Street to Sydney Park Road; and
    - Connections from the new road south of Campbell Street to Gardeners Road at Bourke Road.

A locality plan for the M5 Expansion is included as Attachment 1.

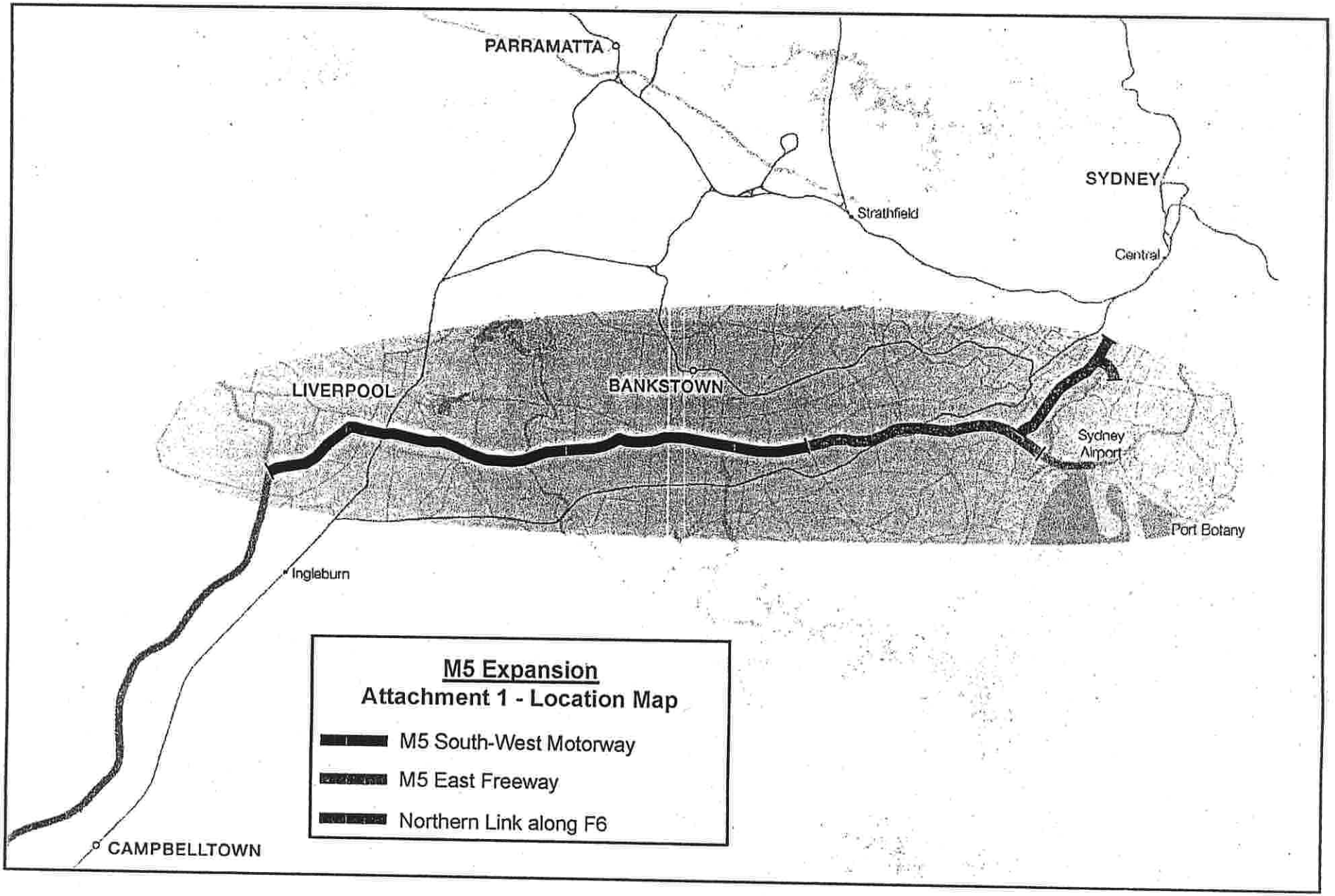
Part B – Response

Item	Response
Deliverability including; Readiness, Complexity (Delivery) Feasibility (Technical) Affordability (ownership structure, funding sources) Acceptability (public/ government/industry), Staging, Governance model	A preliminary assessment of the feasibility of an expansion of the M5 motorway is being completed to inform the final submission to Infrastructure Australia for this initiative in mid November 2008. Technical Feasibility Interim information indicates that the initiative will be technically feasible, complex to develop and implement but well within the capabilities of the Australian construction industry, as demonstrated by the industry's track record of delivering comparable infrastructure projects. Acceptability Consultation with Local Government and the community has not been undertaken in connection with the initiative. It is anticipated that some people and groups may be concerned regarding any possible tolling of the existing and / or new M5 East Freeway and with tunnel air quality issues. The majority of businesses and the travelling public are expected to be strongly supportive of the initiative. The initiative is expected to be acceptable to both the Australian and New South Wales Governments, subject to the level of any Government contributions. The initiative could be delivered with private sector financing. At this stage the potential funding sources and / or Government contributions for the initiative have not been determined. Private sector financing of the initiative would depend on the final scoping of the initiative as well as decisions regarding potential tolling and / or Government contributions. Staging The initiative is likely to be delivered in two or three stages. The first would be the widening of the existing M5 South-West Motorway, which is leased and operated by Interlink Roads Pty Ltd. The widening is likely to be delivered as a Deed of Variation under the existing agreement. The remainder of the initiative, likely to be the duplication of the M5 East Freeway and a northern link along the F6 corridor, could be delivered separately in this order or delivered together.

Item	Response
	<u>Governance</u> NSW, through RTA, has delivered eight significant road infrastructure projects, through PPP procurement agreements over the past 20 years. This achievement demonstrates a proven capability, contractual maturity and experience which will be critical to the successful governance of this initiative if PPP finance is to be used. It should be noted that PPP delivery policies in NSW are constantly being reviewed and improved to incorporate lessons learned on previous projects and in response to construction industry feedback, public submissions and current financial market conditions.
Timing	Funds have been allocated by the Australian and NSW Governments for the feasibility study into the possible expansion of the M5 transport corridor linking Sydney Airport and Port Botany with south-west Sydney. The study Scope Statement and Terms of Reference are included as Attachments 2 and 3. On 13 May 2008 the Minister for Infrastructure, Transport, Regional Development and Local Government, the Hon. Anthony Albanese, announced $5 million funding in 2007/08 for the feasibility study. On 14 May 2008 the then NSW Premier, the Hon. Morris Iemma, announced a further contribution of $10 million. The current timetable for the completion of the feasibility study is: • Identification of indicative preferred option(s) for submission to Infrastructure Australia– November 2008 • Preliminary business case and product definition report – March 2009 • Business case and procurement approach – November 2009 • Environmental assessment exhibition – May 2010 • Commence procurement – November 2010 Construction of the M5 East Freeway duplication and the northern link road could commence in 2012 and be completed in 2015, subject to funding. The first stage of the initiative, the widening of the M5 South-West Motorway, may be able to proceed on a slightly earlier timetable, with construction possibly commencing in 2010 and completing in 2013.

Item	Response
Packaging	The M5 Motorway Expansion is complementary to all of the following: • NSW initiatives which are also the subject of submissions to Infrastructure Australia in 2008: o West Metro o M4 Extension (towards CBD only) o M4 Extension (Port/ Airport Link) • Significant future land use developments: o Sydney Airport Master Plan 2009 o Port Botany Expansion o Prestons / Yarrunga Industrial Area o South West Growth Centre o New intermodal terminals in Western Sydney including Enfield and Moorebank o Green Square Urban Renewal Area o Western Sydney Employment Hub • Recently completed, current and future transport infrastructure developments: o Rail Clearways Program – Liverpool turnback, Revesby turnback, Kingsgrove to Revesby quadruplication, Macarthur Station Upgrade and Interchange, Homebush turnback and Lidcombe turnback o South West Rail Link o Southern Sydney Freight Line o Botany Freight Line duplication and Cooks River Intermodal Terminal upgrade o F5 Widening between Prestons and Campbelltown o South West Growth Centre transport network • Transport service and technology improvements such as integrated public transport ticketing, integrated bus service networks for the new contract regions, Strategic Bus Corridors and bus priority measures.

Section 4 - Attachments


PARRAMATTA
SYDNEY
Strathfield
Central
LIVERPOOL
BANKSTOWN
Sydney Airport
Port Botany
Ingleburn
CAMPBELLTOWN
M5 Expansion
Attachment 1 - Location Map
M5 South-West Motorway
M5 East Freeway
Northern Link along F6

M5 Expansion - Attachment 2

M5 transport corridor: Feasibility studies scope statement

A co-ordinated approach to investing in infrastructure

A new approach to planning, funding, and delivering major infrastructure is being developed by the NSW and Australian governments.

Infrastructure Australia, the new Commonwealth Government body, will develop a strategic blueprint for Australia's future infrastructure needs and partner with all levels of government and the private sector to deliver key infrastructure in the regions and cities. It will help identify infrastructure gaps that hinder economic growth and prosperity, and develop ways to ensure timely and co-ordinated national infrastructure investment.

NSW will work with the Commonwealth to ensure its State Plan objectives are central to infrastructure provision within any joint projects.

In the 2008/09 Federal Budget, the Building Australia Fund was launched. Allocations from the fund will be guided by *Infrastructure Australia's* national audit and infrastructure priority list.

Funds have been allocated by the Australian and NSW governments to examine the feasibility of:

- A West Metro linking the CBD with Parramatta to provide outcomes for all rail commuters in the Western Sydney rail corridor.
- Potential improvements to the M5 transport corridor linking Sydney Airport and Port Botany with south-west Sydney.

To ensure cost-effective, integrated and prioritised infrastructure planning and investment, their feasibility will be assessed within an agreed strategic framework, using consistent and comparable evaluation and assessment methods.

Transport growth in the south west corridor

The road network in Sydney's south west plays a key role in the metropolitan transport system. It serves both local and regional travel demands, providing connections for freight, commercial and commuter traffic. Current total daily travel by all modes between Sydney Airport and Port Botany and Liverpool amounts to 3.88 million passenger kilometres, making it one of the most-travelled corridors in Sydney.

In the last decade travel demand in this corridor has increased substantially, resulting in the motorway and surrounding arterial network operating at or near capacity during both the morning and evening peaks and for much of the day, with similar trends noted on weekends.

Significant intensification of residential and employment land uses are planned in South West Sydney:

- Employment growth is a key focus of the *Metropolitan Strategy*, which identifies that by 2031 (above the 2001 figures).
  - The employment capacity target for the South West Subregion (including the South West Growth Centre and Liverpool) is 80,000 jobs. Liverpool will be a regional city, with 16,000 extra jobs.
  - Sydney Airport and surrounds, Green Square and Port Botany will have 30,000 extra jobs.
  - Milperra/Bankstown Airport will have 4,000 more jobs.
  - The Western Sydney Employment Hub, located near the M4 and M7 Motorways, will generate up to 36,000 jobs.
  - Growth in other key industrial zones at Moorebank, Ingleburn, Minto and Campbelltown are also predicted to experience strong employment growth and are related to activities at Port Botany.
- The majority of commuter trips along the corridor are by car. Train is a significant mode (greater than 20%) for trips such as between Campbelltown-South West Growth Centre and the CBD.
- The M5 and M5 East carry about 5,000 heavy vehicles per day with about 400-600 heavy vehicles travelling in the (2-hour) morning peak, both inbound and outbound. Truck volumes are forecast to exceed 1,000 movements per hour on the M5 Motorway by 2026.
- The freight transport task is predicted to grow at an annual average rate of 8% to approximately 3 million twenty-foot equivalent units (TEUs) by the early 2020s, accelerated by the Port Botany expansion. Noting the NSW Government's target of increasing the rail freight mode split to 40 per cent by 2021, the port-related road freight task is predicted to more than double by 2021, from the current 900,000 TEUs per year to around 1,800,000 TEUs per year.
- Residential growth within and surrounding this corridor is predicted to grow substantially, with the *Metropolitan Strategy* predicting:
  - An additional 40,000 dwellings in the south-west sub-region.
  - An additional 100,000 dwellings in the south-west growth centre.
  - An additional 20,000 dwellings in the east sub-region.
  - An additional 35,000 dwellings in the south sub-region.

M5 transport corridor

The M5 corridor forms part of the AusLink Network connecting the interstate highway network to Sydney and Port Botany, and is a major gateway to Sydney from the Melbourne and Canberra directions. In order to improve connectivity and capacity in this corridor, the NSW Government has planned and implemented the M5 Motorway, M5 East, Airport Rail Line, and the duplication of the East Hills rail line.

Works scheduled within this transport corridor under approved infrastructure programs include:

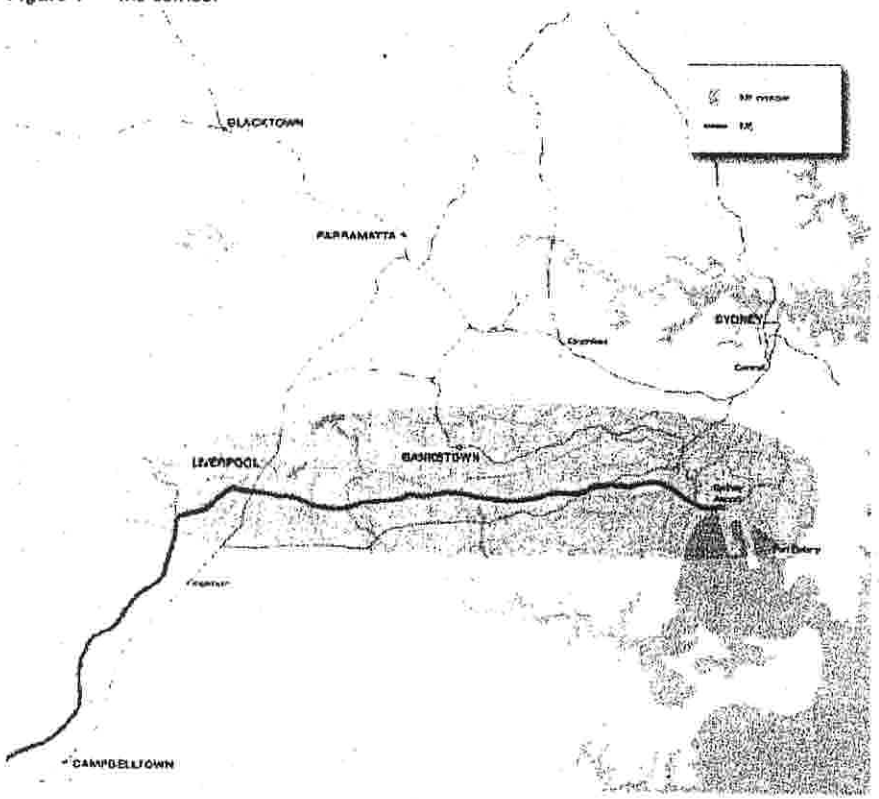
- Rail Clearways Program, including:
  - Liverpool turnback.
  - Revesby turnback.
  - Kingsgrove to Revesby quadruplication.
  - A fourth platform at Macarthur Station.

- Southern Sydney Freight line.
- South West Rail Link.

Not yet approved, but understood to be under investigation by Interlink Roads (the M5 Motorway concessionaire), is the potential widening of the M5 Motorway. The potential for an inter-modal freight facility at Moorebank has also been identified in the *Metropolitan Strategy*, and there is the potential for a connection between the M4 Motorway and Port Botany/Sydney Airport.

The impact of the predicted growth in population and employment along and to the west of the M5 transport corridor and the doubling of the freight task by 2020 will be felt greatest on the M5 and M5 East Motorways, with additional implications for the rail and the public transport networks in the corridor. The long-term transport requirements of this corridor need to be assessed and options developed to meet and manage future demand.

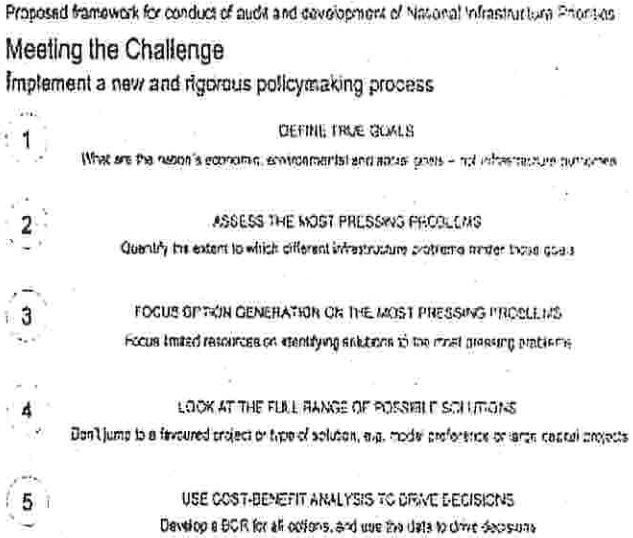
Figure 1 M5 corridor



Indicative study process

Figure 2 outlines the approach that Infrastructure Australia is expected to adopt in undertaking its audit and developing the national infrastructure priority list (as presented by Sir Rod Eddington at the Council's first meeting in May 2008). The M5 transport corridor study will follow this approach.

Figure 2 Anticipated Infrastructure Australia approach to prioritising infrastructure



Initial transport and economic analysis will be used from the earliest stages to identify and quantify the key cost and value impacts offered by alternative corridor options. This will inform the development of a refined set of options for more detailed assessment. The subsequent rigorous application of detailed economic cost-benefit analysis will be used to identify a preferred solution.

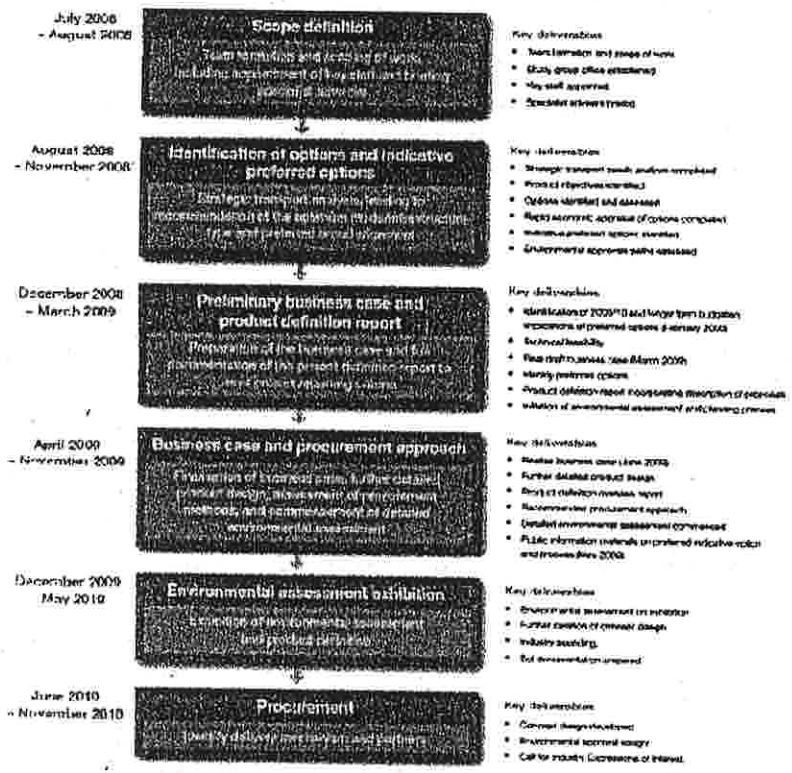
The feasibility assessment will broadly follow the process shown in Figure 3.

Essentially, the first phase of work will aim to prepare a preliminary appraisal to determine a preferred set of options in late 2008, so that detailed assessment of these options can be completed in the first quarter of 2009.

This will lead to the development of a business case that identifies a preferred option which would enable governments to consider the findings in time to assess their priorities for future work into 2009/10.

Preliminary economic appraisal (targeted completion in late 2008) will transparently identify the key cost and value drivers, and will test the reasonableness of the underlying assumptions, and the sensitivity of Benefit/Cost Ratios to these assumptions (including base case as well as project-case assumptions).

Figure 3 Indicative study process



Scope of the feasibility studies

In the first year, the studies will examine and report on:

- Current and anticipated future growth in transport demand.
- Capability of existing and planned infrastructure to meet these future transport requirements.
- The development of objectives for the improvement of transport in the corridor, reflecting those of the State Plan and Metropolitan Strategy.
- Identification and development of transport options to address strategic objectives, including the need to provide improved access to Port Botany and Sydney Airport to cater for future growth.
- Assessment of options to address network deficiencies.
- Assessment of infrastructure packages, based on their:
  - Contribution to, and cost-effectiveness in, achieving identified objectives.
  - Ability to serve existing and anticipated land uses, including centres and other areas of population and employment growth, including Port Botany and Sydney Airport.
  - Technical feasibility and cost of their construction and operation.
  - Effect on potential transport network capacity and performance in the south-western corridor.
  - Implications for the operation of related transport services, including public transport, inter-modal interchange, and car-parking.
  - Environmental risks, as identified after a preliminary assessment, and the potential approval mechanisms needing to be satisfied.
  - Preliminary economic analysis.
  - Potential funding, procurement and delivery mechanisms, including the scope for involvement of private sector finance, expertise and risk-sharing.
- Recommendation of an indicative preferred alignment and station locations by November 2008.
- Detailed feasibility assessment and implementation strategy for the preferred transport infrastructure package, including funding arrangements, sequencing and staging of projects.
- Detailed transport modelling and concept development of the preferred work package in order to undertake the necessary studies for preparation of a project environmental assessment for the purpose of planning approval.
- A product definition report and business case to be prepared and published by March 2009. These would be based on an assessment of risk, and technical, operational and financial feasibility, including estimates of patronage, revenue and cost. This business case will need to address the requirements of both NSW and Commonwealth assessment procedures
- Production of public information material by May 2009, presenting the indicative preferred option and next steps in the study process.

M5 Expansion – Attachment 3

Attachment 2.1A
M5 and West Metro Transport Studies NSW Government Taskforce meeting 02
(incorporating changes made from Taskforce meeting 01)

West Metro and M5 Transport Corridor feasibility studies – draft terms of reference

Inter-governmental Working Group

- Comprises Commonwealth officers (Infrastructure Australia and/or Department of Infrastructure, Transport, Regional Development and Local Government), NSW Coordinator General (chair) and CEOs of State agencies: Ministry of Transport, Treasury, Department of Planning and RTA, and the Director of the Centre for Transport Planning and Product Development.
- Purpose is to scope the detail of the studies, and to manage progress and quality of study outputs
- Key functions include:
  - Confirmation of the project objectives for the West Metro and M5 corridor improvements.
  - Agreement on scope of studies and timing of key milestones/deliverables.
  - Review key methodologies and assumptions (including those related to business case analysis).
  - Monitoring of quality and outputs of the feasibility studies.
  - Review of the strategic network intent and outcomes of the projects proposed in the feasibility studies.
  - Monitoring of the budget.
  - Establishing protocols for inter-governmental officer liaison.
- Meets every two months.

NSW Government Transport Studies Taskforces – West Metro and M5 corridor

- Chaired by Coordinator General. Membership is CEOs/Directors General of Ministry of Transport, Treasury, Department of Planning, and the Director of the Centre for Transport Planning and Product Development.
- The West Metro Taskforce also includes the CEOs of TIDC and RailCorp.
- The M5 transport corridor Taskforce includes the CEO of the RTA.
- Purpose of each Taskforce is to oversee the relevant feasibility study, providing a forum to resolve any contentious issues and ensuring that the studies are focussed on achieving whole of government strategic transport outcomes
- Key functions include:
  - Ensuring studies are developed consistent with relevant Government objectives and policies
  - Review of all major material to be presented to the Inter-governmental Working Group, including scope statements, program of milestones/deliverables, study methodology, (eg business case), study outputs and budget monitoring.
  - Providing timely advice to Cabinet through the Minister for Roads and Minister for Transport, in consultation with the Premier and the Treasurer.
  - Review and confirm the strategic network intent and outcomes of the projects proposed in the feasibility studies.
  - Ensuring effective governance in the administration of the financial expenditure and quality of the study outputs.
  - Approving the appointment of the Project Directors for each Study Group.
  - Providing leadership to the Project Directors, Centre for Transport Planning and Product Development and Study Groups.
  - Endorsing the provision of agency resources and advice as required for the studies.
  - Managing the interactions with the intergovernmental working group.
  - The Taskforces will include a project sponsor for each of the two Study Groups – being the CEO of the RTA for the M5 transport corridor study, and the Director of the Centre for Transport Planning and Product Development for the West Metro study.
    - The Project Sponsor provides day to day direction and guidance to the Project Director and Study Group.
    - The Project Sponsor will also represent the Study Group findings in the Taskforce.
  - The Taskforces meet monthly, with meetings to be held in two parts dealing separately with each study.

West Metro Study Group

- Project Director appointed from the Centre for Transport Planning and Product Development, approved by the Taskforce, leading seconded agency staff (MoT and TIDC, for example) and suitably-qualified consultants.
- Purpose is to lead the development of a feasibility study for a metro rail line between the Sydney CBD, Parramatta and western Sydney, in the context of congestion along the full length of the Main Western Line, and and Parramatta and to provide timely and high quality specialist advice and assessments to the NSW Government Transport Studies Taskforce and Inter-governmental Working Group as required.
- The Study Group will conduct regular meetings with representatives of the West Metro Study Taskforce members (Ministry of Transport, Treasury, Department of Planning, RailCorp and TIDC).
- Key functions include:
  - Assessment of current and future transport network deficiencies.
- Determine the strategic intent of the proposed West Metro by preparing a draft transport product strategy which assesses the potential of the West Metro to deliver improvements to economic activity, public transport services, land use and transport integration, and urban amenity.
- Identify product objectives for the West Metro consistent with the strategic intent and identify potential alternative means of achieving the objectives, and the range of alternative metro rail alignments and station locations.

- Identifying metro rail operational requirements and methods within the corridor, with appropriate reference to North West Metro development work, and to inputs from the North West Metro Shadow Operator.
- Identifying the potential operational and spatial relationships between West Metro and other public and private transport networks in terms of travel demand and trip patterns, service levels, fares and ticketing strategy, and inter-modal interchange.
- Preparing engineering feasibility assessments to determine major construction/delivery constraints and risks, recommended construction methods, construction cost estimates and likely delivery timing.
- Assessing alternative alignments in light of transport network performance, relationship to other modes, cost efficiencies, economic and financial analysis and preliminary environmental assessment.
- Identifying a preferred route alignment and recommended locations for stations/portals for a West Metro rail line.
- Identifying project risks and developing risk management strategies.
- Developing estimates of patronage, revenue and costs for West Metro.
- Preparing the product business case, including rigorous analysis of relevant costs and benefits, using an appropriate methodology consistent with Australian and New South Wales Government requirements, as endorsed by the Working Group.
- The West Metro Study Group will be a co-located integrated team within the Centre comprising five to eight dedicated staff, focussing on transport and land use planning, documentation and coordination. Specific contracts will be let to complete components of the work.

M5 transport corridor Study Group

- Project Director appointed from the Centre for Transport Planning and Product Development, approved by the Taskforce, leading seconded agency staff (MoT and RTA, for example) and suitably qualified consultants.
- Purpose is to lead the development of a feasibility study which examines potential improvements to the M5 transport corridor from Port Botany and Sydney Airport to South West Sydney, and to provide timely and high quality specialist advice and recommendations to the NSW Government Transport Studies Taskforce and Inter-governmental Working Group as required.
- The Study Group will conduct regular meetings with representatives of the M5 Study Taskforce members (Ministry of Transport, Treasury, Department of Planning and RTA).
- Key functions include:
- Assessment of current and future transport network deficiencies.
- Determine the strategic intent of the proposed improvements to the M5 corridor by preparing a draft transport product strategy which assesses the potential of an M5 amplification to deliver improvements to economic activity, transport network performance, land use and transport integration, and urban amenity.
- Identify product objectives for the M5 corridor consistent with the strategic intent and identify potential alternative means of achieving the objectives, and the range of alternative road/tunnel alignments.
- Assessing alternative alignments in terms of traffic functionality, integration with the road network, cost efficiencies, economic and financial analysis and preliminary environmental assessment.
- Identifying a preferred route alignment and recommended locations for portals, access roads, and ventilation stations for an M 5 amplification.
- Identifying related transport network developments within the corridor, with particular reference to current M4-port extension options, metro rail, freight rail project development work and strategic bus corridors.
- Preparing engineering feasibility assessments to determine major construction/delivery constraints and risks, recommended construction methods, construction cost estimates and likely delivery timing.
- Identifying the potential operational and spatial relationships between an M5 amplification and other public and private transport networks in terms of travel demand and trip patterns, intersection and network capacities, pricing strategy, and cumulative implications for other prospective major road network improvements.
- Identifying project risks and developing risk management strategies.
- Developing estimates of patronage, revenue and costs for an M5 amplification.
- Identifying preferred tolling strategy.
- Assessing the merit and appropriate timing of alternative strategic options and alignments in terms of traffic functionality, integration with the road network, cost efficiencies, economic and financial analysis and preliminary environmental assessment.
- Transport and economic analysis of M5 amplification options will be integrated with a variety of M4 extension options (including a potential M4 connection to the port).
- Preparing a the product business case, including rigorous analysis of relevant costs and benefits, for the various options using an appropriate methodology consistent with Australian and New South Wales Government requirements, as signed off by the working group.
- Identifying (based on the business case analysis) network priorities and preferred timing of M5 amplification and M4 extension options, including preferred route alignments and recommended locations for portals, access roads, and ventilation stations.

- The M5 transport corridor Study Group will be a co-located integrated team within the Centre comprising five to eight dedicated staff, focussing on transport and land use planning, documentation and coordination. Specific contracts will be let to complete components of the work.