M2 Upgrade project environmental assessment

Prepared by

AECOM

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Statement of Validity

Submission of environmental assessment		
Prepared under Part 3A of the Environmental Planning and Assessment Act 1979		
Name:	Louisa Rebec Bachelor of Science (Hons) Applied Human and Physical Geography Masters of Environmental Law AECOM Level 8 17 York Street Sydney NSW 2000	Craig Niles Bachelor of Planning (Hons) AECOM Level 8 17 York Street Sydney NSW 2000
In respect of:	M2 Motorway Upgrade – environmental assessment	
Applicant name:	NSW Roads and Traffic Authority	
Applicant address:	Level 9, 101 Miller Street North Sydney NSW 2060	
Proposed development:	The NSW Roads and Traffic Authority proposes to widen the M2 Motorway between North Ryde and Baulkham Hills, Sydney. The project would comprise widening and/or provision of a third lane along sections of the eastbound and westbound carriageways between Windsor Road and Lane Cove Road. Design features of the project include construction of new on- and off-ramps at Windsor Road, a new off-ramp at Herring Road, a new on-ramp at Christie Road and local road upgrades to Windsor, Talavera and Christie Roads as well as upgrades to the M2 Motorway Intelligent Transport System.	
Land to be developed:	Land generally required for the design refinement, construction and operation of the proposed development (refer to Figure 5).	
Environmental assessment:	An environmental assessment is attached, which addresses all matters in accordance with Part 3A of the *Environmental Planning and Assessment Act 1979*.	
Declaration	I certify that I have prepared the contents of this environmental assessment in accordance with the Director-General's Requirements (DGRs) dated 6 April 2009, to the best of my knowledge, the information contained in the environmental assessment is not false or misleading.	
Signature:		
Name:	Louisa Rebec	Craig Niles
Date:	10 May 2010	10 May 2010

Executive Summary

What is proposed?

The Roads and Traffic Authority (RTA) of NSW proposes to upgrade the M2 Motorway from Windsor Road, Baulkham Hills, to Lane Cove Road, North Ryde. The M2 Upgrade project would extend over 14.5 kilometres in length and involves construction works including:

- Widening and/or provision of a third lane along sections of the eastbound and westbound carriageways between Windsor Road and Lane Cove Road.
- Provision of new on and off-ramps at Windsor Road, a new on-ramp at Christie Road and a new off-ramp at Herring Road.
- Widening and provision of a third lane eastbound and westbound in the Norfolk Tunnel.
- Restoration of the westbound breakdown lane and provision of 3.5 metre wide traffic lanes between Lane Cove Road and Beecroft Road.
- Removal of the Beecroft Road bus on and off-ramp.
- Upgrade to the intersection of the M2 Motorway and Windsor Road, and the Christie Road and Herring Road intersections with Talavera Road.
- Upgrade to the M2 Motorway Intelligent Transport System.

The project also includes the operation of the upgraded M2 Motorway.

The Minister for Planning declared, by Ministerial Order, that the M2 Upgrade project is a project to which Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) applies and the project is critical infrastructure. The RTA has requested that the declarations be amended to better reflect the proposed project. These are currently being amended. This environmental assessment considers the project as described by the amended declarations.

Further description of the project is provided in Chapter 6 of the environmental assessment.

Why is it needed?

The M2 Upgrade project provides essential improvements to a key link in the Sydney Orbital Motorway network which would support the significant growth planned in Sydney's north west and the 'global arc'. At present the performance of the M2 Motorway is, especially during peak periods, of concern to many users. Users pay a toll to use the M2 Motorway and subsequently they have an expectation that travel times should be lower and feel that they may not be obtaining value for money.

The project is consistent with the goals and objectives described in key NSW Government strategy documents, including the State Plan and Metropolitan Strategy. The project would provide:

- Improved accessibility for cars, freight vehicles, public transport and bicycles.
- Improved capacity and efficiency of existing commuter, commercial, freight and road-based public transport infrastructure.
- Reduced congestion during peak periods.

For more details on the need for the project refer to Chapter 2.

How would it satisfy this need?

The project objectives were designed to facilitate outcomes that satisfy the strategic need for the project. The objectives are to:

- Support the NSW Government's State Plan, Metropolitan Strategy, Urban Transport Statement and State Infrastructure Strategy.
- Enhance the strategic road network in Sydney's north west to support economic growth.
- Improve access and accessibility between key residential, employment and educational precincts in Sydney's north west.
- Improve travel times by reducing congestion during peak periods for the benefit of local and regional traffic that has limited opportunity to travel outside peak periods.
- Improve safety and amenity for road users and surrounding communities.
- Provide value for money to the community.
- Minimise environmental and social impacts during construction and operation.

The project objectives are detailed further in Section 2.3.

To achieve the project objectives, the M2 Upgrade project aims to:

- Improve the reliability, safety and efficiency of the M2 corridor.
- Reduce congestion along the M2 Motorway.
- Improve and retain accessibility to local arterial roads.
- Minimise environmental effects and manage potential adverse effects appropriately.
- Enhance potential benefits to community and stakeholders in the short and long-term.
- Manage potential adverse impacts on the community.

The preferred design, which is assessed in this report, was selected following an assessment of various alternatives due to its ability to meet the design criteria, the project objectives, and ultimately, the strategic need for the project.

What alternatives were considered?

The alternatives to the M2 Upgrade project that were identified and considered as part of the development of the project include the following:

- Do nothing – No upgrade to the M2 Motorway.
- Line marking – Line marking to provide additional lanes within the existing carriageways of the M2 Motorway.
- Local arterial road upgrade – Widening of the existing sub-arterial and arterial road network in the vicinity of the M2 Motorway.
- Provision of public transport – Increase provision for public transport within the M2 Motorway catchment.
- Widening of the M2 Motorway to provide additional lane capacity – current project (preferred).

For more details of the alternatives considered as part of this assessment and the reasons why the preferred alternative was selected, refer to Chapter 3. The preferred option is described in detail in Chapter 6.

What are the likely consequences of the project?

The M2 Motorway provides accessibility and capacity for commuter, commercial, freight and road-based public transport. The M2 Upgrade project would enhance the road networks to Sydney's north west, providing an essential service to new growth areas and improving travel times in the morning and afternoon peaks. The project would also provide new access points to M2 Motorway in the west and at Macquarie Park, relieve traffic pressure on local roads, improve bus and cycle travel times and improve road safety.

The proposed upgrade would result in some adverse impacts in the long-term, including:

- Increased traffic on local roads leading to new access ramps.
- Impacts to visual amenity as a result of modified or new noise walls and vegetation removal.
- Noise impacts to some residents and businesses resulting from increased traffic on M2 Motorway.
- Loss of approximately 21 hectares of vegetation (including 10 hectares of native and 11 hectares of exotic vegetation). Direct impact to one threatened flora species and loss of habitat for significant fauna species.
- Potential impact to three Aboriginal cultural heritage sites including an artefact of low significance, a site potentially affected by sedimentation and potential vibration impacts to a rock shelter.
- Property acquisition including partial acquisition of seven privately owned residential properties and full acquisition of a number of properties owned by public authorities.

There would also be impacts during construction of the M2 Upgrade project. Many of these impacts would be temporary, but some (like impacts on property and biodiversity) would be longer term or permanent. Some minor cumulative impacts with other developments proposed within the area may be experienced if they occur at a similar time to the M2 Upgrade project. Impacts of the project are detailed in Chapter 9 and Chapter 10.

How will the likely consequences be managed?

This environmental assessment assesses the likely consequences of the proposed upgrade. As part of this assessment, measures to mitigate or manage each likely impact have been proposed. The mitigation measures developed for the proposed upgrade aim to remove or minimise potential impacts through design in the first instance. However, where a potential impact is unable to be mitigated through design, management measures are outlined.

The environmental, social and economic impacts and measures identified to minimise those impacts are discussed in Chapter 9, Chapter 10 and Chapter 11 of this environmental assessment.

How can I comment on the project and/or the environmental assessment?

The NSW Department of Planning has made the environmental assessment publicly available for a minimum period of 30 days. The RTA will also be conducting community information sessions during the exhibition period. The project telephone information line and email enquiries facility would be available throughout the exhibition period, being 1800 196 266 and enquiries@hillsm2upgrade.com.au respectively.

Any person may make a written submission to the Director-General of the Department of Planning during the exhibition period. Submissions should be made to:

Director, Major Infrastructure Assessments
Department of Planning
GPO Box 39
SYDNEY NSW 2001

1. Introduction

1.1 The project

The Roads and Traffic Authority (RTA) of NSW proposes to upgrade 14.5 kilometres of the M2 Motorway from Windsor Road, Baulkham Hills, to Lane Cove Road, North Ryde. The M2 Upgrade project would include construction works including widening and provision of a third lane along sections of the eastbound and westbound carriageways between Windsor Road and Lane Cove Road and provision of new on/off-ramps. The project also involves the operation of the upgraded M2 Motorway with an Upgrade of the Intelligent Transport System.

The project would include:

- Widening and/or provision of a third lane along sections of the eastbound and westbound carriageways between Windsor Road and Lane Cove Road.
- Provision of new on/off ramps at Windsor Road, Christie Road and Herring Road.
- Widening and/or provision of a third lane eastbound and westbound in the Norfolk Tunnel.
- Restoration of the westbound breakdown lane from Lane Cove Road to Beecroft Road.
- Removal of the Beecroft Road bus on/off ramp.
- Upgrade of the M2 Motorway/Windsor Road, Christie Road/Talavera Road and Herring Road/Talavera Road intersections.
- Upgrades to M2 Motorway Intelligent Transport System.

1.2 Overview

The existing M2 Motorway is a four lane dual carriageway motorway, with bus lanes in certain sections that extends 21 kilometres from the intersection of Abbott Road/Old Windsor Road at West Baulkham Hills, to Lane Cove Tunnel (refer to Figure 1).

Operation of the M2 Motorway is covered by the M2 Motorway Project Deed. Under this deed The Hills Motorway Limited (Hills M2) operates, maintains and repairs the M2 Motorway on behalf of the RTA. The RTA has leased the necessary land to Hills M2 (M2 Motorway operator) to facilitate this and has granted Hills M2 the right to collect tolls for the use of the M2 Motorway. These arrangements continue until expiry of the M2 Motorway Project Deed in 2042.

The M2 Motorway plays a key role in Sydney's Orbital network, linking Sydney's north west to the lower north shore and Sydney's CBD. The M2 Motorway was a priority section of the Orbital route identified in the Department of Main Roads publication *Roads 2000* (1987), which included a strategic plan for Sydney's road needs to the year 2000. Upon opening in 1997, the M2 Motorway provided much needed accessibility and capacity for commuter, commercial, freight and road-based public transport, thereby reducing travel times and peak hour congestion.

The NSW Government's *Urban Transport Statement* (November 2006) identifies the efficient movement of people and goods in and around Sydney as a key transport objective and identifies the M2 Motorway as a key part of the Macquarie Park to Port Botany Economic corridor. The proposed upgrade would relieve current congestion, thereby facilitating more efficient movement of people and goods and would also be consistent with potential future development of an M2 Motorway to F3 Freeway connection.

Since the M2 Motorway opened to traffic in 1997, land use density has increased within M2 Motorway catchment, particularly in Sydney's north west. The proposed upgrade is a result of feedback received from motorists, businesses, public transport providers, councils, cyclists and the community about the need to improve travel times and provide greater accessibility for the M2 Motorway users.

1.3 Project delivery

The RTA is the proponent for the proposed M2 Upgrade. The M2 Upgrade project would be delivered by Hills M2 who has engaged Leighton Contractors Pty Ltd (LCPL) under a 'design and construct' contract.

AECOM have been appointed to prepare this environmental assessment, which has been prepared in accordance with Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The RTA has reviewed and approved this environmental assessment.

The project application was submitted to the Department of Planning on 27 February 2009 and consultation with the community and other stakeholders was commenced. A summary of the project was presented on the Hills M2 website as information for community and stakeholder groups.

Development of the concept design and the environmental assessment process involved an analysis of various strategic project alternatives and an assessment of design options, which were investigated in selecting the preferred project concept for the M2 Upgrade project. Refinement and further development of the project concept design has been carried out concurrently with the environmental assessment process to minimise impacts where possible and to consider ecologically sustainable development principles within the design. Figure 2 provides an overview of the M2 Upgrade project.

1.4 Project cost and funding

The M2 Upgrade project is estimated to cost in the vicinity of $550 million and there would be ongoing additional maintenance costs associated with the project. It would be funded by the M2 Motorway operator (Hills M2) and the funds would be recouped from tolls imposed on the M2 Motorway over the concession period. Funds required by the M2 Motorway operator for the upfront capital expenditure for upgrading the M2 Motorway would typically be obtained from borrowings or issuing shares to investors. These funding mechanisms would require the M2 Motorway operator to achieve a return on investment to investors or pay back the loan with interest payments.

The project would attract additional traffic to the M2 Motorway and hence increase toll revenue. The provision of new tolled ramps at Baulkham Hills and Macquarie Park would also increase revenue. The final toll amount is yet to be determined, however, indicative tolls (Class 2 vehicles – including GST) proposed for the new ramps are in the order of $1.70 at Windsor Road and $2.40 at Herring Road and Christie Road. However, the increase in toll revenue from the above would not be sufficient to fund the full capital costs of the project, at current toll levels within the current concession period.

In light of this, the following potential funding alternatives considered included:

- Funding the shortfall by Government.
- A one off toll increase when the M2 Upgrade project is opened.
- An extension of the toll collection/concession period.

The NSW Government has agreed to a combination of funding sources, involving a one off toll increase upon opening of the M2 Upgrade project as well as an extension of the toll collection concession

period. The announcement of the signing of the 'In Principle Agreement' in October 2009 indicated that the M2 Upgrade project *"would be funded by Transurban, with the NSW Government contributing by extending the toll concession by 4 years and allowing for a one-off increase in the toll of around 8 percent on completion of the works".*

Based on a Road User Cost Benefit Analysis (RUCBA) undertaken for the M2 Upgrade project (refer to Appendix E), the economic worth of the project case relative to the base case has been estimated to be:

- Net present value of $1.2 billion.
- A benefit cost ratio value of 3.4.

Based on either measure, it is economically worthwhile to proceed with the project. It is noted that a benefit cost ratio of more than two is considered to be a favourable outcome and economically worthwhile. A series of sensitivity tests were carried out by varying the discount rate, construction costs, benefits and diminishing travel time savings. Under these conditions, the benefit cost ratio varies between 2.3 and 4.9 and the net present value between $629 million and $2.1billion.

By adding substantial capacity to an existing and congested motorway, the project provides economic benefits from reduced travel time in return for low additional travel costs. In addition, capital costs are relatively low in comparison to construction of a new link. These factors generate a high benefit cost ratio.

The proposed tolls for the new Herring Road (east facing) ramps were determined based on existing toll rates for the section east of Beecroft Road. These rates reflect the level of congestion on the alternative route for this segment of the corridor. The proposed tolls for the new Windsor Road (west facing) ramps are approximately 30 percent lower than the Pennant Hills Road tolls. These toll rates were determined with the objective of minimising adverse traffic impacts on longer motorway trips and off-motorway arterial routes.

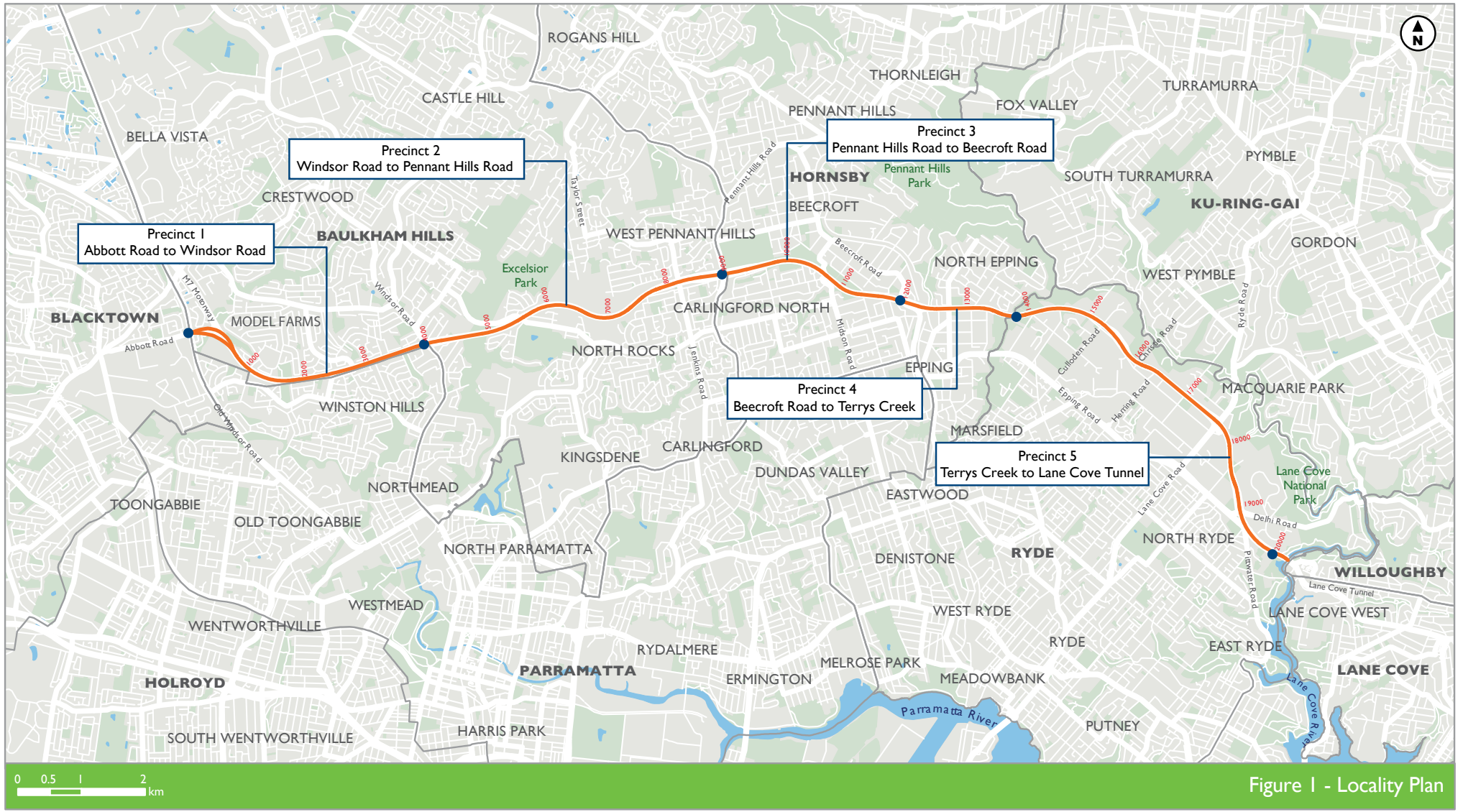
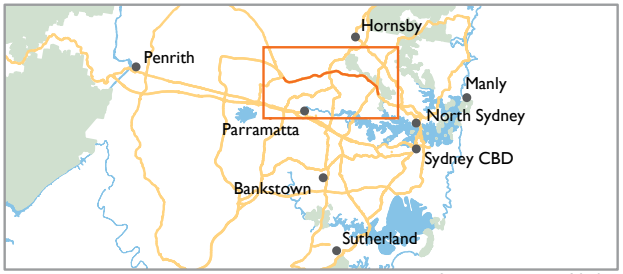
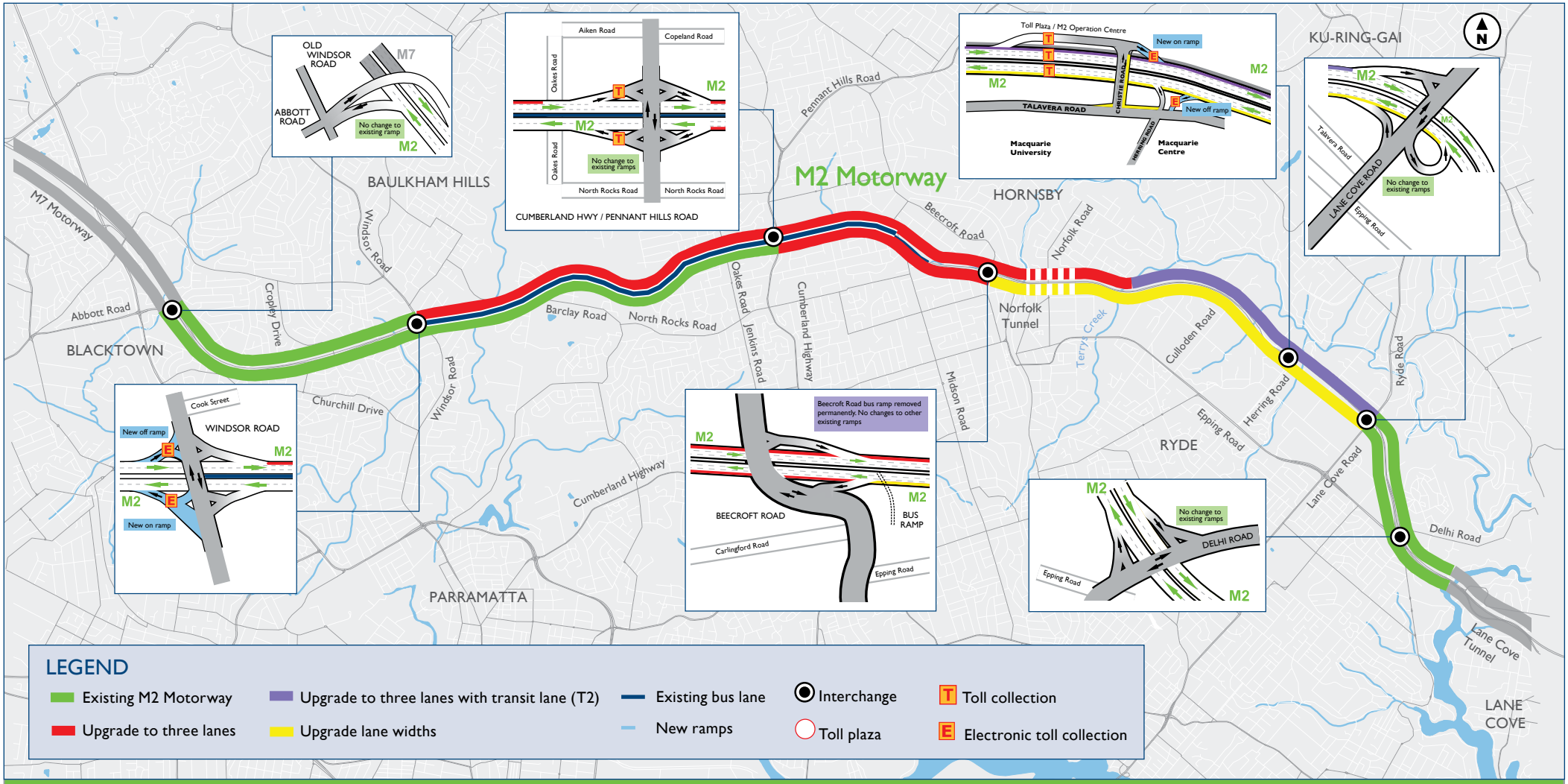


Figure 1 - Locality Plan

- M2 Motorway
- Precinct limit
- River / Waterway
- Park / Open space
- 8000 Chainage (metres)
- LGA boundary



Source: MapData, 2010



Not to scale

Figure 2 - Proposed M2 Upgrade

Source: MapData, 2010; Transurban, 2010

1.5 M2 Motorway precincts

For the purposes of this environmental assessment, the M2 Motorway is divided into five precincts, based on the key defining physical and operational characteristics (refer Figure 1). The M2 Motorway precincts and their key landscape attributes are as follows:

- Precinct 1 – Abbott Road to Windsor Road.
- Precinct 2 – Windsor Road to Pennant Hills Road.
- Precinct 3 – Pennant Hills Road to Beecroft Road.
- Precinct 4 – Beecroft Road to Terrys Creek (including Norfolk Tunnel).
- Precinct 5 – Terrys Creek to Lane Cove Tunnel.

The following subsections describe each of the five precinct areas.

1.5.1 Precinct 1 – Abbott Road to Windsor Road

The Abbott Road to Windsor Road section of the M2 Motorway falls within The Hills Shire. It extends for four kilometres from the intersection of the M2 Motorway, Abbott Road and Old Windsor Road. At the western end the M2 Motorway links with the M7 Motorway and east-facing ramps connect M2 Motorway to the local road network at Old Windsor Road/Abbott Road. There are currently no west-facing ramps at Windsor Road. The M2 Motorway comprises two carriageways, each carriageway consisting of a breakdown lane and two traffic lanes. In this precinct the carriageways are separated by grassed or concrete barrier medians. Cyclists are able to utilise the breakdown lanes. Bus stops are located along the M2 Motorway in this precinct with buses using the breakdown lane.

1.5.2 Precinct 2 – Windsor Road to Pennant Hills Road

The Windsor Road to Pennant Hills Road (Cumberland Highway) section is located within The Hills Shire. The section extends for five kilometres and is characterised by two carriageways, each one comprising a breakdown lane, two traffic lanes, plus a bus lane in each direction. The carriageways are separated by a concrete barrier median. Cyclists are able to utilise the breakdown lanes. Toll collection points are located on the west facing ramps at Pennant Hills Road. East facing ramps at Windsor Road provide access to and from this precinct and Windsor Road. West facing ramps at Pennant Hills Road provide access to and from this precinct and Pennant Hills Road

1.5.3 Precinct 3 – Pennant Hills Road to Beecroft Road

The Pennant Hills to Beecroft Road precinct is the central section of the M2 corridor and extends for three kilometres. It is situated within Hornsby Shire. This section is characterised by two carriageways, each one comprising a breakdown lane, two traffic lanes plus a bus lane in each direction. The carriageways are separated by a concrete barrier median (although at Devlins Creek bridge the bridges are separated so there are two median barriers). Cyclists are able to utilise the breakdown lanes. The temporary cycleway detour from the westbound carriageway near Lane Cove Road connects to the westbound breakdown lane near Beecroft Road. The east facing ramps at Pennant Hills Road provide access to and from the M2 Motorway in this precinct. The bus only ramp near Beecroft Road allows bus access to and from the M2 Motorway from Epping (via an underpass at the main northern railway). Eastbound to southbound busses on the M2 Motorway can also access Beecroft Road.

1.5.4 Precinct 4 – Beecroft Road to Terrys Creek (including Norfolk Tunnel)

This precinct is located within Hornsby Shire and extends from Beecroft Road to Terrys Creek. In the eastbound direction, this precinct features a breakdown lane and two traffic lanes. In the westbound direction, this precinct features three traffic lanes and no breakdown lane. The third lane was marked by removing the breakdown lane as part of an interim widening scheme implemented in 2007. The three lanes merge to two lanes immediately past the western tunnel portal. Eastbound cyclists are able to use the shoulder through this precinct. However, a temporary off-Motorway cycle path is provided for westbound cyclists, as there is no shoulder to use in this direction.

The Norfolk Tunnel (sometimes referred to as the Epping Tunnel) is 460 metres in length and consists of two tunnel tubes separated by a wall of rock. There are two traffic lanes (plus breakdown lane) in the eastbound tube and three traffic lanes westbound (without breakdown lane) in the westbound tube. The tunnel is a large cut into the sandstone bedrock. Surrounding the tunnel is predominantly detached residential dwellings, dispersed with parklands. Directly above Norfolk Tunnel, there is a small cluster of detached dwellings and Epping Oval.

1.5.5 Precinct 5 – Terrys Creek to Lane Cove Tunnel

Precinct 5 falls within the City of Ryde and stretches from Terrys Creek to the eastern extent of the M2 Motorway at the start of the Lane Cove Tunnel.

Terrys Creek to Herring Road

The Terrys Creek to Herring Road section of the M2 Motorway is approximately 2.5 kilometres in length and is characterised by two carriageways, the eastbound comprising a breakdown lane with two traffic lanes and westbound comprising three traffic lanes without breakdown lane. The carriageways are separated by a concrete barrier.

The M2 Motorway Toll Plaza is located adjacent to the Macquarie University site, between Culloden Road and Christie Road. The westbound cycleway in this section is by way of temporary westbound detour, along Talavera Road.

The west facing off ramp at Christie Road and overpass is located approximately 500 metres east of the M2 Motorway Toll Plaza. Traffic travelling westbound cannot access the M2 Motorway from Christie Road. Westbound traffic access M2 Motorway via the west facing ramp at Herring Road, which joins the M2 Motorway just east of the Christie Road local road crossing.

Herring Road to Lane Cove Road

Herring Road to Lane Cove Road is approximately 1.3 kilometres in length consisting of two carriageways. The eastbound consists of a breakdown lane with two traffic lanes and the westbound three traffic lanes (without a breakdown lane). The carriageways are separated by a concrete barrier.

West facing on- and off-ramps provide access to and from the M2 Motorway and Lane Cove Road. Lane Cove Road is a three lane dual carriageway major arterial road that crosses the M2 Motorway by a double span overbridge. The corridor in this section is dominated by large scale commercial buildings and low to medium density residential development. Shrimptons Creek crosses the M2 Motorway approximately 400 metres east of Christie Road.

Lane Cove Road to Lane Cove Tunnel

Lane Cove Road to Lane Cove Tunnel is approximately 2.6 kilometres in length and is characterised by two carriageways, each comprising a breakdown lane and two traffic lanes. The carriageways are separated by a concrete barrier. The M2 Motorway ends approximately 100 metres west of the bridge crossing the Lane Cove River and connects directly to the Lane Cove Tunnel.

West facing on- and off-ramps provide access to and from M2 Motorway at Delhi Road. The road shoulder is used in the eastbound direction by cyclists. Cyclists in the westbound direction are directed off the M2 Motorway in this section to the temporary cycle detour route, as the shoulder has been taken up to provide three lanes from Lane Cove Road through until after the Norfolk Tunnel. At its easternmost extremity, the M2 Motorway crosses over the Lane Cove River via a bridge. Pages Creek runs along the western edge of Epping Road, parallel to the M2 Motorway, and flows into Lane Cove River.

1.6 Structure of this report

Table 1(Volume One) and Table 2 (Volume Two) summarise the structure and content of this environmental assessment.

Table 1 Report structure – volume one environmental assessment

Section	Content
Volume one – environmental assessment	
Chapter 1: Introduction	Provides a broad overview of the project and a general description of the study area.
Chapter 2: Strategic justification and project need	Establishes the need for the project and describes project objectives.
Chapter 3: Project alternatives	Provides a detailed description and assessment of the strategic alternatives and design options considered for the project.
Chapter 4: Planning and statutory requirements	Outlines the approval process and statutory requirements for the project.
Chapter 5: Community and stakeholder engagement	Outlines stakeholder consultation undertaken during project development and preparation of the environmental assessment.
Chapter 6: Project description	Provides a detailed description of M2 Motorway alignment, design elements, construction methodologies and related ancillary facilities.
Chapter 7: Construction and staging	Provides an overview of the potential construction methods to be employed, including ancillary facilities, equipment, compound sites and an indicative construction and opening staging program.
Chapter 8: Environmental risk analysis	Provides an analysis that confirms the nominated key issues and identifies additional key issues.
Chapter 9: Assessment of key issues	Provides an assessment and analysis of the key environmental issues and impacts and provides appropriate management measures.
Chapter 10: Other environmental issues	Provides an assessment and analysis of other environmental issues and impacts and provides appropriate management measures.
Chapter 11: Draft Statement of Commitments	Describes measures to manage and mitigate major impacts identified by the environmental assessment.
Chapter 12: Conclusion	Outlines the justification for proceeding with the proposed upgrade considering the project objectives, suitability of the site, public interest, the principles of ecological sustainable development and objects of the Environmental Planning and Assessment Act 1979.

Section	Content
Chapter 13: References	Provides a list of published documents referred to in the environmental assessment.
Chapter 14: Glossary and abbreviations	Provides an explanation of terms and abbreviations used in the environmental assessment.
Appendices	
Appendix A Minister's Declaration	A copy of the Orders gazetted to declare the project a major project and then a critical infrastructure project.
Appendix B Director-General's Requirements	A copy of the Director-General's Requirements (DGRs) issued by the Department of Planning.
Appendix C Director-General's Requirements Checklist	Cross-reference to where in the environmental assessment each issue in the DGRs is addressed.
Appendix D Consultation summary	Provides a summary of consultation activities.
Appendix E Road User Cost Benefit Analysis	A copy of the *Road User Cost Benefit Analysis* for the M2 Upgrade project.
Appendix F Construction Environmental Management Framework	Provides an overview of the content of the Construction Environmental Management Plan to be formulated to manage construction.
Appendix G EPBC Act referral decision	A copy of the decision by the Commonwealth Department of Environment, Water, Heritage and the Arts that the M2 Upgrade project is not a controlled action under the *Environmental Protection and Biodiversity Conservation Act 1999*.

Table 2 Report structure – volume two technical papers

Section	Content
Volume two – technical papers	
Technical paper 1	Transport and traffic (Transurban)
Technical paper 2	Noise and vibration (Heggies Pty Ltd)
Technical paper 3	Flora and fauna (AECOM Australia Pty Ltd)
Technical paper 4	Urban design, visual and landscape (HBO+EMTB and Tract)
Technical paper 5	Aboriginal heritage (AECOM Australia Pty Ltd)
Technical paper 6	Water management (AECOM Australia Pty Ltd)
Technical paper 7a	Non-Aboriginal heritage (HBO+EMTB Heritage Pty Ltd)
Technical paper 7b	Statement of Heritage Impact (AECOM Australia Pty Ltd)

Other studies prepared to inform this environmental assessment include:

- Groundwater (Coffey Environment)
- Contamination (Coffey Environment)
- Socio-economic (AECOM Australia Pty Ltd)
- Air quality (operational and construction) (Heggies Pty Ltd)
- Lighting (Heggies Pty Ltd)
- Sustainability (AECOM Australia Pty Ltd)

Technical papers and other studies prepared for the environmental assessment can be located at www.rta.nsw.gov.au.