



# Modification to the Minister's Approval for the Lane Cove Tunnel

Director-General's Report

February 2007

## 1. INTRODUCTION

### 1.1 Project Background

The Lane Cove Tunnel (LCT) and Associated Road Improvements Project incorporates:

- a 3.4 kilometre, dual two/three lane tunnel generally running below the alignments of the existing Epping and Longueville Roads, connecting the Gore Hill Freeway with Epping Road at Mowbray Road west;
- north-facing tolled ramps at Falcon Street;
- an additional lane in each direction on the Gore Hill Freeway between the Pacific Highway and Merrenburn Avenue; and
- surface changes on Epping Road including the installation of bus lanes and a shared cycle/pedestrian path and reduction of traffic lanes.

The Minister for Planning approved the Project on 3 December 2002. The approval has been modified three times since, on 10 March 2004, 3 June 2006 and 21 November 2006. The first two modifications were primarily to correct editorial errors in the original Conditions of Approval. The third was specifically to modify Condition 128 (storage and use of a dangerous good during operation of the project) and Condition 165 (collection of air quality data by the Community Based Monitoring Stations).

Construction of the Project is continuing, and the Tunnel and physical components of the Gore Hill Freeway and Falcon Street ramps are likely to be opened to traffic in late February or early March 2007.

### 1.2 Modification Request

The Proponent (NSW Roads and Traffic Authority (RTA)), on the 11 December 2006, submitted to the Director General a request to modify the approval to allow deferral of the implementation of the approved changes to surface traffic arrangements (see Appendix A for full request for modification). Specifically, the proposal would allow the full implementation of the majority of the surface road works to be deferred by a maximum of five months to a date eleven months after opening of the Tunnel. The proposed modification does not change the final form of the approved project.

The proposed timing changes would result in the following:

- a) First five months after Tunnel opening
  - retention of the current traffic arrangements on Epping Road, including:
    - tidal flow on Epping Road with three lanes provided in the AM and PM peaks;

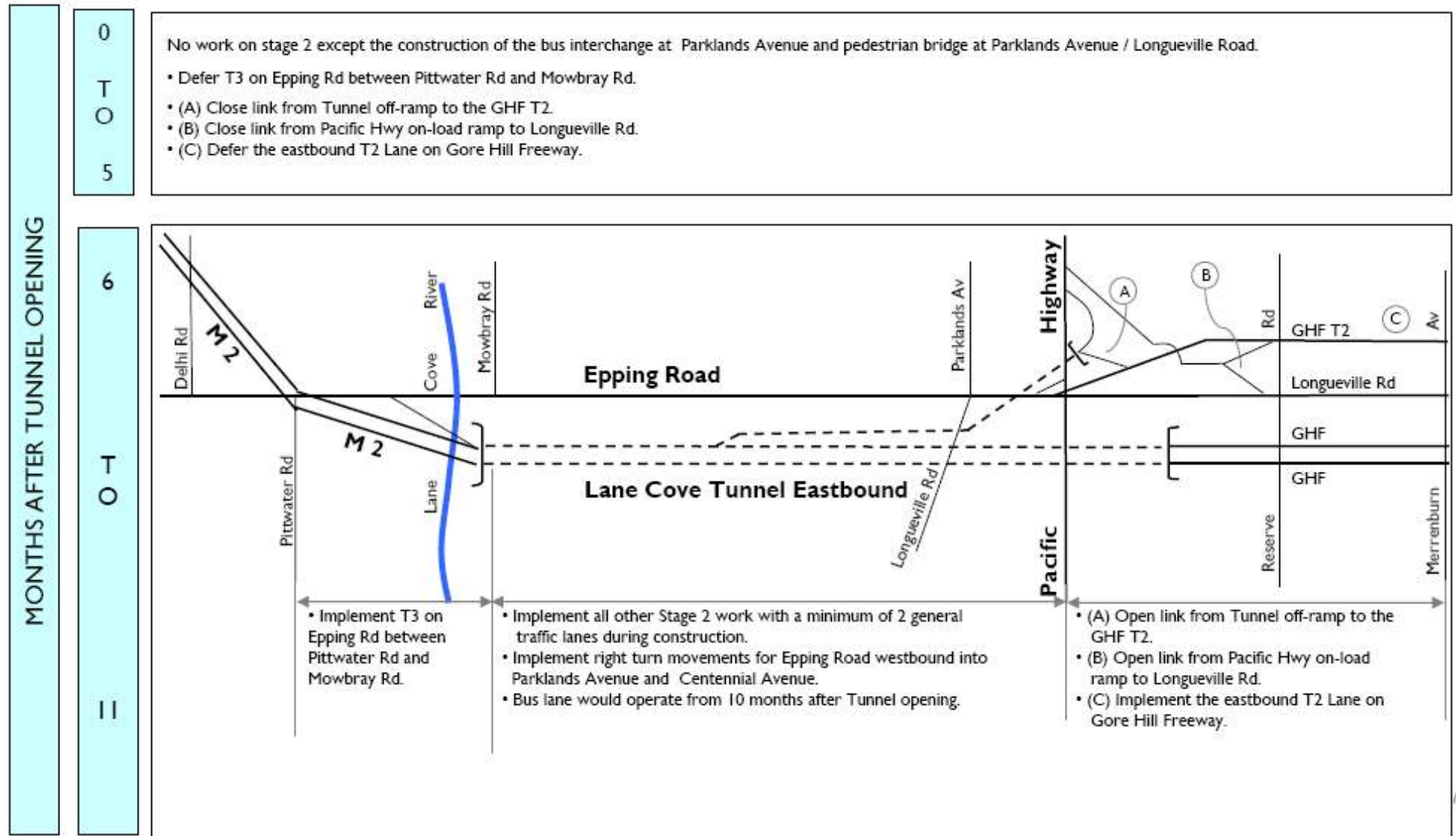
- the eastbound AM T3 transit lane on Epping Road between Delhi Road and Pittwater Road; and
  - the T2 transit lane on Epping Road between Pittwater Road and the Pacific Highway;
  - opening of the widened Gore Hill Freeway to general traffic;
  - provision of pedestrian crossings at Longueville Road, Centennial Avenue and Tantallon Road to allow pedestrians to cross in a single uninterrupted movement;
  - provision of a staged pedestrian crossing of Epping Road at Mowbray Road West;
  - construction of the bus interchange and pedestrian bridge commencing on Tunnel opening, with subsequent removal of the Kimberley Avenue pedestrian overbridge; and
  - deferral of opening one of two Pacific Highway southbound exit ramp links to the Gore Hill Freeway eastbound and the Tunnel eastbound off-ramp link to the Gore Hill Freeway T2 transit lane.
- b) Period from five months to eleven months after Tunnel opening
- construction of the remaining 'Stage 2 Works' and some other works including:
    - the AM T3 transit lanes on Epping Road eastbound between Pittwater Road and Mowbray Road West;
    - the pedestrian/cycleway on the southern side of Epping Road including the Longueville Road ramp cycleway underpass;
    - reduction of Epping Road to generally a minimum of four lanes (two in each direction); and
    - the right turning movements from Epping Road westbound to Centennial Avenue and Parklands Avenue;
  - provision of Bus priority where possible at bus stops and intersections along Epping Road;
  - the bus lanes along Epping Road between Mowbray Road and the Pacific Highway would be operational from 10 months after Tunnel opening;
  - implementation of the T2 transit lanes in each direction on Gore Hill Freeway between Pacific Highway and Merrenburn Avenue would occur by 11 months after Tunnel opening; and
  - the second Pacific Highway southbound exit ramp link to the Gore Hill Freeway eastbound and the Tunnel eastbound off-ramp link to the Gore Hill Freeway T2 transit lane would be opened 11 months after Tunnel opening.

Currently, these changes are all required to occur within the first six months after Tunnel opening. See Figure 1 for a diagram depicting the timing of the works under the proposed modification.

The following are also included in the proposed modification. Changes (b), (c) and (d) would potentially alter the final form or operation of the approved project:

- a) allow for opening of the Falcon Street ramps, Gore Hill Freeway widening and Tunnel to traffic within a one month period rather than concurrently;
- b) install bus priority facilities for westbound traffic on Epping Road at Mowbray Road West, Pittwater Road and Delhi Road intersections where feasible, in consultation with the PTC, rather than automatically at these locations;
- c) modify the requirement for an uninterrupted pedestrian crossing at the junction of Epping Road and Mowbray Road west to permit a staged crossing; and
- d) further investigate the location and design of a bus bay in Military Road east of Merlin Street north to the satisfaction of the Public Transport Committee rather than the State Transit Authority.

Figure 1: Diagram of proposed modification to delay surface road changes (RTA)



### 1.3 Assessment Process

The original Approval for the Project was granted in accordance with the provisions of Division 4 of Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). As of 1 August 2005, in accordance with Schedule 6, Clause 88 (3) of the EP&A Act, the approval is taken to be an approval under Part 3A of the EP&A Act.

Section 75W of the EP&A Act provides for modification of the Minister's approval. The RTA undertook an environmental impact assessment of the proposed modifications as listed above and concluded that they were not consistent with the Minister's approval and consequently were to be made the subject of an application for modification, as outlined in the modification request received 11 December 2006 (dated 7 December 2006).

This Report describes the Department's assessment of the proposed modifications and supporting documentation as provided by the Proponent taking into account submissions received in relation to the modification request.

### 1.4 Project objectives

The primary objectives of the Lane Cove Tunnel Project, as stated in the EIS, are to:

- improve the efficiency of east-west travel along the corridor for road-based transport modes through a reduction in congestion and improved travel times;
- improve air quality and reduce traffic noise, particularly along the arterial road network through a reduction in surface traffic volumes and congestion;
- improve the amenity of the local community and businesses through:
  - improving safety, connectivity and access for pedestrians and cyclists on Epping Road;
  - improving air quality and reducing traffic noise along the arterial road network;
  - a reduction in traffic and congestion on Epping and other roads;
  - improving local access by reducing restrictions on traffic turning movements on Epping Road; and
  - enhancing the urban fabric of the lower North Shore;
- improve the operation of road-based public transport for people in north-western Sydney and along the corridor through an improvement in bus priority through the corridor;
- minimise impacts on the natural environment during both the construction and operation phases of the Project;
- provide for cyclists along the corridor; and
- provide the benefits of the Project to the community at least cost to the Government.

The Proponent states that staging of the implementation of surface roadworks would be consistent with these objectives and would enable some of them to be better achieved during the ramp-up period.

## 2. CONSULTATION

The Proponent has confirmed that the following agencies were briefed on the proposed modification: NSW Department of Environment and Conservation (DEC), NSW Department of Health (NSW Health), the State Transit Authority and the Project's Public Transport Committee.

The request for modification was placed on the Department's website on 12 December 2006. In addition, the Department placed public notices in the Sydney Morning Herald and the Daily Telegraph on 20 December 2006, advising the public of the request for modification.

One submission was received from the general community which raised concerns about the air quality impact of the project as a whole and expressing disappointment at the proposed deferral of the surface changes on Epping Road.

North Sydney Council's submission (see Appendix B) objected to the proposed modification to Condition 238 (Military Road bus bay) and to the deferred implementation of bus and transit lanes and the cycleway. Specifically, Council's concerns included the following:

- the Military Road bus bay, if used as a bus stop, would be the first stop off the freeway and essential for local residents;
- delaying the surface works on Epping Road would not be consistent with EIS objectives as they would favour motorists over public and alternative transport users;
- delaying the surface works would not be consistent with the Director General's report assessing the approved project (November 2002) which found that a key benefit of the Proposal would be the anticipated traffic reductions on Epping Road;
- delaying the surface works would delay the benefits of noise and air quality improvements to residents;
- the delayed changes may induce motor vehicle demand for the route, making road closures at a later time difficult and resulting in increased congestion on the approaches to the Harbour Bridge and Harbour Tunnel;
- the proposed tolling regime is inappropriate and inequitable – tolls should be charged on a per-kilometre-travelled basis;
- proposals to delay a review of pedestrian walk times at key intersections should not result in a delay in the implementation of pedestrian changes at Falcon Street and Merlin Street; and
- Council is opposed to any delay in the implementation of Local Area Traffic Management (LATM) plans without consultation with Council and residents.

The Department also sought and received advice from the DEC and NSW Health. Copies of the submissions received from these agencies are in Appendix B.

NSW Health's concerns included the following:

- the proposal to amend Condition 216 to allow interrupted pedestrian crossing of Epping Road at Mowbray Road should include other options to facilitate safe pedestrian crossing at this point;
- the delay in surface road changes would result in a delay of the benefits in noise and air quality until 11 months after the opening of the Tunnel;
- Condition 166 should be modified to require monitoring for at least 12 months after completion of Stage 2 works rather than 12 months from the opening of the Project to traffic to enable the full impact of stack emissions on the elevated receptors to be monitored as intended;
- Conditions 60 (operational noise) and 168 (verification of air quality assessment) should also be modified accordingly; and
- the study design of the Lane Cove Tunnel Health Investigation being undertaken by NSW Health may be impacted by the proposed delay to surface road changes, which may reduce the effectiveness of the study and incur additional costs – therefore the Proponent should be required to contribute to any additional costs to the Investigation incurred by the proposed modification.

The DEC's advice included the following:

- that any amendment of the project planning approval should be consistent with the underlying environmental objectives of the existing approval, including the intent of the monitoring requirements given in Conditions 60, 166 and 168;

- the assessment of noise mitigation measures required under Condition 60 should be undertaken once the final operational road network configuration is implemented and traffic flow conditions have stabilised so that monitoring results are representative of typical impacts;
- the DEC concurs that there is no technical basis for undertaking extended monitoring at the elevated air monitoring stations referred to in Condition 166;
- it is not clear whether retention of the existing form of Condition 166, if the proposed modification were approved, would fulfil the original objective of the air monitoring network of providing a high degree of assurance to the community by providing confirmation of the air quality model predictions;
- the validation of the ambient air quality modelling predictions required under Condition 168 should incorporate 12 months of emissions due to the operation of the full project, undertaken for 12 months of full project implementation; and
- during the toll free period understood to be proposed by the tunnel operator, comprehensive air monitoring could be beneficial in determining whether any early fine tuning of the ventilation system is warranted.

With regard to some of the points raised in these submissions, the Department notes that:

- the tolling regime was considered in the original assessment and is not an issue to be addressed by the proposed modification;
- under the approved project, Condition 166 would result in six months of monitoring from tunnel opening and a further 6 months monitoring after the completion of all surface/Stage 2 works and not 12 months from completion of Stage 2 works as suggested by NSW Health. The proposed modification **without modifying condition 166** would result in 1 month of monitoring from completion of Stage 2 works;
- the proposed modification includes time adjustments of Conditions 60 and 168 as suggested by NSW Health and DEC; and
- the Lane Cove Tunnel Health Investigation is being undertaken by NSW Health independently of the Minister's Approval for the project and in conjunction with the RTA. It is not a planning issue and the Department has no role to play in administering this investigation. Rather, it is a matter for NSW Health and the RTA to resolve independent of the modification process.

### 3. DESCRIPTION AND JUSTIFICATION OF PROPOSED MODIFICATIONS

#### 3.1 Surface Traffic Arrangement Modifications

The current approval requires a number of surface traffic arrangements (Stage 2 works) to be implemented at the time of or shortly after Tunnel opening and for all components of the project to be fully implemented by six months after Tunnel opening. The Proponent states that staggering construction and implementation of the Stage 2 works over an 11 month period would assist in better achieving some of the Project objectives in the short term by minimising congestion while motorists come to understand that road changes associated with the tunnel opening and decide whether to use the tunnel, a process that can extend for 18-36 months after opening. The Proponent has defined the term 'Stage 2 Works' in the Environmental Assessment Report as including the required surface changes on Epping Road, the installation of bus priority on Epping Road and all other outstanding works after Tunnel opening that will be required to complete the approved project. This definition of Stage 2 Works and of the Environmental Assessment Report as the 'Modification Report' are adopted in the proposed modification.

Six options for staging the surface roadworks were investigated by the Proponent; these are described in detail in the Proponent's Environmental Assessment Report. These are summarised in Table 1. With all options, the Lane Cove bus interchange and associated pedestrian bridge over Longueville Road would proceed independently of other surface road changes. All options would result in the approved project being implemented as intended, with the exception of proposed changes to the pedestrian crossing of Epping Road at Mowbray Road West, further investigation of the Military Road bus bay and the implementation of feasible bus priority facilities for westbound traffic on Epping Road.

**Table 1: Transition Options considered for Lane Cove Tunnel Surface Road Changes.**

Option	Features	Outcomes
1	<ul style="list-style-type: none"> <li>Stage 2 works implemented in first 6 months after Tunnel opening.</li> <li>Deferral of bus lanes, right turns on Epping Road, AM T3 transit lane on Epping Road between Pittwater and Mowbray Road, Gore Hill Freeway T2 transit lanes, Pacific Highway link to Longueville Road eastbound on-ramp and Tunnel off-ramp eastbound link to Gore Hill Freeway T2 lane to end of 6 month period.</li> </ul>	<ul style="list-style-type: none"> <li>Shortest timeframe for implementation of all project elements.</li> <li>Lesser levels of service along Epping Road during transition than Options 3, 4 &amp; 5.</li> <li>Construction of shared pedestrian/cycleway on southern side of Epping Road would commence immediately on Tunnel opening.</li> <li>Implementation of bus lanes delayed for 6 months after Tunnel opening.</li> </ul>
2	<ul style="list-style-type: none"> <li>As for Option 1 with delayed implementation of bus lanes on Epping Road between Mowbray Road and Gore Hill Freeway to 13-18 months.</li> </ul>	<ul style="list-style-type: none"> <li>Lesser levels of service along Epping Road during transition than Options 3, 4 &amp; 5.</li> <li>Construction of shared pedestrian/cycleway on southern side of Epping Road would commence immediately on Tunnel opening.</li> <li>Implementation of bus lanes delayed for 13 months after Tunnel opening.</li> </ul>
3	<ul style="list-style-type: none"> <li>0-6 months: no work except pedestrian bridge and bus interchange.</li> <li>Stage 2 works 7-12 months (as for 0-6 months of Option 1).</li> <li>Delay implementation of bus lanes to 19-24 months.</li> </ul>	<ul style="list-style-type: none"> <li>Longest overall timeframe.</li> <li>Better levels of service along Epping Road during transition than Options 1 &amp; 2.</li> <li>Construction of shared pedestrian/cycleway on southern side of Epping Road delayed for ~ 6 months.</li> <li>Implementation of bus lanes delayed for 18 months after Tunnel opening.</li> </ul>
4	<ul style="list-style-type: none"> <li>Same as Option 3 except implement all works including bus and transit lanes by 13-18 months.</li> </ul>	<ul style="list-style-type: none"> <li>Better levels of service along Epping Road during transition than Options 1 &amp; 2.</li> <li>Construction of shared pedestrian/cycleway on southern side of Epping Road delayed for ~ 6 months.</li> <li>Implementation of bus lanes delayed for 13 months after Tunnel opening.</li> </ul>
5	<ul style="list-style-type: none"> <li>Assumes project opening 10 December 2006.</li> <li>December 2006 – May 2007: no work except pedestrian bridge and bus interchange.</li> </ul>	<ul style="list-style-type: none"> <li>Better levels of service along Epping Road during transition than Options 1 &amp; 2.</li> <li>Construction of shared pedestrian/cycleway on southern side of Epping Road delayed for ~ 6 months.</li> </ul>

Option	Features	Outcomes
	<ul style="list-style-type: none"> <li>May – November 2007: All other works implemented with bus lanes operational from October 2007.</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of bus lanes delayed for 10 months after Tunnel opening.</li> </ul>
6	<ul style="list-style-type: none"> <li>Same as Option 5 but with a fixed 11 month period of transition rather than allowing the period to shorten with the Tunnel opening after 10 December 2006.</li> </ul>	<ul style="list-style-type: none"> <li>Better levels of service along Epping Road during transition than Options 1 &amp; 2.</li> <li>Construction of shared pedestrian/cycleway on southern side of Epping Road delayed for ~ 6 months.</li> <li>Implementation of bus lanes delayed for 10 months after Tunnel opening.</li> </ul>

All transition options (as assessed when project opening was thought to be December 2006) were predicted to provide relief from traffic congestion during a ramp-up period after Tunnel opening. Option 6 was chosen as the preferred option by the Transition Group, based on a number of factors including the following:

- provision of an acceptable match between reduction in capacity and expected demand in the first 11 months after tunnel opening;
- provision of an appropriate balance between the needs of motorists and other road users;
- appropriate linkage with project deed milestones; and
- provision of an optimal balance between maintaining satisfactory traffic flows and financial impacts on the project.

Option 6 has therefore been put forward as the preferred option for the proposed modification.

A summary of each Condition of Approval that would be altered by the proposed modification is given in Table 2 below. A summary of the proposed amendments are also shown next to each relevant Condition.

Proposed amendments to the wording of these Conditions are given in the Environmental Assessment Report submitted by the Proponent (see Appendix A).

**Table 2: Proposed Modifications to Conditions of Approval Regarding Surface Changes**

Condition of Approval	Current requirement	Proposed modification
1	Project shall be carried out in accordance with the Proposal described in the Environmental Impact Statement (EIS) as modified by the Representations Report.	Carry out project in accordance with EIS as modified by the Representations Report and the Modification Report (defined as the Environmental Assessment Report submitted by the Proponent for this modification).
3A – new condition	N/A	The Stage 2 Works (defined in the Modification Report) and the implementation of transit lanes on the Gore Hill freeway are to be fully implemented no later than 11 months after Tunnel opening.

Condition of Approval	Current requirement	Proposed modification
212	Installation of continuous 24 hour bus lanes in both directions on Epping Road/Longueville Road from Mowbray Road West to the commencement of the Gore Hill Freeway <i>no more than six months after the Project opening</i> in consultation with the Public Transport Committee (PTC), except at three specified locations.	Installation <i>10 months after Tunnel opening</i> .
214	Installation of a continuous AM peak T3 lane on Epping Road between Delhi Road and Mowbray Road West for eastbound traffic in consultation with the PTC <i>no later than at the time of Project opening</i> .	Installation <i>no later than 11 months after Tunnel opening</i> .
215	Installation of bus lane enforcement systems on Epping Road for both eastbound and westbound bus lanes in consultation with the STA, PTC and NSW Police Service <i>no more than six months after Project opening</i> .	Installation <i>at the time the bus lanes are installed</i> .
227	Ensure that one lane in each direction on the entire length of the Gore Hill Freeway is a dedicated 24 hour T2 lane.	Installation of a dedicated 24 hour T2 lane in each direction on the entire length of the Gore Hill Freeway <i>11 months after Tunnel opening</i> .
231	Installation of transit lane enforcement bays on the Gore Hill Freeway and bus lane enforcement required on the Pacific Highway in consultation with the NSW Police Service, STA and PTC <i>prior to Project opening</i> .	Installation <i>at the time the transit lanes are installed</i> .

The proposal also includes modifications to other Conditions of Approval in order to retain consistency in the timing and other requirements for the Project. These are given in Table 3.

**Table 3 Proposed Modifications to Conditions Regarding Monitoring and Performance Review**

Condition of Approval	Current requirement	Proposed modification
7	Submit an Environmental Impact Audit Report to the Director-General <i>one year and five years</i> from opening of the Project to traffic... The Report shall... detail the extent to which actual impacts reflect the predictions <i>during the first 12 months of operation...</i>	Submit an Environmental Impact Audit Report <i>nine months after completion of Stage 2 works</i> and five years after the Project opening to traffic... The Report shall...detail the extent to which actual impacts reflect the <i>predictions during the 12 month period prior to the submission of the first Report...</i>
33	Monitor morning and evening peak hour traffic levels for a period of one week, <i>12 months after opening</i> .	Monitor morning and evening peak hour traffic levels for a period of one week, <i>six months after the completion of the Stage 2 Works</i> .
35	Monitor morning and evening peak hour traffic levels for a period of one week (outside of school holiday periods) <i>12 months after opening...</i>	Monitor morning and evening peak hour traffic levels for a period of one week (outside of school holiday periods) <i>six months after the completion of the Stage 2 Works...</i>

Condition of Approval	Current requirement	Proposed modification
41	Develop measurable performance indicators for pedestrian walk times...The performance indicators at these crossing locations shall be reviewed <i>one and two years after opening of the Project to traffic.</i>	Develop measurable performance indicators for pedestrian walk times...The performance indicators at these crossing locations shall be reviewed <i>six months after the completion of the Stage 2 Works and one year after the initial review.</i>
50	The PTC shall consider the following specific matters as they relate to the study area:...  (i) review the effectiveness of the T2 lane on the Gore Hill Freeway with a view to upgrading to T3 or bus lanes at <i>six months and then every two years after opening...</i>	The PTC shall consider the following specific matters as they relate to the study area:...  (i) review the effectiveness of the T2 lane on the Gore Hill Freeway with a view to upgrading to T3 or bus lanes at <i>six months after implementation of the transit lanes and every two years thereafter for ten years...</i>
53	Monitor and review bus performance against the indicators developed in Condition 52... <i>at six months after opening then after one and two years of operation</i> for key bus services and routes.	Monitor and review bus performance against the indicators developed in Condition 52... <i>at six months after the completion of the Stage 2 Works then after one and two years of implementation of the bus lanes</i> for key bus services and routes.
60	Assess the adequacy of the traffic noise and ventilation noise mitigation measures <i>after one year from opening of the Project to traffic...</i>	Assess the adequacy of the traffic noise and ventilation noise mitigation measures <i>six months after the completion of the Stage 2 Works...</i>
168	Validate the ambient air quality assessment undertaken for tunnel ventilation system... <i>following 12 months of operation of the Project.</i>	Validate the ambient air quality assessment undertaken for tunnel ventilation system... <i>following six months after the completion of the Stage 2 Works.</i>

## 3.2 Other Proposed Modifications

### 3.2.1 Staggered Opening of Falcon Street Ramps, Gore Hill Freeway Widening and Tunnel

Condition 3 currently requires concurrent opening of the Tunnel, Falcon Street ramps and Gore Hill Freeway widening.

The Proponent states that detailed traffic modelling has identified that these Project elements may be better integrated into the road network, if opened progressively over a one month period. The proposed modification would enable these components to be opened within a one month period unless otherwise agreed by the Director-General.

### 3.2.2 Installation of Feasible Bus Priority Facilities

Condition 213 currently requires installation of bus priority facilities for westbound traffic on Epping Road at Mowbray Road West, Pittwater Road and Delhi Road intersections in consultation with the PTC no later than at the time of Project opening.

The proposed modification would add the words "where feasible", enabling the Proponent to not install such facilities in some circumstances.

### 3.2.3 Pedestrian Crossing at the Intersection of Epping Road and Mowbray Road West

Condition 216 currently requires the Proponent to ensure that at-grade pedestrian crossings are provided at two specific locations in order to allow pedestrians to cross in a single uninterrupted stage, namely:

- a) Epping Road on the western side of the junction with Longueville Road; and
- b) Epping Road at the junction with Mowbray Road West unless otherwise agreed by the Director General following monitoring of the performance of the intersection after opening.

The proposed modification would remove the requirement for a single-stage pedestrian crossing at location (b).

### 3.2.4 Bus Bay on Military Road East of Merlin Street North

Condition 238 currently requires the installation of a bus indent bay on Military Road to the east of Merlin Street north, with the location and design to the satisfaction of the State Transit Authority.

The proposed modification replaces this requirement with one to investigate the provision of a bus indent bay on Military Road to the east or in the vicinity of Merlin Street north, to the satisfaction of the Public Transport Committee.

## 4. DEPARTMENT'S CONSIDERATION OF ISSUES

The proposed modifications require consideration of the implications and potential impacts for operational traffic, construction and operational noise, air quality, social and business impacts and safety.

### 4.1 Operational Traffic

#### Timing of Road Surface Changes

The approved project includes a number of surface road changes to be implemented in the six months following opening of the Tunnel to traffic. These changes would result in a reduction of the total number of general traffic lanes on Epping Road between Mowbray Road West and Longueville Road from five to two, with a dedicated bus lane in each direction and a cycleway on the southern side of Epping Road, plus an east-bound AM transit lane between Delhi Road and Mowbray Road West and transit lanes on the Gore Hill Freeway.

These changes were approved in order to capture the additional capacity created on Epping Road created by anticipated traffic switches to the tunnel, thereby discouraging additional traffic using the Epping Road route simply due to increased capacity (i.e. induced traffic) while improving public transport travel times and the amenity of Epping Road for residents and local users. This is in keeping with the project objectives of:

- improving the efficiency of east-west travel along the corridor for road-based transport modes through a reduction in congestion and improved travel times;
- improving air quality and reducing traffic noise, particularly along the arterial road network through a reduction in surface travel volumes and congestion;
- improving the amenity of the local community and businesses;
- improving the operation of road-based public transport for people in north-western Sydney and along the corridor through an improvement in bus priority through the corridor; and
- providing for cyclists along the corridor.

In the Department's assessment of the original proposal (*Proposed Lane Cove Tunnel and Associated Road Improvements Director-General's Report* November 2002) the Department concluded that these measures would be likely to adequately discourage induced traffic.

The proposed modification is to delay these changes in order to allow time for motorists to understand the road changes associated with the tunnel opening and make a decision whether to switch to using the Tunnel. In response to the proposed modification, North Sydney Council has stated that this surface capacity reduction is required immediately after opening of the Tunnel in order to avoid peak-hour induced traffic that could result from motorists switching from non-peak times and from other routes, or switching modes from public transport.

The Proponent states that the primary reason for the proposed modification is the need for a 'ramp-up' period after opening of the Tunnel to traffic. This has been observed to occur upon the opening of major tolled road infrastructure, wherein motorists take a period of time to weigh up the travel time savings versus the extra cost of the new route. The Proponent states that there is now more data available on this process than at the time of writing the Project's Environmental Impact Statement (EIS). The Project operator, Connector Motorways has forecast a relatively rapid ramp-up for the Project in the first six months after opening, followed by a continued, slower ramp-up over the subsequent 12 to 18 months.

The proposed modification to enable such a ramp-up period is in keeping with the conclusions reached by recent Government inquiries and reviews. The Lane Cove Tunnel Report of the Joint Select Committee Inquiry into the Cross City Tunnel (August 2006) noted that "a staged approach to the proposed Epping Road changes might reduce the potential for traffic congestion", while the review of Future Provision of Motorways in NSW (Infrastructure Implementation Group, 2005) recommended that "*it should be Government policy to require that where there is an existing arterial road available as an alternative route to a toll road, with the introduction of the toll road the existing arterial road will have at least the same number of general traffic lanes as it had prior to the toll road opening.*" The Review also concluded that a staged approach for surface road modifications and other major public domain improvements should be adopted for new motorway projects.

Recent traffic modelling of the Project in the ramp-up period has been undertaken based on data from the Eastern Distributor, the most comparable project (see Appendix B of the Environmental Assessment Report). This modelling shows that, if surface changes were implemented in accordance with the timetable specified by the EIS and Conditions of Approval, Epping Road would experience significant levels of congestion in the months immediately following Tunnel opening. Specifically, without a transition strategy:

- the gap between demand and capacity on Epping Road between Centennial Avenue and Longueville Road is expected to exceed 500 vehicles per hour for more than six months;
- in the morning peak period, all major intersections along Epping Road are likely to experience significant congestion while Epping Road itself to the west of Mowbray Road West is likely to experience extensive queuing;
- in the evening peak period, severe congestion is predicted for the intersections of Epping Road with Longueville Road and Centennial Avenue as well as at Epping Road and Old Pittwater Road; and
- the intersection of Falcon Street with the new Warringah Freeway ramps is predicted to experience high levels of traffic congestion.

The Proponent has advised that this congestion would trap buses in the general traffic stream, preventing access to bus lanes and possibly resulting in illegal use of bus lanes by general traffic. The modelling also shows that induced traffic could result if the approved surface traffic arrangements are not implemented in the longer term.

In order to avoid these outcomes, the Minister for Roads formed a Lane Cove Tunnel Integration Group (LCTIG) in June 2006, comprising representatives from a number of State Government agencies and the RTA, to oversee the integration of the Tunnel and expanded Gore Hill Freeway into the broader road network. The LCTIG considered six options (refer to Table 1) for staging the implementation of surface road works and recommended that the RTA proceed with Transition Option 6, which involves a two-stage transition strategy to be implemented over an 11 month period from opening of the Tunnel to traffic. This Option is the subject of the proposed modification and would enable the implementation of a transition strategy for Epping Road that progressively reduces toll-free capacity as demand falls with increased uptake of the tolled alternative. Modelling predicts that such a transition would also give short term improvements in the efficiency of east-west traffic flow above those of the approved project, benefiting both motorists and public transport users.

Deferring the implementation of the T2 transit lanes on the Gore Hill Freeway and the 24-hour bus lanes along Epping Road once the Tunnel opens would result in a greater corridor capacity for the period of the deferral than that of the completed approved project. In addition, deferring the opening of one of two Pacific Highway southbound exit ramp links to the Gore Hill Freeway eastbound and the Tunnel eastbound link to the Gore Hill Freeway would reduce delays to traffic on Epping and Longueville Roads that would otherwise result from the merging of traffic from the Tunnel and the Pacific Highway.

The transition strategy enabled by the proposed modification is predicted to reduce the gap between demand and capacity on Epping Road between Centennial Avenue and Longueville Road to 400 vehicles per hour at worst, settling quickly to less than 200 vehicles per hour within 1 to 2 months. Some congestion is also predicted during the implementation of the surface road changes under the transition strategy, but this is not predicted to be significant. The delay to implementation of the 24-hour bus lanes is also predicted to have limited impact on bus operations if the current transit lanes are fully enforced.

The Proponent's assessment found that:

- the proposed modification would alleviate the congestion along Epping Road that would be expected during the 'ramp-up' period. While the periods immediately following the implementation of surface road changes would be marked by peaks in congestion, it should be noted that this would settle markedly within 1 to 2 months;
- compared to the approved project, the proposed modification would seek to balance capacity with demand;
- relative to the other Options considered by the LCTIG, the proposed modification provides the best outcome in terms of matching the expected reduction in demand along Epping Road during the ramp-up period;
- from a traffic management perspective, the proposed modifications are preferred over other options; and
- with respect to bus services, the proposed modifications would seek to ensure effective implementation of priority measures whereby buses gain access to priority [transit] lanes without being caught up in general traffic congestion.

### *Induced Traffic*

The proposed strategy is an attempt to minimise predicted congestion by giving motorists the opportunity to choose over a limited period of time, namely five months, to use the Tunnel rather than imposing immediate road closure. While this is likely to defer meeting the project objectives in the short term, this delay is strictly limited to five months under the proposal. The complete approved project would therefore be implemented after this time, meeting all project objectives in the medium term.

Notwithstanding, induced traffic was identified as a concern in the Director-General's Report (November 2002), in particular where trip patterns could be changed through the making of additional trips or changes in transport mode (i.e. mode shift) as a result of an upgrade or new road. It was noted that, as a proportion of trips through the Epping Road corridor had origins or destinations in North West Sydney, the potential for induced traffic was reduced given the lack of public transport alternatives. Further it was considered that the RTA had taken advantage of additional road capacity created by the Proposal through the provision of bus lanes.

The original project was approved as recommended by the *Proposed Lane Cove Tunnel and Associated Road Improvements Director-General's Report* on the basis that surface road capacity be reduced and converted in use to minimise induced traffic and ensure long term benefits to public transport, alternative transport, air quality and noise levels. These benefits will be in part delayed by a total of five months by the proposed modification. However, similar projects have indicated that some kind of transition period is desirable.

The Department acknowledges the possibility that the delay in surface changes could encourage induced traffic to Epping Road, resulting in congestion on the approaches to the Harbour Bridge and Harbour Tunnel and the full capacity of the route being used prior to surface changes being undertaken. The traffic modelling presented by the proponent does not predict that such inducement of traffic would occur. After the deferral of five months, the project would be implemented as original proposed, including the surface changes designed to discourage long-term induced traffic on Epping Road, with motorists having several months to adjust to the prospect of these changes. In order to ensure that the outcome matched traffic modelling predictions, Conditions of Approval were imposed requiring monitoring of actual traffic flows be undertaken after full implementation of the project, with the Proponent required to take appropriate action should monitoring demonstrate higher than anticipated traffic levels. The modification would adjust the timing of the monitoring to match the later completion of the surface road changes.

The Department therefore considers the proposed deferral of surface road changes acceptable in the short term and consistent with the recommendations of numerous inquiries and investigations into the provision of motorways.

### *Impacts on Epping Road and Gore Hill Freeway*

The Proponent has also stated that the traffic impacts across the road network have been considered in producing the proposed transition strategy. The Department accepts the recommendations of relevant Government reviews that a transition period be implemented and is satisfied that the Proponent has investigated the options for transition strategies to a satisfactory extent.

Delaying implementation of the surface works on Epping Road would mean that the re-opening of the right turning movements from Epping Road westbound to Centennial Avenue and Parklands Avenue would also be delayed as there is not sufficient space with the current road layout to install

the dedicated right-turn lanes required for such turning movements to safely operate at these locations prior to other surface changes proposed. Re-opening of these movements would be implemented in conjunction with the surface changes, 5 to 11 months after opening of the Tunnel. This delay would retain the status quo and would not affect traffic during the deferral period.

The proposed modification includes deferral of the opening of one of the Pacific Highway southbound exit ramp links to the Gore Hill Freeway eastbound and the Tunnel eastbound link to the Gore Hill Freeway in order to reduce the delays to traffic from Epping/Longueville Road that would result from the merging of traffic from the Tunnel and the Pacific Highway. These links would be opened 11 months after opening of the Tunnel, once all surface changes are complete.

The proposed inclusion of a new Condition 3A clarifies that the works to be delayed under the proposed modification are to be fully implemented no later than 11 months after Tunnel opening. The Proponent has also committed to completing all construction and landscaping works and any other outstanding components of the project by this date. The Department is satisfied that this Condition clearly articulates the required timing for full completion of the project.

As the proposed modification is to delay these works for a specified period of time – namely five months – and may reduce the unacceptable traffic congestion demonstrated to have occurred in other projects, the Department is of the opinion that the benefits of the proposed modification outweigh the disadvantages in the short term. With the time delay defined in this way, the Department is satisfied that the final project would be completed within an acceptable timeframe and still be consistent with the objectives of the project and with the Director-General's original project assessment (November 2002). It is noted that, given the likely Tunnel opening date of late February / early March 2007, all surface works would be completed within 2-3 months of the originally scheduled completion date of 7 November 2007. The modification would not be likely to alter the impacts of the approved project in the medium to long term, as the completed project would be the same.

#### Tunnel, Falcon Street Ramps and Gore Hill Freeway Opening

The Proponent states that recent traffic modelling has indicated that the Tunnel, Falcon Street ramps and Gore Hill Freeway may be better integrated into the road network if opened progressively within a one month period rather than concurrently. Improved integration would result from motorists and other road users being given the opportunity to gradually become familiar with the various elements of the project, reducing the potential for confusion immediately following the opening of these elements. The Director-General's Report for the project does not specifically state why Condition of Approval 3, which requires the concurrent opening of these elements of the road network, was put in place, however it was intended to ensure that there was not a long delay between opening of these elements which could result in additional impacts that had not been considered.

The Department accepts that there is not likely to be any disadvantage to commuters if there was a short delay between opening of the Tunnel, the Freeway widening and the ramps, and that there may be some benefit to having such a delay. The RTA has also advised the Department that if any such delay were to occur, motorists would receive clear communication and signage to this effect. Therefore the Department considers the proposed modification to Condition 3 acceptable.

## Local Area Traffic Management

The implementation of Local Area Traffic Management Plans, as approved by the Department, is at the discretion of local Councils. This means that Councils are able to decide which measures identified in the approved LATM Plan they wish to implement and when. Construction of identified measures will be funded by the RTA. The role of Councils in this process would not be affected by the proposed modification.

### **4.2 Public Transport, Pedestrian and Cyclist Facilities**

A disadvantage of staging the surface works as proposed would be a delay of five months in the benefits of having the shared pedestrian/cycleway on the southern side of Epping Road in use. The Department notes that a key objective of the original project was to improve safety, connectivity and access for pedestrians and cyclists on Epping Road.

The approved project requires the full cycleway/pedestrian path to be opened no later than completion of works on Epping Road (Condition 42) which are required to be completed no later than six months after Project opening (Conditions 212 to 215). Under the proposed modification, the final achievement of this objective would be deferred until 11 months after opening of the Tunnel. Therefore cyclists and pedestrians would be temporarily disadvantaged to the benefit of motorists for up to five months. This would be offset by the short-term advantages to the transport network of reduced congestion during transition and by the longer term benefits supplied by the cycleway/pedestrian path once installed. As part of the education strategy for potential users of the pathway and adjacent residents, committed to in the approved project Cycleway and Pedestrian Plan, the Proponent states that users would be advised of alternative routes available during construction. The Department considers this to be acceptable.

The Department accepts the arguments given by the Proponent for delaying the commencement of construction of the shared pedestrian/cycleway on Epping Road as necessary in order to minimise congestion on Epping Road in the short term while motorists adjust to using the Tunnel.

## Bus Interchange and Pedestrian Overbridge on Longueville Road

The proposed modification would not delay the construction of the new pedestrian overbridge and bus interchange near Longueville Road which would proceed within the first five months after Tunnel opening. These two pieces of infrastructure would provide immediate benefits to pedestrians and public transport users once operational. The Department supports the decision to commence construction of these project components as originally envisaged.

## Installation of feasible bus priority facilities

Condition of Approval 213 requires bus priority facilities to be installed for westbound traffic on Epping Road at Mowbray Road West, Pittwater Road and Delhi Road intersections in consultation with the PTC no later than at the time of Project opening. The Proponent states that, if bus priority was to be provided at the Delhi Road intersection, queues would develop along Epping Road to the eastern side of Mowbray Road West, adversely affecting public transport and travel times for all westbound traffic. This information has been discussed with the PTC, the members of which have agreed that provision of bus priority at this location is not warranted. The proposed modification therefore includes an amendment of Condition 213 to ensure that such priority is only provided where feasible.

The Department accepts the Proponent's argument that the provision of bus priority at this location would not be of benefit to the flow of public transport and other vehicles. Therefore the Department recommends that the proposed modification to Condition 213 be approved.

### Design of Military Road Bus Bay

Due to a request from the State Transit Authority (STA) for clarification of bus priority measures to be provided as part of the Project in the vicinity of Falcon Street, Condition 238 was imposed, requiring the installation of a bus indent bay on Military Road to the east of north Merlin Street to the satisfaction of the STA. It is the Proponent's understanding that the STA intended this bay to be utilised as a bus stop.

To date, the RTA has undertaken extensive discussion and consultation with the STA and has made a number of design changes to the bus bay in order to adequately meet safety and other requirements. Despite this process, the STA advised the Proponent in October 2006 that, in its opinion, poor road geometry and conflicting vehicle movements mean that it is not possible to design a bus stop at this location that would comply with the STA's safety and operational requirements. The proposed modification would refer consideration of the feasibility of such a bus bay to the Project's Public Transport Committee (PTC).

The Department has received information from the Proponent stating that current bus services do not use this location as a bus stop and the nearest bus stop is located 200 metres to the east. Given this information and the fact that the STA has not indicated to date that this bus stop would be essential for local services as suggested by North Sydney Council, the Department is satisfied that the PTC is an appropriate body to consider the feasibility of the bus bay at this location. It is noted that the proposed modification does not preclude the continuation of a bus bay and/or bus stop at this location. Therefore it is recommended that the proposed modification to Condition 238 be approved.

### Staged Pedestrian Crossing at Intersection of Epping Road and Mowbray Road West

In its assessment of the original proposal, the Department raised concerns that requiring pedestrians to cross Epping Road at the junction with Mowbray Road West in two phases would result in reduced pedestrian access and priority compared to the pre-construction options available. Condition of Approval 216 requires a single uninterrupted pedestrian crossing of Epping Road at this point on opening of the Tunnel, unless otherwise agreed by the Director-General following monitoring of intersection performance after opening. This Condition was imposed in order to maintain the service provided by the existence of a pedestrian underpass in that location prior to construction.

The distance across Epping Road at this point is 45 metres. After undertaking detailed phasing design for this intersection, the Proponent has concluded that a single uninterrupted pedestrian crossing of this distance would trigger a minimum green time of 43 seconds for traffic exiting Mowbray Road West, while a two-stage crossing would trigger a minimum green time of 25 seconds. The Proponent states that the single crossing would trigger an unacceptable reduction in vehicle capacity for Epping Road and would impact all services, including public transport, while the two-stage option would allow an acceptable level of service for both vehicles and pedestrians to be maintained. The proposed modification therefore includes a change to Condition 216 to delete the requirement for a single uninterrupted pedestrian crossing at the junction of Epping Road and Mowbray Road West.

Instead the Proponent has committed to providing a staged pedestrian crossing in which the pedestrian push buttons on the northern and southern kerbs of Epping Road would place a call for both stages of the crossing. This would trigger a staggered traffic halt for both the eastbound and westbound carriageways, with the aim of providing a relatively uninterrupted crossing for pedestrians while allowing traffic to keep moving for longer in one direction. Pedestrian push buttons would also be provided in the median to allow each stage to be called independently. This would result in most pedestrians being able to cross the road in the equivalent time to a single-stage crossing.

The worst case scenario for pedestrians would be if two pedestrians placed a call for the pedestrian phase on both sides of Epping Road at the same time. In this scenario, the traffic signals would stop both eastbound and westbound traffic along Epping Road and provide a green signal for both pedestrians to travel to the median and traffic to exit Mowbray Road west. These pedestrians would then need to wait in the median for the second phase of the crossing for up to two minutes. The Proponent has undertaken safety audits of this intersection, including the median and is confident that the 12 metre wide median, shielded by the western portal, would provide sufficient protection for any pedestrians waiting in the median.

In response to the proposed modification, NSW Health has raised concerns that other options to facilitate pedestrian usage, such as an overhead bridge, have not been discussed. The Department notes that the option presented in the proposed modification would allow pedestrians to cross in the equivalent of a single phase unless attempting to cross from opposite directions at the same time. The Proponent has also previously assessed the option of an overpass at this location but found that it would not be justified due to the relatively low number of pedestrian movements. In addition, an option is available for pedestrians to cross under Epping Road via a connection under the eastern abutment of the Lane Cove River Bridge, though recognising that this is not a direct route between the two points joined by the pedestrian crossing.

The Department accepts the Proponent's findings that a single uninterrupted pedestrian crossing would cause unacceptable delays to vehicles on Epping Road and that a staged crossing as committed to by the Proponent would still provide an acceptable level of service to pedestrians given previously observed low numbers of pedestrian usage. The Department is also of the opinion that, as a 12 metre median will be provided, pedestrians would be safe from traffic when on the median if they are required to wait.

The proposed modification includes amendments to other Conditions of Approval regarding the required timing of performance monitoring of the project. The Department agrees that, if the full implementation of the project is to be deferred, it is appropriate to defer performance monitoring accordingly. In response to concerns raised by North Sydney Council regarding the proposed timing of the review of pedestrian walk times at key intersections (Condition 41), the Proponent has stated that there are no proposed changes to the pedestrian and cyclist elements to be provided as part of the approved project at Falcon Street. The Department is satisfied with the proposed modifications regarding performance monitoring.

### **4.3 Operational Air Quality**

The predicted improvement in ambient air quality is based on uptake of the Tunnel by motorists (and therefore reduction of surface traffic) and would be likely to be delayed if surface road changes are postponed. However, experiences on other road projects such as the Cross City Tunnel indicate that, if construction related to surface road changes required as part of the Minister's Approval were to commence immediately upon tunnel opening, motorists would be likely to resist using the Tunnel. This could result in congestion on those surface roads greater than is

normally experienced due to the sudden reduction in road capacity to accommodate the required construction works.

Such congestion could in fact temporarily worsen ambient air quality. It would therefore seem appropriate to reduce the chances of such congestion occurring by the implementation of a transition strategy as proposed, provided that such a strategy did not take too long to implement. The proposal is to delay the commencement and completion of surface roadworks by five months. The Department is of the opinion that this is an acceptable timeframe however there are a number of conditions relating to air quality where timeframes may need to be modified to ensure that the intended outcomes, as envisaged at the time the Minister granted approval, are achieved. These are discussed in more detail in the following sections.

### Verification of Air Quality Assessment

Condition 168 currently requires the ambient air quality assessment in the EIS to be validated using actual monitoring data recorded for the 12 months from commencement of Tunnel operation. The modification proposes to extend this timeframe to six months after completion of the entire Project. This is consistent with the intent of the existing condition.

The DEC advised the Department that, as ambient air quality assessment is based on emissions from full project implementation, it would be appropriate if the validation required by Condition 168 was based on 12 months of emissions from the entire project and should therefore be undertaken 12 months after completion of all construction works. The Proponent has advised that it is not opposed to such a timeframe. The Department concurs with the advice of the DEC and recommends that Condition 168 be modified to include this requirement as shown in Appendix D.

### Elevated Receptor Ambient Air Quality Monitoring

Condition 166 requires monitoring from the two elevated monitoring stations over a period of at least 12 months from opening of the Project to traffic *"to correlate and verify impacts with the air quality monitoring predictions"*. The intent of installing these monitors, located at 18-20 Orion Road Lane Cove West (Compac) and 401 Pacific Highway Artarmon (Corinthian), was to enable assessment of the impact of stack emissions on nearest elevated receptors. Parameters to be measured are CO, PM<sub>10</sub> and NO<sub>2</sub>.

The air quality assessment in the EIS found that contributions from the stack would be such that overall concentrations (background plus stack contribution) would be well below the ambient goals for all parameters. The Department concurred that *"contributions from the ventilation stack would .... be such that the overall concentration levels (background plus contribution from the stack) would be well below air quality goals at the most affected building (i.e. the Compac or Corinthian buildings)"* (refer to section 5.1 of the Director-General's Report (Department of Planning, 2002).

Notwithstanding, the Department went on to acknowledge the *"significant and extensive community concerns that predicted impacts are based on modeling ..... and therefore a high degree of assurance is required that the predictions turn into reality."*

If the *"opening of the Project"* to traffic was interpreted as the opening of the Tunnel to traffic (as was intended) and the proposed modification were implemented with the five month delay, this would result in only one month of monitoring after the completion of surface changes rather than six as envisaged in the approved project. The proposed modification as put forward by the RTA does not include an extension to this timeframe.

If the ramp-up period proceeds as predicted by the Proponent, it is likely that the Tunnel would not operate under stable conditions until after the surface road changes are complete, resulting in possibly less traffic using the tunnel and therefore reduced emissions and potentially reduced concentrations of pollutants from the stacks prior to that time.

A submission from NSW Health has advised that, if the modification were to be approved, Condition 166 should be amended to require monitoring for at least 12 months after the completion of Stage 2 works to enable the full impact of stack emissions on the elevated receptors to be monitored as intended. This interpretation of the existing condition does not take into account the six month construction period for the surface changes to be completed (*i.e.* these would not be implemented until six months after opening of the tunnel) and therefore there was only ever 6 months of monitoring required with the entire project implemented. Further, no technical justification for extending the monitoring period is provided.

In response, the Proponent has stated that, due to the locations of the monitors, there would not be discernable impact from construction works on these monitors, a statement accepted by the Department. More relevant is the uptake of the Tunnel by traffic. The Proponent's position is that there is no technical reason to extend monitoring at the elevated stations as modeling results subsequent to the Minister's approval have indicated that air quality impacts at the specified locations are likely to be incremental and indiscernible from normal variations in background air quality. The Proponent has submitted evidence that the elevated and other air quality monitors are showing results to date consistent with strong influence from regional rather than local factors and that an extension of elevated monitoring for five months would be expensive (estimated to be in the order of \$500,000) with little tangible benefit. The Proponent considers that the data from the two Community-Based Monitoring Stations and the two Ground-Based monitoring stations would be sufficient to gauge the impacts of the project as proposed to be modified (see additional information provided by the RTA in Appendix C).

The Department of Environment and Conservation in its submission stated that there is no technical reason to extend the monitoring period on the basis of the EIS and modeling undertaken subsequent to the Minister's approval based on the detailed design of the ventilation system. The DEC does acknowledge that it is not clear whether the objective of providing a "*high degree of assurance to the community*" would be fulfilled if the monitoring period is not extended. NSW Health did not refute or accept the technical argument put forward by the Proponent.

On the basis of the discussion in the Director-General's report (DoP, 2002) and the additional information available from more recent air quality modeling of the ventilation system installed, the Department concurs with the Proponent and the DEC that there is no scientific or technical reason to require extending the monitoring period for elevated receptor monitoring stations and accepts that six monitors is an unusually high number for a project such as the Lane Cove Tunnel making it the most comprehensively monitored infrastructure project in NSW. Similarly, it is clear from the Director-General's report that the need for monitoring at all is based on community perception rather than scientific uncertainty. This puts the Department in a position of having to balance the benefits to be achieved from extending monitoring by at least 5 months and the additional information that would be provided against the costs (*i.e.* value for money).

In considering this issue further, it is also important to note that:

- there is no intention on the Proponent's part to extend monitoring periods at this or other ambient (ground level) monitoring stations, recognising also that the community-based monitoring stations (CBMSs) must operate for at least three years and the ground-based

monitoring stations (GBMSs) monitoring period is undisclosed though decommissioning of the monitors must be approved by the Director-General;

- the relevant Community Liaison Groups (CLGs) and the Air Quality Community Consultative Committee (AQCCC) established for the project were briefed on the proposed modification and have not raised concern or the need to extend monitoring periods for any monitoring stations;
- only one submission was received from the community which raised general concerns about air quality impacts of the project but not specific concerns regarding monitoring periods;
- unlike the Cross City Tunnel, there are no high rise residential buildings immediately adjacent to either stack. The nearest buildings to each stack are commercial;
- not only has the Proponent's air quality expert found that the impacts of the stack will not be discernible from background but that the independent expert employed to provide technical advice to the community representatives on the AQCCC has concurred that the emissions from the stack would not be discernible;
- results from monitoring of the M5 East and Cross City Tunnel stacks cannot discern stack emissions from the background; and
- the Cross City Tunnel Parliamentary Inquiry noted that the Lane Cove Tunnel is broadly welcomed by the community, despite concerns remaining in some sections of the community relating to air quality, and that air quality and air pollution are complex areas with high potential for misunderstood information to be disseminated to the community, concluding that it is important to maintain a sense of perspective about the impact of the Lane Cove Tunnel on air quality.

Taking into consideration these issues, the Department is of the opinion that extending the air quality monitoring from the elevated receptor monitoring stations is not warranted and, on the basis of the information available, does not represent value for money for the general community or the government at this time. Notwithstanding, the Department believes it is not unreasonable for the Proponent to notify relevant stakeholders of the intention to close down or decommission the monitoring stations. Therefore it is recommended that the condition be modified to require the Proponent to notify the Director-General, Department of Environment and Conservation and NSW Health six weeks prior to decommissioning. The proposed amendment also enables the Director-General to require that monitoring be extended for a further five months, consistent with the monitoring requirements of the existing condition, should it be considered necessary that further monitoring is required to verify modelling predictions at that time.

#### **4.4 Construction and Operational Noise**

The proposed delay in implementation of surface changes to Epping Road will extend the total construction period by five months beyond that anticipated in relation to the opening of the Tunnel to traffic. This is balanced to some extent by the anticipated opening of the Tunnel 2-3 months ahead of schedule.

The proposed delay to surface changes may have short-term negative operational noise impacts, particularly due to extending the time for which five lanes of traffic are operational on Epping Road. The Proponent predicts that surface road traffic noise will begin to reduce from the time of Tunnel opening due to uptake of the Tunnel, regardless of the timing of implementation of surface road works. The Department is of the opinion that, even if this does not occur, noise levels are unlikely to increase as the corridor is already at peak hour capacity and that there is no need for additional noise mitigation to that already supplied for the project, particularly given that the proposed delay in full project implementation is for a limited time of five months only.

The Proponent has committed to notifying directly affected residents along Epping Road following the Minister for Planning's determination of the proposed modification, if approved, and to notifying

surrounding residents and consulting with directly affected residents on commencement of construction, in accordance with the Conditions of Approval. The Proponent has also committed to preparing or updating the relevant Construction Noise Impact Statement to address the likely construction noise impacts for the works to be undertaken under the proposed modification. The Department is satisfied that these measures will be sufficient to manage any construction noise impacts from the proposed modification to an acceptable level.

The proposed modification includes a change to Condition 60, which currently requires operational noise monitoring to be undertaken one year after Tunnel opening; this would be approximately six months after completion of the required surface roadworks under the approved project. The proposal would modify this to six months after the completion of the entire Project. If the surface changes are delayed as proposed, the Department is of the opinion that this would be an appropriate timeframe for operational noise monitoring and is consistent with the timing and intent of the currently approved monitoring and review period. The Proponent has committed to notifying the following of the altered operational noise monitoring timeframe:

- all affected property owners who have received noise mitigation from the Project; and
- any property owner ineligible for treatment who has previously been advised in writing of the operational noise monitoring requirements.

The Department is satisfied that these commitments are adequate to ensure that potentially affected members of the public are aware of the proposed modification to the timeframe for operational noise monitoring.

#### **4.5 Social and Business Impacts**

Potential social impacts of the proposed modification include those on travel times, social character, safety and security, visual amenity and local open space. Delaying the surface road changes would enable more vehicles to continue to use Epping Road for an additional five months, delaying the predicted positive social impact of reducing Epping Road to two lanes of general traffic, two bus lanes and the shared pedestrian/cycle path. Therefore travel times, social character, safety and security and visual amenity would remain relatively unchanged from the time of Tunnel opening for a further five months, with full benefits forecast for the project not available until 11 months after Tunnel opening. Pedestrian and cyclist safety would be managed under the Project's Traffic Management Plan for construction of the Stage 2 works. Local open space would be unaffected by the proposed modification.

At the same time, the predicted uptake pattern by motorists of the Tunnel presented by the Proponent suggests that the proposed transition may avoid greater negative social impacts by reducing the chance of extreme congestion soon after the time of Tunnel opening. The Department is of the opinion that the short term social impacts of the proposed modification would be acceptable as the nature of the required construction works would only be delayed, not altered in nature and that the longer term benefits will be unchanged.

The Proponent states that there are unlikely to be any negative impacts on business from the proposed modification, as the status quo will largely be maintained for an additional five months. The Proponent is required by Condition of Approval 218 to undertake a Business Management Strategy to manage any such impacts during construction after Tunnel opening. The Proponent has committed to reviewing this Strategy and updating it to mitigate the impacts of the proposed modification if necessary.

#### 4.6 Other Issues

The proposed modification would result in a delay to the Stage 2 construction which would extend the overall project construction period albeit with effectively a five month respite. The noise generating activities would remain the same as for the approved project and the intensity of work would be the same or less than under the approved project, however the overall impact at any one time may be reduced due to the proposed staggered implementation of the various components. The Proponent states that a specific Construction Noise Impact Statement for the required works would be prepared in accordance with Condition 58.

Construction traffic impacts would be largely delayed by five months from the time of Tunnel opening. The Proponent states that these would be managed in accordance with a specific Traffic Management Plan under Condition 30.

The Proponent is of the opinion that the Construction Sub Plans for Construction Noise and Vibration, Flora and Fauna, Heritage and Archaeology, Water, Flooding and Drainage, Waste Management and Reuse and Emergency Response would still be relevant as the impacts of the Project on these issues would not be significantly altered by the proposed modification. The Proponent has committed to preparing a specific Soil and Water Quality Management Plan in accordance with Condition 113. (It is noted that the Proponent's Commitment 3.5 refers to *Condition 133*; it is assumed that this is a typographical error and is intended to read *Condition 113*.)

The Proponent has also committed to preparing a Construction Method Statement in accordance with Condition of Approval 20 for all Stage 2 works, to address necessary environmental management measures and to be reviewed by the Department.

### 5. MODIFICATIONS TO CONDITIONS OF APPROVAL

The Department has reviewed the proposed modification and assessed its impacts which are confined to:

- some potential for increased noise due to traffic though this is offset by the installation of noise mitigation designed for traffic levels 10 years from opening of the Project and therefore likely to be improved from the current situation;
- extension of overall construction period, though magnitude of impacts is unlikely to change and may improve; and
- impacts on timing requirements for operational impact reporting, in particular air quality.

The Department's assessment of the proposal indicates that any negative impacts are largely short-term and manageable, while on balance the impacts for the broader community would be positive in the short-term. The Department has concluded that the proposed modifications would not alter the overall nature, need or justification of the approved project, nor alter the ability of the project to meet its key objectives. This conclusion is largely dependent on the specific time-limited nature of the modification, which should result in the project as originally approved being completed by 11 months after opening of the Tunnel to traffic.

Therefore it is recommended that the proposed modification be approved subject to the conditions as amended or proposed for inclusion in Appendix D.

## **6. RECOMMENDATION**

It is recommended that the Minister for Planning, under section 75W of the EP&A Act, approve the modifications as detailed in Section 3 of this Report and vary the conditions of approval as set out in the attached Instrument of Modification.

Sam Haddad  
**Director-General**

**Appendix A: Request for Modification to the Lane Cove Tunnel Approval  
(including Environmental Assessment Report)**

**Appendix B: Submissions and advice from North Sydney Council, NSW Health and Department of Environment and Conservation**

## **Appendix C: Further information received from Roads and Traffic Authority**

## Appendix D: Recommended Modifications to Approval Conditions

1. Insert the following two definitions into the Glossary and Abbreviations section of **Schedule 1** of the Conditions of Approval:

<u>Modification Report</u>	<u>Report entitled <i>Lane Cove Tunnel Surface Traffic Modifications Environmental Assessment Report</i>, prepared by the Roads and Traffic Authority, and dated December 2006.</u>
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<u>Stage 2 Works</u>	<u>The Works defined as Stage 2 Works in the Modification Report.</u>
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2. Amend **Condition 1** of Schedule 1 of the Conditions of Approval as follows:

The Project shall be carried out in accordance with the Proposal as described in the Environmental Impact Statement (EIS), and as modified by the Representations Report and the Modification Report and where relevant:

- a) the Director-General's Report(s); and
- b) the Conditions of this Approval imposed by the Minister

Despite the above, in the event of any inconsistency with the Project as described in the EIS, Representations Report, Modification Report, supplementary information and the Conditions of Approval, the Conditions of Approval imposed by the Minister shall prevail.

These conditions do not relieve the Proponent of the obligation to obtain all other approvals and licences from all relevant authorities required under any other Act. Without affecting the generality of the foregoing, the Proponent shall comply with the terms and conditions of such approvals and licences.

It shall be the ultimate responsibility of the Proponent to ensure that the Project is carried out in accordance with the EIS and as modified by the Representations Report, Modification Report and supplementary information, and that full compliance with all Conditions of Approval granted by the Minister is achieved.

3. Amend **Condition 3** of Schedule 1 of the Conditions of Approval as follows:

The Tunnel, Falcon Street ramps and Gore Hill Freeway widening shall be opened to traffic concurrently within a one month period unless otherwise agreed by the Director-General.

4. Insert a new **Condition 3A** in Schedule 1 of the Conditions of Approval as follows:

The Stage 2 Works and the transit lanes on the Gore Hill Freeway are to be fully implemented no later than 11 months after Tunnel opening.

5. Amend **Condition 7** of Schedule 1 of the Conditions of Approval as follows:

An Environmental Impact Audit Report shall be submitted to the Director-General, nine (9) months after the completion of the Stage 2 Works ~~one (1) year, and five (5) years from opening of~~ after the Project opening to traffic or at any time as requested by the Director-General within the first ten (10) years of operation. The environmental impact audit report shall be prepared by an independent person(s) or organisation approved by the Director-General and paid for by the Proponent. The Report shall assess the key impact predictions made in the EIS, Representations Report and supplementary information and detail the extent to which actual impacts reflect the predictions during the 12 month period prior to the

submission of the first Report first 12 months of operation and any other periods as required. The Report shall provide details on actual versus predicted impacts for all key issues identified in the EIS. The suitability of implemented mitigation measures and safeguards shall also be assessed. The Report shall also assess compliance with the Operational EMP.

The Report shall discuss results of consultation with the local community in terms of feedback/complaints on the construction and operation phases of the Project and any issues of concern raised and shall be made available to any member of the public upon request. The Proponent shall comply with all reasonable requirements of the Director-General or any determining authority with respect to any reasonable measure arising from, or recommendations in, the report.

6. Insert a new **Condition 15A** in Schedule 1 of the Conditions of Approval as follows:

The Proponent must prepare and implement a detailed Community Notification Strategy to provide information to road users, including motorists, pedestrians and cyclists, on the timing of the implementation of project elements.

7. Amend **Condition 33** of Schedule 1 of the Conditions of Approval as follows:

The Proponent shall ensure adequate monitoring of the local and regional road network is conducted prior to the opening of the Project to provide an appropriate baseline for measuring any future impacts resulting from the operation of the Project as part of the impact verification required under Condition 7. Key impact verification shall include traffic volumes on approach and departure routes, Reserve Road (north and south of the Gore Hill Freeway), Falcon Street/Military Road, Ernest Street, Pacific Highway, Longueville Road/Epping Road (surface), Mowbray Road West and East, Pittwater Road, Badajoz Road, Wicks Road and all other roads where substantial increases or decreases were predicted in the EIS and/or Representations Report. Impacts on bus travel times on these roads (where relevant) shall also be monitored. The Proponent shall consult with and take into account comments from relevant Council(s) and bus operators regarding the methodology and timing of the study.

~~Twelve (12)~~ Six (6) months after the completion of the Stage 2 Works opening, the Proponent shall monitor morning and evening peak hour traffic levels for a period of one (1) week. Should monitoring indicate traffic intrusion on these roads/streets 10% or greater than that predicted in the EIS and Representations Report as a result of the operation of the Project, the Proponent shall also prepare and implement additional traffic management measures consistent with Condition of Approval No. 37 to mitigate the impacts of intrusive traffic in the affected areas following consultation and agreement with the relevant Council(s) and consultation with the local communities and the STA.

8. Amend **Condition 35** of Schedule 1 of the Conditions of Approval as follows:

The Proponent shall monitor morning and evening peak hour traffic levels for a period of one (1) week (outside of school holiday periods), ~~12~~ six (6) months after the completion of the Stage 2 Works opening and then every two (2) years for ten (10) years or for a shorter period as agreed to by the Director-General should monitoring indicate traffic levels close to those predicted. The monitoring shall occur across the western and eastern screenlines, as defined in Working Paper 4 of the EIS, and in the Lane Cove Tunnel. The results of this monitoring shall be compared to levels predicted in the model used for the EIS and forwarded to the Department and PTC within one (1) month of monitoring and made publicly available.

9. Amend **Condition 41** of Schedule 1 of the Conditions of Approval as follows:

The Proponent shall in consultation with the PTC develop measurable performance indicators for pedestrian walk times at key pedestrian crossing locations (e.g. Delhi Road/Epping Road, Longueville Road/Epping Road intersection including Little Street, Centennial Avenue, Mowbray Road and Merlin Street) occurring as a result of the Project. The performance indicators at these crossing locations shall be reviewed six months after the completion of the Stage 2 Works and one (1) and two (2) years year after the initial review opening of the Project to traffic. The Proponent shall, at its own expense, implement any measures as reasonably required by the PTC.

10. Amend **Condition 50** of Schedule 1 of the Conditions of Approval as follows:

The PTC shall consider the following specific matters as they relate to the study area:

- a) oversee provision of bus priority measures proposed by the RTA in the EIS and Representations Report ;
- b) assessment of the potential bus stop requirements on the Gore Hill Freeway (to provide access to the Artarmon Industrial Area);
- c) bus priority measures on Falcon Street, east of Pacific Highway;
- d) pedestrian access across Epping Road to Delhi Road;
- e) potential for bus priority measures at Pittwater Road, Longueville Road to the Pacific Highway southbound and from Epping Road to Mowbray Road West;
- f) appropriate signage and marking of proposed bus lanes;
- g) bus and transit lane enforcement measures;
- h) further opportunities for improved bus priority on the Pacific Highway including rationalisation of 'S' lane extensions to proposed bus lanes, need for parking restrictions and treatment of right turns;
- i) review the effectiveness of the T2 lane on the Gore Hill Freeway with a view to upgrading to T3 or bus lanes at 6 months after implementation of the transit lanes and then every two years thereafter opening for ten years; and
- j) potential for real time bus information at bus stops.

11. Amend **Condition 53** of Schedule 1 of the Conditions of Approval as follows:

The Proponent shall, in consultation with the PTC, monitor and review bus performance against the indicators developed in Condition 52 (including bus timetables) at six (6) months after the completion of the Stage 2 Works opening, then after one (1) and two (2) years of operation implementation of the bus lanes referred to in Condition 212 for key bus services and routes. The monitoring shall include bus services using the Gore Hill Freeway, Epping Road, Pacific Highway and Willoughby Road. The results of the monitoring shall be forwarded to the Director-General. If bus performance does not meet the indicator targets, the Proponent shall initiate, at its own expense, any actions as reasonably required by the PTC or TNSW.

12. Amend **Condition 60** of Schedule 1 of the Conditions of Approval as follows:

Monitoring of operational noise shall be undertaken in accordance with the Operational Noise Management Sub Plan prepared in accordance with Condition 59. The Proponent shall, to the satisfaction of the Director-General and in consultation with the EPA, assess the adequacy of the traffic noise and ventilation noise mitigation measures after six (6) months after the completion of the Stage 2 Works one (1) year from opening of the Project to traffic and having regard to the criteria specified in the Operational Noise Management Sub Plan. Should assessment indicate a clear trend in traffic noise levels on surrounding roads which exceed the Operational Noise Management Sub Plan defined noise design goals prepared in accordance with the RTA's Environmental Noise Control Manual, the

Proponent shall implement further reasonable and feasible mitigation measures in consultation with affected landowners and/or occupiers.

13. Amend **Condition 166** of Schedule 1 of the Conditions of Approval as follows:

The Proponent shall install monitoring stations at the top of the building at 18-20 Orion Road and 401 Pacific Highway, in accordance with Condition of Approval No. 164 to monitor for pollutants identified in Table 4. Monitoring shall be undertaken over a period of at least 12 months from opening of the Project to traffic to correlate and verify impacts with the air quality modelling predictions. The Director-General may request that the Proponent extend the monitoring duration by 5 months, in the event that the Director-General, following consultation with the EPA, considers that further modelling is necessary to verify modelling predictions. The Director-General, the EPA and NSW Health shall be notified 6 weeks in advance of the closure of these monitoring stations. The results of the monitoring program shall be made available to the owners of 18-20 Orion Road and 401 Pacific Highway and the AQCC.

14. Amend **Condition 168** of Schedule 1 of the Conditions of Approval as follows:

The Proponent shall validate the ambient air quality assessment undertaken for the tunnel ventilation system as assessed in the Environmental Assessment for the Revised Ventilation Design for Lane Cove Tunnel (RTA, undated as submitted to DoP 25/10/02) for the Project utilising actual monitoring data recorded by the Proponent ~~following twelve (12) months after the completion of the Stage 2 Works~~ 12 months of operation of the Project. Validation shall be to the satisfaction of the Director-General in consultation with the EPA.

15. Amend **Condition 212** of Schedule 1 of the Conditions of Approval as follows:

~~No more than six (6) months after Project opening~~ The Proponent shall install implement continuous 24 hour bus lanes in both directions on Epping Road/Longueville Road from Mowbray Road West to the commencement of the Gore Hill Freeway within 10 months of Tunnel opening in consultation with the PTC except at three locations:

- a) Eastbound, Longueville Road, between the Longueville Road, between the Longueville Road exit ramp and Pacific Highway;
- b) Westbound, Longueville Road, between Pacific Highway and Epping Road; and
- c) Westbound, Epping Road, between the approach to Centennial Avenue and the approach to Tantallon Road.

16. Amend **Condition 213** of Schedule 1 of the Conditions of Approval as follows:

No later than at the time of Project opening the Proponent shall where feasible install bus priority facilities for westbound traffic on Epping Road at Mowbray Road West, Pittwater Road and Delhi Road intersections in consultation with the PTC.

17. Amend **Condition 214** of Schedule 1 of the Conditions of Approval as follows:

No later than 11 months after Tunnel opening ~~at the time of Project opening~~ the Proponent shall install implement a continuous AM peak T3 lane on Epping Road between Delhi Road and Mowbray Road West for eastbound traffic in consultation with the PTC.

18. Amend **Condition 215** of Schedule 1 of the Conditions of Approval as follows:

~~No more than six (6) months after Project opening~~ The Proponent shall install bus lane enforcement systems on Epping Road for both eastbound and westbound bus lanes in consultation with the STA, PTC and NSW Police Service at the time the bus lanes referred to in Condition 212 are installed.

19. Amend **Condition 216** of Schedule 1 of the Conditions of Approval as follows:

The Proponent shall ensure that ~~an at-grade pedestrian crossings are~~ is provided at the following locations to allow pedestrians to cross in a single uninterrupted stage across:

- a) Epping Road on the western side of the junction with Longueville Road (not including the slip lane from Longueville Road northbound to Epping Road westbound).
- b) ~~Epping Road at the junction with Mowbray Road west unless otherwise agreed by the Director-General following monitoring of the performance of the intersection after opening.~~

20. Insert new **Condition 216A** of Schedule 1 of the Conditions of Approval as follows:

The Proponent must ensure that the crossing of Epping Road at Mowbray Road is staged with separate walk signals provided for the eastbound and westbound carriageways of Epping Road. The pedestrian push buttons on the northern and southern kerbs of Epping Road must place a call for both stages of the pedestrian crossing (eastbound and westbound carriageways).

21. Amend **Condition 227** of Schedule 1 of the Conditions of Approval as follows:

The Proponent shall implement a dedicated 24 hour T2 lane ~~ensure that one lane in each direction on the entire length of the Gore Hill Freeway within 11 months of Tunnel opening is a dedicated 24 hour T2 lane.~~

22. Amend **Condition 231** of Schedule 1 of the Conditions of Approval as follows:

~~Prior to Project opening,~~ The Proponent shall install implement transit lane enforcement bays on the Gore Hill Freeway and bus lane enforcement required on the Pacific Highway in consultation with the NSW Police Service, STA and the PTC at the time the transit lanes and bus lanes referred to in Conditions 212, 214 and 227 are implemented.

23. Amend **Condition 238** of Schedule 1 of the Conditions of Approval as follows:

The Proponent shall ~~install~~ investigate the provision of a bus indent bay on Military Road to the east or in the vicinity of Merlin Street north. The location and design of the any bay shall be to the satisfaction of the State Transit Authority Public Transport Committee.