Cross City Tunnel

Surface Traffic Modifications

Environmental Assessment Report

June 2006

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Appendices

Abbreviations and Definitions

Addendum	Addendum to the Cross City Tunnel Representations Report dated August 2001
Approval	The Approval for the Project, which was granted by the (the) Minister for Urban Affairs and Planning in October 2001 and substantially modified in December 2002, as further modified from time to time
Approved Project	The Project as approved as at the date of this Report
DoP	Department of Planning
EIA Documents	The Initial EIS, Initial Representations Report, Addendum, Initial Director-General's Report, Supplementary EIS, Supplementary Representations Report and Supplementary Director-General's Report
EIS	Environmental Impact Statement
EMR	Environmental Management Representative
EP&A Act	Environmental Planning and Assessment Act 1979
Initial Director-General's Report	The Proposed Cross City Tunnel Director-General's Report prepared by the Department of Urban Affairs and Planning and dated September 2001
Initial EIS	The Cross City Tunnel Environmental Impact Statement prepared by PPK Environment and Infrastructure Pty Ltd on behalf of the RTA, dated July 2000
Initial Representations Report	The Cross City Tunnel Representations Report prepared by RTA Environmental Technology, dated 23 April 2001
Modification Works	The works to be carried out for the Proposed Modifications
Modified Project	The Project incorporating the Proposed Modifications
MSDS	Materials Safety Data Sheet
Project	Cross City Tunnel project, which includes the Tunnel and associated infrastructure, and various surface traffic arrangements
Proposed Modifications	Proposed Modifications to the Project, which are the subject of this Report
RTA	Roads and Traffic Authority of NSW
Supplementary Director-General's Report	Cross City Tunnel Proposed Modifications to Approved Project Director-General's Report prepared by the Department of Planning and dated December 2002
Supplementary EIS	The Cross City Tunnel Supplementary Environmental Impact Statement prepared by PPK Environment and Infrastructure Pty Ltd on behalf of the RTA, dated July 2002
Supplementary Representations Report	The Cross City Tunnel Representations Report for Supplementary Environmental Impact Statement prepared by RTA Environmental Technology, dated November 2002
Tunnel	Cross City Tunnel
VMS	Variable Message Sign

1. Introduction

1.1 Background

The Cross City Tunnel Project includes a 2.1 kilometre Tunnel generally running east-west below parts of the Sydney Central Business District (CBD), connecting the Kings Cross Tunnel with the Western Distributor. Connections are also provided at the Eastern Distributor (southbound) and at Sir John Young Crescent (northbound). In addition to the construction of the Tunnel, the project included surface works to address traffic distribution and access issues. Key surface works included widening and upgrading of footpaths in Park and William Streets and the provision of bus lanes and transit lanes along selected streets.

State Environmental Planning Policy No 63 – Major Transport Projects enabled the entire Project to be assessed and determined under Part 5 of the *Environmental Planning and Assessment Act* 1979 (EP&A Act).

The Environmental Impact Statement (EIS) for the Project (Initial EIS) was prepared in accordance with the provisions of the EP&A Act*,* the *Environmental Planning and Assessment Regulation 2000,* and the requirements of the Director-General of the then Department of Urban Affairs and Planning (DUAP). The Initial EIS was publicly exhibited between 2 August 2000 and 6 October 2000, a Representations Report and Addendum were prepared following public exhibition of the Initial EIS, and these documents were submitted to the then Minister for Urban Affairs and Planning for approval. The then DUAP assessed the Project, and the then Minister for Urban Affairs and Planning approved the Project on 3 October 2001.

Following a comprehensive tendering process for the design, construction, operation and maintenance of the Tunnel, the RTA sought to modify the Project as approved in 2001. The RTA prepared a Supplementary EIS, which was publicly exhibited between 31 July 2002 and 31 August 2002, and the RTA then prepared a Supplementary Representations Report and submitted these documents to the Department of Planning (DoP). Following an assessment by DoP, the Minister for Planning (Minister for Planning) approved the modifications to the Project in December 2002.

To avoid confusion, the 2000 EIS and associated assessment documents (including the 2001 Representations Report and Director-General's Assessment Report) are referred to as "initial" documents and the EIS prepared in 2002 and associated assessment documents are referred to as "supplementary" documents.

The Cross City Motorway was then contracted to design and construct the Project, and to operate and maintain the Tunnel, and construction work commenced in January 2003. Since this time, a number of changes to the Project have been approved by the RTA, following consistency assessment, and (where appropriate) by the Minister for Planning at the request of the RTA pursuant to the requirements of the EP&A Act.

Construction of the Tunnel was completed in mid 2005 and the Tunnel opened to traffic on 28 August 2005. Most of the remaining surface works were essentially completed in May 2006(with some exceptions, which are noted in this Report where relevant).

Since the Tunnel opened to traffic, the RTA has been monitoring traffic flows throughout Sydney, as part of its usual traffic management functions. Whilst the Tunnel and surface traffic arrangements have produced some positive outcomes, areas for improvement have also been identified.

The changes made to surface roads as part of the Cross City Tunnel project have received wide criticism from motorists, the community and the media. Reversal of the road changes has been widely called for. While the EIA Documents for the Cross City Tunnel supported these surface traffic management works on the basis of improving the CBD's streets with respect to criteria other than traffic function, it has been the community's concern that too much traffic capacity has been withdrawn. The subsequent traffic congestion affects road users that are not potential users of the Cross City Tunnel and hence have no alternate route to avoid congestion.

In addition, the recent Parliamentary Inquiry into the Cross City Tunnel project considered numerous community representations and recommended that the RTA consider some changes to surface traffic arrangements which were implemented as part of the Project.

In order to address community representations regarding surface traffic arrangements and improve traffic flow and access across the CBD, on 4 June 2006, the Premier and the Minister for Roads announced a proposal to make several changes to current surface traffic arrangements in the vicinity of the Tunnel.

This Report addresses the environmental assessment of the following Proposed Modifications to the Project (Proposed Modifications):

- Reopening Druitt Street to general traffic running westbound between Kent Street and Clarence Street;
- Retaining two right turn lanes from Elizabeth Street northbound into Park Street eastbound and not installing a new bus lane southbound of Elizabeth Street between Park Street and Bathurst Street;
- Provision of an additional traffic lane eastbound along William Street east of Palmer Street to McElhone Street;
- Removal of cycle lanes on Kings Cross Road eastbound between Darlinghurst Road and Ward Avenue and on westbound Craigend Street between Roslyn Street footbridge and Darlinghurst Road;
- The following changes in and around Sir John Young Crescent:
    - Removing the seagull island at the intersection of Sir John Young Crescent and Cowper Wharf Road to allow direct access to the harbour crossing from Palmer Street/Sir John Young Crescent;
    - Reintroducing traffic signals at the intersection of Palmer Street and Sir John Young Crescent to assist efficiency of traffic flow;
    - Changing Palmer Street from one lane northbound and one lane southbound between Sir John Young Crescent and Cathedral Street to two lanes northbound: and,
    - Reinstalling the second right turn lane on the Cahill Expressway off ramp to Cowper Wharf Road; and,
- Provision of a dedicated right turn lane at Queens Cross for a turning movement from Darlinghurst Road northbound into Kings Cross Road eastbound.

Plans showing the relevant approved surface traffic arrangements and the Proposed Modifications are given in Appendices A and B.

The reopening of Bourke Street south of William Street is also being considered under the requirements of Minister for Planning's Condition of Approval No. 288 and will be addressed in a separate submission to the Director-General of the Department of Planning.

The suite of Proposed Modifications would have the following key benefits:

- Alleviate traffic congestion on some of the surface roads within Sydney CBD; and,
- Increase accessibility for road users that are not potential users of the Cross City Tunnel.

The Modification Works are minor works in the context of the Approved Project.

1.2 Procedures to Modify the Approval

The Approval for the Project was granted by the Minister for Planning in accordance with the provisions of Division 4 of Part 5 of the EP&A Act. As a result of recent changes to the EP&A Act, and in accordance with Schedule 6, Clause 88 (3) of the EP&A Act, the Approval is now deemed to be an approval under Part 3A of the EP&A Act.

Section 75W of the EP&A Act regulates the modification of an approval for a project under Part 3A. Section 75W(2) effectively provides that the proponent may request the Minister for Planning's approval to modify a project approval for a project where the proponent intends to modify the project so that it would be inconsistent with the project approval.

The request for the Minister for Planning's approval is to be lodged with the Director-General of DoP. The Director-General may notify the proponent of environmental assessment requirements with respect to the proposed modification.

Specific objectives of this Environmental Assessment are to:

- Assess the relative change in environmental impacts of the Approved Project compared to the Project incorporating the Proposed Modifications (Modified Project), within the meaning of Section 75W(2) of the EP&A Act;
- Assess the environmental impacts of the Proposed Modifications; and,
- Ensure compliance with all statutory requirements.

1.3 Structure of this Report

This Report is structured as follows:

- A detailed description of the Proposed Modifications is given in Section 2;
- Extracts from the EIA Documents relevant to the Proposed Modifications are considered in Section 3;
- The environmental assessment of the Proposed Modifications is detailed in Section 4;
- Community consultation and notification is discussed in Section 5;

- Other approvals and required management documentation are identified in Section 6;
- Consideration of the Environment Protection and Biodiversity Conservation Act is documented in Section 7;
- Environmental Management Commitments are detailed in Section 8; and
- Conclusions and Recommendations are documented in Section 9.

2. Proposed Changes to Surface Traffic Arrangements

2.1 Overview

Details of the proposed changes and construction methodology and timing are provided below. Plans showing the relevant approved surface traffic arrangements and concept designs for the Proposed Modifications are given in Appendices A and B respectively.

It is anticipated that these works would be completed in a three-month period. Construction sequencing would be determined during detailed design. The works associated with the Proposed Modifications generally are not dependent on each other and can be programmed based on available resources, with the following possible exceptions:

- The proposed removal of the bicycle lane on Craigend Street westbound, which would be best completed before, or concurrently with, the provision of the additional eastbound lane on William Street. If this is not possible, a temporary safe termination of the Craigend Street bicycle lane would need to be constructed as part of the William Street works; and,
- Reintroducing the traffic signals at the intersection of Palmer Street and Sir John Young Crescent would be best completed concurrently with the conversion of Palmer Street to two lanes northbound. These works could be completed separately, if required, but completing them concurrently reduces the total number of closures of Palmer Street.

The descriptions and estimates of duration of construction works are subject to refinement and possibly some change during detailed design and scheduling.

2.2 Palmer Street Compound

The Palmer Street Compound would be utilised for vehicle parking, materials lay down, equipment storage and amenities during the construction period. The RTA owns the land on which the compound is located.

2.3 Reopening Druitt Street

The reopening of Druitt Street to general traffic running westbound between Kent Street and Clarence Street would require the following:

1. Removal of temporary barriers;
2. Milling and re-sheeting to remove red pavement;
3. Traffic signal phasing adjustment; and,
4. Adjustments to signposting and line marking.

Plant and equipment to be used includes:

- Small trucks;
- Rotomill;
- Small asphalt roller;
- Back hoe/ bobcat;,
- Street sweeper; and

- Concrete saw.

As this work would require full closure of Druitt Street, it would need to be undertaken at night-time. It is anticipated that these works could be completed over five nights.

2.4 Changes to Bus Lanes in Elizabeth Street

It is proposed to retain two right turn lanes from Elizabeth Street northbound into Park Street eastbound, and not install a new bus lane southbound on Elizabeth Street between Park Street and Bathurst Street.

This change would retain the current lane layout and does not require any construction works, as the approved works have not been constructed.

2.5 Provision of an Additional Traffic Lane in William Street

The provision of an additional traffic lane eastbound along William Street east of Palmer Street to McElhone Street would involve:

1. Demolition and adjustment to a length of existing median island;
2. Removal of existing line marking and possible milling and re-sheeting of asphalt;
3. Line marking;
4. Adjustment of traffic signal outreach arms;
5. Cutting new traffic signal detector loops; and,
6. Adjustment/relocation to traffic signal lanterns and signage.

Plant and equipment to be used includes:

- Small trucks;
- Concrete trucks;
- Concrete saw;
- Rotomill;
- rock hammers;
- Back hoe/ bobcat; and,
- Street sweeper.

If the milling and resheeting is required then the plant and equipment to be used will also include:

- Rotomill;
- Asphalt paver
- Asphalt trucks; and
- Asphalt rollers;

As this work would require closure of lanes in William Street, it would need to be undertaken at night. It is anticipated that this work would be completed over ten nights, plus an additional ten nights if the milling and resheeting is required.

2.6 Removal of Cycle Lanes near Eastern Portal

The removal of cycle lanes on Kings Cross Road eastbound between Darlinghurst Road and Ward Avenue and on Craigend Street between Roslyn Street footbridge and Darlinghurst Road would require adjustments to pavement line marking and signage.

Plant and equipment to be utilised includes:

- Small trucks;
- Rotomill; and,
- Street Sweeper.

This work could be completed with some lane closures and under traffic control. As this work connects to a busy intersection some works would need to be undertaken at night. It is anticipated that this work would be completed over four days and two nights.

2.7 Changes In and Around Sir John Young Crescent:

The proposed changes in and around Sir John Young Crescent would require the following construction works:

(a) Removing the seagull island at the intersection of Sir John Young Crescent and Cowper Wharf Road to allow direct access to the harbour crossings from Palmer Street/Sir John Young Crescent:

1. Removal of the concrete seagull island;
2. Installation of a new concrete barrier and pavement repairs;
3. Modification/relocation of traffic signal posts; and,
4. Adjustments to sign posting and line marking.

Plant and equipment to be used includes:

- Small trucks;
- Rotomill;
- Concrete trucks;
- Concrete saw;
- Jack hammers;
- Back hoe/ bobcat; and,
- Street sweeper.

As this work would require lane closures and traffic diversion, it would need to be undertaken at night. It is anticipated that approximately 8 nights of work would be required to complete this work.

(b) Reintroducing traffic signals at the intersection of Palmer Street and Sir John Young Crescent to assist efficiency of traffic flow:

1. Adjustment to concrete kerbs using saws;
2. construction of new kerbs and concrete blister island;

3. Installation of electrical conduits (including trenching across Sir John Young Crescent and Palmer Street);
4. Installation of additional signal posts; and,
5. Adjustments to sign posting and line marking.

Plant and equipment to be used includes:

- Small trucks;
- Rotomill;
- Concrete trucks;
- Concrete saw;
- Rock hammers;
- Back hoe/ bobcat; and,
- Street sweeper.

As this work would require lane closure and traffic diversion some of it would need to be undertaken at night or, if possible, on the weekend. It is anticipated that this work would take approximately three weeks, with up to 15 nights of work.

(c) Changing Palmer Street from one lane northbound and one lane southbound between Sir John Young Crescent and Cathedral Street to two lanes northbound:

1. Adjustments to traffic signal lanterns at Cathedral Street; and,
2. Adjustments to line marking and sign posting between William Street and Sir John Young Crescent.

Plant and equipment to be used includes:

- Small trucks;
- Rotomill; and
- Street sweeper.

As this work would require closure of Palmer Street it would need to be undertaken at night. It is anticipated that this work would take seven nights to complete.

(d) Reinstalling a second right turn lane from the Cahill Expressway off ramp to Cowper Wharf Road:

1. Adjustments to line marking;
2. Construction of a concrete kerb extension
3. Installation of additional sign posting; and,
4. Reinstating existing traffic signal detector loop.

Plant and equipment to be used includes:

- Small trucks;
- Concrete trucks;
- Concrete saw;
- Rotomill;

- Jack hammers; and,
- Street sweeper.

As this work would require closure of one lane on the ramp and traffic diversion, it would need to be undertaken at night. It is anticipated that this work would take four nights to complete.

2.8 Changes at Queens Cross

The provision of a dedicated right turn lane at Queens Cross for a turning movement from Darlinghurst Road northbound into Kings Cross Road eastbound would require:

1. Removal and realignment of granite/concrete kerb and traffic island;
2. Pavement milling and re-sheeting;
3. Installation of a new detector loop; and,
4. Adjustments to sign posting and line marking.

Plant and equipment to be used includes:

- Small trucks;
- Concrete trucks;
- Concrete saw;
- Rotomill;
- Jack hammers; and,
- Street sweeper.

As this work would require lane closures it will need to be undertaken at night. It is anticipated that the works would take approximately 7 nights to complete.

3. Consideration of EIA Documents

3.1 Project Objectives

The primary objectives of the Cross City Tunnel Project, as stated in the Initial EIS, the Supplementary EIS and where relevant the other documents referred to in Condition 1 of the Approval are:

- To improve the environmental quality of public space within Central Sydney;
- To improve ease of access and reliability of travel within Central Sydney; and,
- To improve the reliability and efficiency of travel between areas east and west of Central Sydney.

The proposed changes to surface traffic arrangements would be consistent with these objectives and, in particular, would improve surface traffic accessibility within Central Sydney.

The proposed modifications are considered to be minor relative to the nature and scale of the Project as approved and implemented. It is important to note that the surface traffic arrangements were considered across the Sydney road network in the EIA Documents. The purpose of this Section is to provide an overview of key specific comments in the EIA Documents. It is therefore important that this Section is read in conjunction with the EIA Documents.

3.2 Palmer Street Compound

The use of the Palmer Street site as a construction compound was addressed in the EIA Documents. The continued use of this site as an ancillary construction compound would have minimal construction stage impacts, relative to the impacts at this site during construction of the Approved Project. Notwithstanding, the residences surrounding this compound were identified as noise sensitive in the EIA Documents and this issue is discussed further in Appendix E of this Report.

3.3 Reopening Druitt Street

The relevant references and depictions in the EIA Documents refer to Druitt Street between Kent Street and Clarence Street being closed to general traffic, that is, "*all other traffic than buses, taxis, motorcycles, bicycles and other vehicles entitled to use bus lanes between Clarence and Kent Streets"* (see page 7-39 of Volume 1 of the Initial EIS).

In summary, the EIA Documents provide that the closure of Druitt Street was for the following purposes:

- To specifically benefit bus services (page 177 of Vol. 1 of the Initial Representations Report);
- To enhance access to and from the Central Sydney for buses (page 199 of Vol 1 and page 4 of Vol. 2 of the Initial Representations Report);
- To enable a more direct routing for inbound bus services from the west of Central Sydney (page 83 of Vol. 2 of the Initial Representations Report);

- To discourage east-west through traffic from using the surface streets and decrease traffic capacity in surface streets (page 199 of Vol 1 and page 4, 83 and 311 of Vol. 2 of the Initial Representations Report);
- To improve pedestrian amenity generally within Central Sydney (page 83 of Vol. 2 of the Initial Representations Report);
- To improve facilities for cyclists (page 311 of Vol 2 of the Initial Representations Report); and
- To achieve the environmental quality objectives of the proposal for Central Sydney (page 199 of Vol 1 and page 4 of Vol. 2 of the Initial Representations Report).

In summary, the EIA Documents also reveal that the closure of Druitt Street will:

- Increase the travel distance for some trips (page 48 of Vol. 1 of the Initial Representations Report); and
- Reduce the capacity on east-west streets directly over the Tunnel (page 205 of Vol. 1 of the Initial Representations Report);

The closure of Druitt Street has in fact reduced the traffic capacity on east-west streets directly over the Tunnel. However, concerns have been expressed about traffic congestion in Central Sydney in connection with this closure, with consequential impacts on traffic in Market Street, Clarence Street, Elizabeth Street, St James Road and bus services in Elizabeth Street.

3.4 Changes to Bus Lanes in Elizabeth Street

These changes involve:

- Retaining two right turn lanes from Elizabeth Street northbound into Park Street, rather than removing one right turn lane as was proposed; and,
- Not dedicating one lane southbound on Elizabeth Street between Park Street and Bathurst Street as a bus lane, rather than dedicating this lane as was proposed.

No works are required as a result of this modification, and hence the environmental impact will not change from that which currently exists.

These two arrangements are connected. The width of the road dictates that either the two right turn lanes in Elizabeth Street are retained, or one right turn lane is removed and the bus lane extended through that section of road utilising the space gained by losing the right turn lane. The Initial EIS provides:

> "*The southbound bus lane in Elizabeth Street would be extended for the full distance between Park Street and Liverpool Street by removing one right turn lane from Elizabeth Street northbound into Park Street eastbound.*" (Page 7-39, figure 7.19c on page 7-31 and figure 7.19d on page 7-32 of the Initial EIS).

The Initial Representations Report similarly provides:

"*Extend the southbound bus lane in Elizabeth Street to Bathurst Street by removing one of two right turn lanes from Elizabeth Street northbound into Park Street Eastbound."* (Page 24 of the Initial Representations Report).

As a result, the benefit of each arrangement and the likely disruption caused by not having each arrangement has been taken into account in assessing this proposed modification.

If one of the right turn lanes was lost, the remaining lane would be unable to accommodate all of the traffic turning into Park Street, particularly in peak hours. Other lanes in Elizabeth Street would become blocked by vehicles queuing out of the turn right bay and, as a consequence, delay bus services in Elizabeth Street.

The bus lane on Elizabeth Street southbound would increase the efficiency of bus services on Elizabeth Street. However, many buses travelling on Elizabeth Street southbound turn left into Park Street, in any event, so that the need for a bus lane on Elizabeth Street southbound, between Park Street and Bathurst Street should be balanced with the need to avoid the blockage of traffic on Elizabeth Street northbound by vehicles attempting to turn right into Park Street.

3.5 Provision of an Additional Traffic Lane on William Street

This modification involves providing an additional traffic lane eastbound along William Street east of Palmer Street to McElhone Street.

Figure 7.19g on page 7-35 and figure 7.13 on page 7-17 of the Initial EIS together depict two eastbound lanes on William Street along part of the relevant section of William Street (between Bourke Street and McElhone Street). Figure 1.1 of Vol. 2 of the Initial EIS depicts bicycle lanes and footpath widening on the eastbound and westbound sides of William Street.

The Initial Representations Report provides:

"*The removal of surface through traffic from William and Park Streets enables some of the road space to be given over to other road users such as pedestrians and cyclists... These initiatives would enhance the opportunities for walking, cycling...*"

In order to provide the additional traffic lane, it would be necessary to remove on-road bicycle lanes and make adjustments to the median. No changes would be required between the kerb and the property boundaries.

The Cross City Tunnel has provided a Tunnelled connection between Bayswater Road and the Cahill Expressway facilitating the westbound reduction in capacity of William Street. There has been no complementary Tunnel connection provided in the reverse direction and, as a consequence, traffic has queued southbound in Palmer and Bourke Street. The additional lane in William Street would assist in relieving this congestion.

3.6 Removal of Cycle Lanes near Eastern Portal

This modification involves the removal of cycle lanes on Kings Cross Road eastbound between Darlinghurst Road and Ward Avenue and on Craigend Street between Roselyn Street footbridge and Darlinghurst Road.

Page 7-40 of the Initial EIS provides that cyclists would be prohibited from using the Kings Cross and the Cross City Tunnels resulting in a need to provide an alternative bicycle route on surface streets parallel to the Cross City Tunnel, with local connections and linkages to the existing and planned bicycle network proposed by South Sydney Council.

The solution proposed by the Initial EIS is as follows:

> *"Two 1.5 metre wide bicycle lanes would extend from Barcom Avenue to Roslyn Street eastbound along Kings Cross Road, A 1.5 metre wide bicycle lane would also extend westbound along Craigend Street across Victoria Street and Darlinghurst Road and along the ramps connecting Darlinghurst Road and William Street. These bicycle lanes would connect to a 1.5 metre bicycle lane provided in each direction along William and Park Streets, between Darlinghurst Road and George Street." (Page 7-40. See also page 3-42 and 5-6 of the Supplementary EIS).*

The removal of the bicycle lanes is now required to facilitate local traffic flow in the area.

3.7 Changes In and Around Sir John Young Crescent

This modification involves:

- Removing the seagull island at the intersection of Sir John Young Crescent and Cowper Wharf Road to allow direct access to the harbour crossing from Palmer Street/Sir John Young Crescent;
- Reintroducing traffic signals at the intersection of Palmer Street and Sir John Young Crescent to assist efficiency of traffic flow;
- Changing Palmer Street from one lane northbound and one lane southbound between Sir John Young Crescent and Cathedral Street to two lanes northbound: and,
- Reinstalling the second right turn lane on the Cahill Expressway off ramp to Cowper Wharf Road.

3.7.1 Seagull Island

The Supplementary EIS proposed to adjust lane arrangements of the Cahill Expressway, the effect of which was to prevent "*access to the Domain Tunnel and Sydney Harbour Crossings from existing accesses such as Cowper Wharf Roadway, Palmer Street and Sir John Young Crescent*" (page 2-10). Of the two northbound lanes in Sir John Young Crescent (other than the Tunnel lane, which is only accessible by traffic from the Tunnel), the kerbside lane was proposed to be used as a through lane to the Macquarie Street ramp and the other lane was proposed to direct traffic to Cowper Wharf Road, facilitated by the adjustment to the lane arrangements and traffic islands (see figures 2.4b and 2.5b and page 2-10 of volume 1 and page 6 of Appendix N of Vol. 2 of the Supplementary EIS). The Supplementary EIS proposed

closure of the lane from Sir John Young Crescent to the Cahill Expressway, but retained the connection between Sir John Young Crescent and Cowper Wharf Road.

Further modifications were proposed in the Supplementary Representations Report. Figure 3.2 of Appendix G of the Supplementary Representations Report compared the arrangements proposed in the Supplementary EIS with the arrangements proposed in the Supplementary Representations Report. The Supplementary Representations Report provided a third lane on the ramp to the Cahill Expressway enabling traffic on Cowper Wharf Road to turn right to access the Cahill Expressway and proposed a seagull island be installed to prevent Sir John Young Crescent traffic from accessing this lane.

As a result of the seagull island and the current lane arrangements on Sir John Young Crescent and the Cahill Expressway, northbound traffic on Sir John Young Crescent can only legally access harbour crossings via Macquarie Street (from which only the Harbour Bridge is accessible) or by using rat-runs in Woolloomooloo to access the harbour crossings from Cowper Wharf Road. This has resulted in longer travel times for many motorists, traffic congestion in Macquarie Street, the Cahill Expressway and the Harbour Bridge and increased traffic in the residential streets of Woolloomooloo.

The removal of the seagull island would enable northbound traffic on Sir John Young Crescent to directly access both the Harbour Bridge and the Harbour Tunnel.

3.7.2 Palmer Street

Figure 7.10 of the Initial EIS depicts the intersection of Palmer and Sir John Young Crescent. Both lanes of Palmer Street, at the intersection of Sir John Young Crescent were northbound, with one lane permitting a left turn into Sir John Young Crescent, and the other lane permitting a right turn into Sir John Young Crescent. This is basically the same arrangement for the intersection that is now proposed as part of this Proposed Modifications. However, this intersection has undergone a number of changes, subsequent to the Initial EIS, as a result of traffic monitoring and extensive community consultation.

Modifications to the intersection were proposed in the Supplementary EIS. Figure 2.4a of the Supplementary EIS compared the intersection as approved with the intersection as modified. The Supplementary EIS proposed to eliminate one lane of Palmer Street and change the direction of that lane to southbound and permit only southbound vehicles on Sir John Young Crescent to turn into Palmer Street (see figures 2.4b, 2.5b and 2.6 of the Supplementary EIS).

This change to the intersection of Palmer Street and Sir John Young Crescent enabled the traffic signals at that intersection to be removed.

Page 2-13 of the Supplementary EIS states:

> "*The main changes would involve.... introducing one way traffic flow southbound in Palmer Street between Sir John Young Crescent and Cathedral street. The traffic signals at Palmer Street would be removed.*"

The Supplementary Representations Report proposed a further alteration: two way traffic movement in Palmer Street between Cathedral Street and Sir John Young Crescent (see

page 6-1 of the Supplementary Representations Report). Figures 7.1 and 7.4 of the Supplementary Representations Report and figure 2.2 of the Appendix G of the Supplementary Representations Report depict the proposed arrangements. Figure 3.2 of Appendix G of the Supplementary Representations Report compared the intersection as modified by the Supplementary EIS with the intersection as proposed in the Supplementary Representations Report.

The restoration of two northbound lanes in Palmer Street would facilitate traffic flow to the harbour crossings in conjunction with the removal of the seagull island.

The restoration of the traffic signals at the intersection is necessary to assist in managing traffic.

3.7.3 Cahill Expressway Off-Ramp

Figure 4.5.1 of Technical Paper 6 of the Initial EIS depicts that the three lanes at the intersection of the Cahill Expressway off-ramp and Cowper Wharf Road: one left turn only, one either left or right turn and one right turn only.

A modification to the intersection was proposed in the Supplementary EIS. The Supplementary EIS proposed to reduce the number of lanes on the Cahill Expressway off-ramp to two, with one left turn only lane and one right turn only lane and reconfigure the traffic island to prevent vehicles from turning right into to the Cahill Expressway from Cowper Wharf Road (See figure 2.6 in the Supplementary EIS).

The reinstatement of an additional right turn lane on the Cahill expressway off-ramp would facilitate traffic flow and enable one lane of the ramp to be used by traffic turning left into Sir John Young Crescent and the other lane to be used by traffic turning right into Sir John Young Crescent.

3.8 Changes at Queens Cross

This proposed modification involves the provision of a dedicated right turn lane at the intersection of Kings Cross Road and Darlinghurst Road (known as "Queens Cross") for a turning movement from Darlinghurst Road northbound into Kings Cross Road eastbound.

Foldout 2 of Vol. 3 of the Initial EIS depicts "Existing" and "Proposed" arrangements in respect of the intersection of Darlinghurst Road and Kings Cross Road. The "Existing" arrangements (the arrangements prior to the construction of the Tunnel), provided two right turn only lanes and two lanes from which traffic could travel straight through the intersection along Darlinghurst Road (these will be referred to as "Straight Lanes").

The current arrangements (constructed as part of the approved Cross City Tunnel surface works) evolved from community and council consultations during the preparation of relevant parts of the Urban Design and Landscaping Plan for this area, in accordance with Condition 166. The current arrangements were included in the Plan which was approved by the Director-General of DoP under condition 166. They are intended to de-emphasise the traffic function of this intersection by reducing road space and widening footpaths.

Monitoring of the performance of this intersection has found that removing turning lanes at this intersection to facilitate footpath widening has created a level of traffic congestion that detracts from the overall objective. Insufficient capacity is available in the two remaining lanes for both the northbound through traffic and traffic turning right into Kings Cross Road eastbound.

The proposed provision of the dedicated right turn lane would remove right turning traffic from the through lane, thereby improving traffic flows for northbound vehicles, and is thus expected to assist in relieving current congestion. Hence, this proposed modification also involves amendment the Urban Design and Landscape Plan discussed in Section 4.7 of this Report.

3.9 Required Modifications to Conditions of Approval

Section 75W of the EP&A Act permits the RTA, as the proponent of the Project, to modify the Project:

- Without the need for a modification of the Approval, if the Project as modified would not be inconsistent with the Approval; and
- With the approval of the Minister for Planning to a modification of the Approval, if the Project as modified would be inconsistent with the Approval.

The RTA has determined that the Proposed Modifications may make the Project as modified inconsistent with the Approval, and as a result, the RTA is seeking the Minister for Planning's approval for the modification of the Approval to permit the Proposed Modifications, pursuant to section 75W(2) of the EP&A Act.

The Approval is subject to a number of Conditions, which concern the design, construction and/or operation of the Project. As part of the application for modification to which this Report relates, the RTA will request the Minister for Planning to modify some of those Conditions.

This Report considers the existing Conditions of Approval, which relate to design, construction and operational issues, and makes specific reference to some of those Conditions, for the purpose of providing an appropriate assessment for the Proposed Modifications in the context of the Project as a whole. However, it is not intended that this would affect the stated position that the Conditions of the Approval would not apply to the carrying out of the Modification Works.

It is proposed that, unless otherwise specified in this Report, the Conditions of the Approval would not apply to the carrying out of the Modification Works, for the following reasons:

- The Modification Works involve short term, minor works. The Conditions relating to construction were intended to apply to the construction of a major public infrastructure project, with significant construction impacts in many areas of the Sydney CBD over an extended period of time. These conditions are not appropriate for the Modification Works; and,

- The Conditions refer to pre-construction, construction and operational phases. As the Tunnel is now operating, the Conditions that relate to the pre-construction and construction phases of the Project do not apply to the Modification Works.

Some of the Conditions of Approval are relevant to the operation of the Modified Project and modifications to these Conditions are required to take into account the operation of the Modified Project.

The RTA's proposed modifications to Conditions of Approval are set out in Appendix C and discussed below:

- The recommended additions to the definitions table are required in order for the Proposed Modifications to be recognised under the Conditions of Approval;
- The recommended change to Condition 1 is required to incorporate the Proposed Modifications into the Approval;
- The addition of new Condition 1A is required to reflect that the commitments in this Report would apply to the management of the Proposed Modifications;
- The recommended change to Condition 69 is proposed to facilitate the removal of bicycle lanes in order to implement the Proposed Modifications;
- The inclusion of a reference to this Report in Condition 122 reflects the fact that night works will be carried out as discussed in Section 4 of this Report; and,
- The inclusion of specified streets in the noise monitoring program to be undertaken as part of the Operational Noise Management Sub Plan required by Condition 150 is a recommendation from the operational noise assessment (see Section 4.4 for details) to enable reasonable and feasible road traffic noise mitigation measures to be identified and implemented; and,
- The amendment to the note between Conditions 240 and 241 reflects the fact that these Conditions were imposed under the approval granted on 12 December 2002.

4. Environmental Assessment

4.1 Overview

The potential key environmental impacts associated with the proposed surface traffic modifications are:

- Operational Traffic;
- Construction Traffic;
- Construction Noise; and,
- Operational Noise.

Other environmental impacts that need to be considered include:

- Air quality;
- Waste management;
- Urban design;
- Property impacts;
- Water quality, erosion, sedimentation and hydrology;
- Construction hazards and risk;
- Social and business impacts;
- Heritage;
- Flora and fauna; and,
- Impacts on utilities.

The environmental assessment below considers the impacts of the Proposed Modifications, as well as relative change in impact between the Approved Project and the Modified Project. For completeness, the cumulative impacts between the initial project approved by the Minister for Planning on 3 October 2001 and the proposed changes to surface traffic arrangements are considered in Section 4.15 of this Report.

4.2 Operational Traffic

The RTA commissioned Masson Wilson and Twiney to assess the operational traffic impacts of the Proposed Modifications. The Traffic Report prepared by Masson Wilson and Twiney is given in Appendix D. This Report assesses the operational traffic implications of the proposed modifications as a package, and discusses whether there is any significant variation from the project approved. Impacts on all road users including public transport and cyclists are addressed. For completeness, the implications of the proposed changes to the intersection of Bourke and William Streets, which are being considered under Condition of Approval No. 288, is also included.

The Traffic Report concludes that:

- The Proposed Modifications address a number local traffic congestion issues;
- Travel demand on the CBD surface streets remains substantially unchanged;
- For the most part the Proposed Modifications fine tunes the project and is not a significant variation from the Approved Project;

- The intent of the Proposed Modifications is to alleviate traffic congestion on some surface roads and improve accessibility within Sydney CBD which has precipitated since the opening of the Tunnel;
- Analysis confirms the changes should improve traffic flow in the vicinity of Market/Clarence Streets and William Street eastbound from Palmer Street, while at the same time improving conditions for CBD traffic which cannot otherwise make use of the Tunnel.
- Access out of Woolloomooloo to Cahill Expressway and Sydney Harbour Tunnel is also considerably improved without attracting a significant level of through traffic into the area; and,
- The changes also assist road based public transport options by reducing congestion which, at present, is impinging upon access to and the operation of bus and transit lanes.

It is also noted that the reintroduction of traffic signals at Sir John Young Crescent and Palmer Street would necessitate the loss of up to two parking spaces in Sir John Young Crescent. This loss of on-street parking would not be significant given the available on-street parking opportunities in the area.

Applying the same approach as specified in Condition of Approval No. 71, prior to the commencement of the Modification Works RTA's Technical Services Branch would conduct a safety audit on the detailed designs of the Proposed Modifications.

4.3 Construction Traffic

4.3.1 Palmer Street Ancillary Construction Compound

The use of the Palmer Street site as an ancillary compound for vehicle parking, materials lay down, equipment storage and amenities during the construction period would generate approximately 15 car movements and up to 6 heavy vehicle movements per day. Vehicles would access the site left in left-out from Palmer Street. Given the volume of traffic on surrounding roads this construction traffic would have a negligible impact. It is also noted that the provision of vehicle parking within this compound would minimise any construction impact on parking spaces within the locality of the proposed construction works.

4.3.2 Reopening Druitt Street

In order to complete these works a full closure of Druitt Street between Clarence and Kent Streets would be required. It is proposed to divert vehicle traffic via Clarence Street. Pedestrian access would be maintained during construction and bus services would continue along Druitt Street under traffic control. The RTA would notify State Transit Authority of construction scheduling and traffic management arrangements. This commitment is reflected in Section 8 of this Report.

Limiting closure to night-time and the short duration of construction would minimise any traffic impacts associated with this construction work. Details of required construction traffic management arrangements would be provided in a Traffic Control Plan to be approved by the RTA's Transport Management Centre.

4.3.3 Changes to Bus Lanes in Elizabeth Street

Not applicable as no construction work is required.

4.3.4 Provision of an Additional Traffic Lane in William Street

The construction of the additional traffic lane in William Street between Palmer and McElhone Streets would necessitate night-time lane closures in William Street for up to 20 nights. Pedestrian access would be maintained throughout construction.

Limiting lane closure to night-time and the short duration of construction would minimise any traffic impacts associated with this construction work. Details of required construction traffic management arrangements would be provided in a Traffic Control Plan to be approved by the RTA's Transport Management Centre.

4.3.5 Removal of Cycle Lanes near Eastern Portal

The removal of cycle lanes on Kings Cross Road eastbound between Darlinghurst Road and Ward Avenue and on Craigend Street between Roslyn Street footbridge and Darlinghurst Road could be completed under traffic control, with lane closures to be considered at the Darlinghurst Road intersection, Ward Avenue intersection and the connections with Roslyn Street and the Tunnel. Pedestrian access would be maintained at all times.

The relatively small volumes of traffic and the short duration of construction would minimise any traffic impacts associated with this construction work. Details of required construction traffic management arrangements would be provided in a Traffic Control Plan to be approved by the RTA's Transport Management Centre.

4.3.6 Changes In and Around Sir John Young Crescent

(a) Removing the Seagull Island at the Intersection of Sir John Young Crescent and Cowper Wharf Road

This construction work would require closure of the Sir John Young Crescent lane to the Harbour Tunnel and possibly the adjoining Cross City Tunnel lane over eight nights. Northbound traffic from Cowper Wharf Road would be diverted via the Crown Street roundabout to Macquarie Street/Cahill Expressway to enable this closure. There would be no impact on pedestrian access. Details of required construction traffic management arrangements would be provided in a Traffic Control Plan to be approved by the RTA's Transport Management Centre.

Given the traffic volumes using this lane and the duration of the proposed closure it would be advertised in relevant newspapers and signage/Variable Message Signs (VMS) erected in advance to alert motorists of the closure times. The Sydney Harbour Tunnel Company, and Cross City Motorway if necessary, would also need to be notified of this closure. This commitment is reflected in Section 5.3.2 of this Report.

(b) Reintroducing traffic signals at the intersection of Palmer Street and Sir John Young Crescent

The conversion of Palmer Street to one way northbound (as addressed in (c) below) would best be completed concurrently with this work to minimise the number of closures to Palmer Street. This construction work would require night-time or weekend lane closure northbound in Palmer Street over approximately three weeks, with up to 15 nights of work. Traffic could be diverted:

- Via Cathedral Street, Crown Street; and, Sir John Young Crescent, or,
- Via Riley Street and Sir John Young Crescent.

The construction of concrete blister islands in Sir John Young Crescent at Palmer Street would require temporary lane closures between Crown Street and Cowper Wharf Road. Traffic controllers would regulate the flow of traffic through the site by Stop-Start control.

The pedestrian route between Palmer Street and Sir John Young Crescent would be maintained, with diversion around the worksite. No other impacts on pedestrians are anticipated. Details of required construction traffic management arrangements would be provided in a Traffic Control Plan to be approved by the RTA's Transport Management Centre.

Given the volume of traffic using this Palmer Street northbound during the day, any proposed weekend closure would need to be advertised in relevant newspapers and signage/Variable Message Signs (VMS) erected in advance to alert motorists of the closure times.

(c) Changing Palmer Street from one lane northbound and one lane southbound between Sir John Young Crescent and Cathedral Street to two lanes northbound

This work would require a full night-time closure of Palmer Street (northbound) and diversion of traffic via Riley Street and Sir John Young Crescent over seven nights and would best be completed concurrently with the reintroduction of traffic signals at the intersection of Palmer Street and Sir John Young Crescent. Local access could be provided under traffic control. Pedestrian access could be maintained and diverted around the worksite. Details of required construction traffic management arrangements would be provided in a Traffic Control Plan to be approved by the RTA's Transport Management Centre.

Given traffic volumes in Palmer Street, this closure would require advertisement in relevant newspapers and signage/Variable Message Signs (VMS) erected in advance to alert motorists of the closure times.

(d) Reinstalling second right turn lane from Cahill Expressway off ramp to Cowper Wharf Road

This construction work would require closure of one lane on the Cahill Expressway off ramp over four nights, with traffic divert all traffic left into Cowper Wharf Road. Consideration would be given to a temporary speed reduction on the ramp. As this is no pedestrian access through this area, there would be no impact on pedestrians. Details of required construction traffic management arrangements would be provided in a Traffic Control Plan to be approved by the RTA's Transport Management Centre.

4.3.7 Changes at Queens Cross

These construction works would require a nighttime closure of one lane each way in Darlinghurst Road. No traffic diversion would be required and pedestrian access could be maintained. Details of required construction traffic management arrangements would be provided in a Traffic Control Plan to be approved by the RTA's Transport Management Centre.

NSW Fire Brigades would be notified of construction times as the Kings Cross Fire Station is located in close proximity to these works.

4.4 Noise

The RTA commissioned Wilkinson Murray Pty Limited to assess the construction and operational noise impacts of the Proposed Modifications. The Noise Assessment Report prepared by Wilkinson Murray Pty Limited is given in Appendix E to this Report.

In respect of the construction noise impacts of the Proposed Modifications the Noise Assessment Report covers the airborne noise and ground borne vibration likely to be generated by the construction proposed works, addresses the effect upon nearby residences, identifies relevant Conditions of Approval and recommends required mitigation measures:

The following Conditions of Approval are identified as relevant to the assessment of construction noise impacts of the Proposed Modification works:

- Condition of Approval No. 122 which regulates the hours of work and is recommended for modification to reflect the fact that night works will be carried out (see Section 3.9 and Appendix C for details);
- Condition of Approval No. 126 which sets out mitigation measures to be implemented where reasonable and feasible;
- Condition of Approval No. 129 which requires consultation with any affected schools;
- Condition of Approval No. 131 which regulates the use of public address systems. The use of public address systems would only occur during the construction of the Proposed Modifications in the event of an emergency;
- Condition of Approval No. 134 which specifies that the Palmer Street Compound is only to be used for light construction activities. It is noted that the use which is currently proposed for the Palmer Street Compound as an ancillary construction compound for the Proposed Modifications would be consistent with this Condition;
- Condition of Approval No. 135 which specifies that only dampened and/or "city" rock hammers are to be utilised;
- Condition of Approval No. 137 which requires the investigation of all reasonable and feasible noise source controls;
- Condition of Approval No. 139 which ensures that noisiest activities associated with night works are scheduled wherever possible to be completed before midnight; and,
- Condition of Approval No. 146 which sets out vibration criteria and relevant standards;
- Condition of Approval No. 147 which sets out vibration criteria specific to heritage buildings and sensitive structures.

Condition of Approval No. 123 is not relevant to the construction of the Proposed Modifications as it sets out construction noise criteria for long-term construction works. Notwithstanding, for consistency, the construction noise criteria established under Condition of Approval No. 123 has been used to assess construction noise impacts. The Noise Report concludes that the predicted noise levels show that, at times, the noise level criteria will be significantly exceeded. The Noise Assessment Report identifies that in some instances the criteria cannot be met and details the following mitigation measures to manage construction noise impacts associated with the Proposed Modifications:

- Where practicable, surface breaking would be conducted by means other than hydraulic hammers or jackhammers. Where this is not practicable, jackhammers will be used in preference to hydraulic hammers. Only damped rock hammers will be used;
- Use of public address systems only in the event of an emergency;
- Equipment will be oriented away from nearby residents, where practicable, and loading and unloading will be carried out away from noise sensitive areas, where practicable, to minimise impacts;
- Plant and equipment will not left standing with engines running when not in use;
- Works will be staged where practicable to avoid the co-incidence of noisy plant working at the same time close together and adjacent to sensitive receivers;
- All site personnel will be tool boxed on these management strategies and the need to keep noise to a minimum; and,
- A comprehensive community notification strategy will be implemented to ensure adjacent residents businesses are informed of construction works and scheduling.

With respect to vibration impacts, the Noise Assessment Report concludes that vibration impacts would be minimal given the nature and scale of the Modification Works.

Given that the Modification Works would be undertaken intermittently over a three-month period, routine construction noise and vibration monitoring would not be required. Notwithstanding, in the event of a construction noise and/or construction vibration complaint, the RTA should consider the need to conduct construction noise monitoring.

These management and monitoring recommendations are reflected as Environmental Management Commitments in Section 8 of this Report.

With respect to operational noise impacts, the Noise Assessment Report (Appendix E) assess the relative change in noise level between the Approved Project and the Project including the proposed modifications. The Noise Assessment Report concludes that the indicative noise level changes as a result of the proposed changed surface traffic arrangements indicate the possible statistically significant (greater than 0.5dB) increase in noise in the following streets:

- Druitt Street;
- Park Street;
- Palmer Street;
- Riley Street; and,
- Sir John Young Crescent.

It is noted that Condition of Approval No. 150 requires the RTA to develop an operation noise management sub plan (ONMSP) prior to the completion and opening of the Cross City Tunnel. This ONMSP was developed in accordance with the Condition and approved by the Director-General of the Department of Planning on 29 June 2005.

The approved ONMSP specifies a process to measure and assess road traffic noise on the surface streets consistent with the NSW government Environmental Criteria for Road Traffic Noise (ECRTN). The ONMSP identifies surface streets that may potentially be affected by increased traffic noise. A noise monitoring program and assessment process is established in the ONMSP to identify the potential noise impacts and possible noise mitigation for these surface streets. The Noise Assessment Report recommends that Druitt Street, Park Street, Palmer Street, Riley Street and Sir John Young Crescent be included in the noise monitoring program and assessment process established in the ONMSP to identify the potential noise impacts and possible noise mitigation as the changed surface traffic arrangements may increase traffic noise levels.

On this basis, it is recommended that Condition of Approval No. 150 be modified to include a reference to this required monitoring and assessment and consideration of reasonable and feasible management measures. The required noise monitoring would be undertaken in a manner which is generally consistent with Condition of Approval No. 152. As specified in the approved Sub Plan, the results of noise monitoring would be provided to the DoP and the Department of Environment and Conservation. RTA would then implement reasonable and feasible mitigation measures in accordance with the approved Sub Plan.

4.5 Air Quality

Given the nature of the construction works required to implement the Proposed Modifications, dust impacts would not be significant and would be consistent with, though less than, the dust impacts from the surface works completed for the Project to date. In order to manage construction dust emissions, the following controls are proposed:

- Covering any truckloads of material likely to generate dust;
- Considering the use of water sprays in conjunction with construction activities likely to generate some dust;
- Limiting the duration that unsealed areas are exposed;
- Cleaning any mud and/or spilt soil on the roadway or any sealed pavement using a mechanical road sweeper; and,
- Covering any material likely to generate dust which is to be stockpiled for more than one day.

These commitments would ensure dust generation is minimised and are reflected in Section 8 of this Report.

With respect to operational air quality impacts, it is noted that EIA Documents concluded that the construction of the Cross City Tunnel would result in a net improvement to regional ambient air quality. The operational traffic assessment in Section 4.2 and Appendix B of this Report indicates the likely traffic volume changes on surface roads associated with the Proposed Modifications. These predicted changes would have a negligible impact on the ambient air quality benefits of the project.

4.6 Waste Management

The estimated volume of waste is up to approximately 100 tonnes for all of the Proposed Modifications, provided the mill and re-sheeting of William Street is not required. If the mill and re-sheeting is required, it will involve an additional 600 tonnes of waste. It is noted that this volume of waste (including that to be generated in the event resheeting of William Street is required) is insignificant when compared to the volume of spoil and other waste generated during the construction of the Approved Project.

In order to minimise waste generation and ensure any waste is disposed of appropriately the following management strategy is proposed:

- Order and use appropriate quantities of construction materials to avoid oversupply of materials and minimise waste generation;
- Order and use recycled products where practicable;
- Segregate and recycle concrete and asphalt waste where possible; and,
- Ensure that only appropriately licensed waste contractors are used.

These commitments would ensure minimal waste generation and appropriate management of wastes and are reflected in Section 8 of this Report.

4.7 Urban Design

With the exception of the proposed Queens Cross works, the Proposed Modifications alter lane layouts, medians and traffic islands and do not alter the implemented urban design from kerb to property boundary. Accordingly, urban design consideration for the proposed Queens Cross Works would be required.

The Supplementary EIS design at Queens Cross is given in Appendix F and the design approved by the Director-General under Condition of Approval No. 166 is given in Appendix A. The proposed urban design of the Queens Cross modification is given in Appendix B. It should be noted that the Supplementary EIS design was amended in accordance with recommendations made by City of Sydney Council and the changes approved by Director-General of the Department of Planning under Condition of Approval No. 166. The urban design concept for the proposed modification is consistent with the treatment in the Supplementary EIS. In particular, the use of consistent material and finishes including granite paving is proposed.

On this basis, it is concluded that the Proposed Modifications would be in keeping with the urban design principles of the Approved Project.

4.8 Property Impacts

The RTA owns the Palmer St ancillary construction compound site. All the construction works associated with the Proposed Modifications are located within public roads. City of Sydney Council would be notified prior to the commencement of works on local roads.

Given the nature of the proposed construction works, damage to private property is unlikely. Any property damage resulting from construction of the Proposed Modifications would be managed in by applying the same approach specified in Minister for Planning's Condition of Approval No. 118.

4.9 Water Quality, Erosion and Sedimentation and Hydrology

The potential water quality, erosion and sedimentation impacts associated with the Proposed Modifications would be significantly less than that experienced during the construction of the Approved Project. The main activities associated with the proposed modification that may cause surface water issues are:

- Excavation works;
- Concrete casting;
- Materials stockpiling; and,
- The storage and handling of hazardous and dangerous goods.

Construction hazards and risks are discussed in Section 4.10 of this Report. The potential for water quality, erosion and sedimentation impacts during construction of the Proposed Modifications would be minimised by protecting drains in close proximity construction work with appropriate erosion and sedimentation controls and, if required, blocking drains during construction activities such as concreting. Any blockage of drains would need to be planned so as to prevent flooding in a rain event. These environmental management commitments are reflected in Section 8 of this Report.

With respect to operational water impacts, the detailed design of the Proposed Modifications would be reviewed in the context of the existing road drainage elements to ensure that surface water flows are adequately managed.

4.10Construction Hazards and Risk

Consistent with the construction of the approved surface traffic arrangements, the construction of the Proposed Modifications would require the storage and handling of small quantities of dangerous or hazardous goods including diesel, oil, paint and chemicals. Quantities of dangerous goods on-site would not exceed the quantities that need to be licensed under applicable dangerous goods laws. To ensure all dangerous and hazardous goods are properly handled and stored on-site:

- Hazardous substances will be stored in accordance with the requirements in the Material Safety Data Sheets (MSDSs);
- Any refuelling operations would be undertaken away from drains;
- Spill kits would be provided at the Palmer Street compound, if necessary, and all worksites where dangerous goods are in use; and,
- Authorised contractors would be used for removal and disposal of temporary portable toilets.

These environmental management commitments are reflected in Section 8 of this Report.

4.11Social and Business Impacts

Social impacts include air quality changes, noise impacts, impacts on travel opportunities, impacts on social character, safety and security, views, pedestrian amenity, local open space and access. The EIA Documents assessed the social impacts for the Approved Project and divided the impacts into those that would occur during construction (mainly adverse) and those that would occur during operation (mainly positive).

The Proposed Modifications would result in improved vehicle accessibility in Central Sydney and, while it is noted that there would be some construction impacts, these impacts would be short in duration and are generally significantly less than those that were associated with the construction of surface works under the existing approval.

With respect to impacts on businesses adjacent to construction works, it is noted that these businesses would be notified of construction works at least five days in advance where practicable. The construction of some elements of the Proposed Modifications at night would minimise impacts on businesses that operate during standard office hours and the use of the Palmer Street site as an ancillary construction compound would ensure that on-street parking spaces were not taken up by construction personnel.

4.12Heritage

The EIA Documents identify a number of listed heritage items as being within proximity to the Approved Project works and assess some direct impacts. The Proposed Modifications would not directly impact on heritage items and, given the nature and scale of construction work proposed would not have any indirect impacts on items of heritage significance. Although unlikely, any heritage impacts, including the unlikely event of finding any items of suspected heritage or archaeological significance during construction, would be managed by applying the same approach as specified in Condition of Approval No. 180.

4.13Flora and Fauna

The Proposed Modifications involve alterations to existing structures and construction of some roadway elements. No clearing works are required and no impact on flora or fauna is anticipated.

4.14Impacts on Utilities

Based on available information, there does not appear to be any impacts on utilities associated with the Proposed Modifications. Any impacts on utilities would be identified and managed during detailed design by applying the same approach as specified in Condition of Approval No. 217.

4.15Cumulative Impacts

The environment impact assessment included in this Report has considered the relative change in impact between the Project as modified by the Minister for Planning on 12 December 2002 (the Approved Project) and the Project incorporating the Proposed Modifications (the Modified Project). For completeness, the RTA has reviewed the

environmental impacts of Proposed Modifications relative to the impacts of the initial project approved by the Minister for Planning on 3 October 2001 and also considered the reopening Bourke Street on the southern side of the intersection with William Streets to left-in left-out traffic (which is currently being considered by the RTA under Condition of Approval No. 288) and determined that the impacts of the Proposed Modifications would not constitute a significant change in impacts in this context.

5. Community Consultation and Notification Strategy

5.1 Agency Briefings

The following government agencies have been briefed on the Proposed Modifications:

- The Department of Planning;
- NSW Fire Brigades; and,
- City of Sydney Council.

The Department of Environment and Conservation would be briefed on construction noise impacts and management commitments once construction scheduling is more advanced.

5.2 Community Consultation

The recent Parliamentary Inquiry into the Cross City Tunnel project considered numerous community representations and recommended that the RTA consider some changes surface traffic arrangements constructed as part of the project.

Works completed in accordance with the Conditions of Approval have already been the subject of extensive consultation.

This Report be placed on the RTA's website following submission to the Director-General of DoP for assessment.

5.3 Construction Notification

5.3.1 Sensitive Receivers and Adjacent Businesses

As the majority of the Proposed Modifications would require lane closures and/or traffic diversions to construct, some construction work would need to be undertaken at night. A comprehensive community notification strategy is therefore proposed including advertising and letterbox drops to adjacent residences and businesses, and those identified as sensitive receivers in the construction noise assessment included in Appendix E, at least five days in advance of construction works, where practicable. In the event of construction delays relevant residents and businesses are to be advised of the delay and any new construction scheduling information, where practicable

A dedicated telephone number that residents and businesses could call for further information regarding any of the proposed Modification Works would be operational for the duration of construction.

5.3.2 Construction Traffic Diversions

As discussed in Section 4.3 of this Report, the following construction traffic diversions would require notification in the following manner:

- The closure of the Sir John Young Crescent lane leading to the Harbour Tunnel and Cowper Wharf Road, as well as possibly the adjoining Cross City Tunnel lane associated

with the proposed removal of the seagull island at the intersection of Sir John Young Crescent and Cowper Wharf Road would be advertised in relevant newspapers and signage/VMS would be erected in advance to alert motorists of the closure times. The Sydney Harbour Tunnel Company would also need to be notified of this closure. The RTA would consult with Cross City Motorway regarding the need for Tunnel lane closures;

- Any proposed weekend closure of Palmer Street (northbound) and Sir John Young Crescent access to and from Cowper Wharf Road associated with the erection of traffic signals at the Palmer Street/Sir John Young Crescent intersection would be advertised in relevant newspapers and signage/VMS would be erected in advance to alert motorists of the closure times; and,
- The closure of Palmer Street (northbound) associated with the proposed conversion of Palmer Street to two northbound lanes would be advertised in relevant newspapers and signage/Variable Message Signs (VMS) would be erected in advance to alert motorists of the closure times.

6. Other Approvals and Management Documentation

6.1 Approvals

A road occupancy licence (ROL) would be required from the RTA prior to any lane closures being implemented to construct the Proposed Modifications. As discussed in Section 4.3, a Traffic Control Plan for the proposed construction traffic management strategy would be submitted to the RTA's Transport Management Centre with the Licence application.

No other licences or approvals are required. In particular, it is noted that an Environment Protection Licence from the Department of Environment and Conservation is not required as the Proposed Modifications would not fall into any of the scheduled activities under the *Protection of the Environment Operations Act, 1997.*

6.2 Required Management Documentation

The RTA has considered the requirements of the Conditions of Approval with respect to management plans and other documentation.

As indicated in Section 3.9 of this Report, it is proposed that, unless otherwise specified in this Report, the Conditions of the Approval would not apply to the carrying out of the Modification Works. Consequently, the Conditions of Approval which would require the preparation or amendment of plans, statements or other documents in connection with the carrying out of the Modification Works would not apply, and those documents would not be prepared or amended.

Where this Report indicates that plans or statements would be prepared for the Modification Works (or are incorporated in this Report - see, for example, Section 8 of this report), it is proposed that the plans would be prepared by the RTA in accordance with the terms of this Report.

It is proposed to amend various other plans and strategies which have been prepared pursuant to the Conditions of Approval, where appropriate, to reflect the Proposed Modifications. It is proposed that any approval of the Proposed Modifications by the Minster for Planning would operate as an approval to amend those plans in this regard, without the need for compliance with the relevant conditions of the Approval.

In particular, it is noted that, for example:

- Preparation of a Construction Method Statement under Condition 18 is not required. Required environmental management measures are identified in the assessment undertaken in Section 3 and reflected in Section 8 of this Report as Environmental Management Commitments;
- The preparation of a Traffic Management Plan in accordance with Condition 46 and Noise Impact Statement in accordance with Condition 124 is not required;
- The need to update the Plan to implement cycle lanes in William Street is negated by the proposed modification to Condition 69 (see Section 3.9 and Appendix A of this Report); and,
- Amendment/updating of the Urban Design and Landscape Plan and Sub Plans required under the Conditions of Approval is not required, with the exception of the proposed

Queens Cross works, as the Proposed Modifications alter lane layouts, medians and traffic islands and do not alter the implemented urban design from kerb to property boundary. An updated plan addressing the Urban Design of the proposed Queens Cross Works in included in Appendix D and discussed in Section 4.7 of this Report.

The following management documents would apply to the Proposed Modifications:

- Environmental Management Commitments in Section 8 of this Report;
- The approved Operational Noise Management Sub Plan required under Condition of Approval No 150 (in accordance with the recommended modifications to the Conditions of Approval - see Section 3.9 and Appendix C), would be updated to include Druitt Street, Park Street, Palmer Street, Riley Street and Sir John Young Crescent in the noise monitoring program and assessment process established in the Sub Plan, to identify the potential noise impacts and reasonable and feasible noise mitigation; and,
- Traffic Control Plans would be prepared, independently of the Conditions of Approval, to support the Road Occupancy Licence applications and implemented as approved by the RTA's Transport Management Centre.

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7. Matters of National Environmental Significance

The RTA has assessed the Proposed Modifications in accordance with the *Environment Protection and Biodiversity Conservation Act* 1999 (Cth) (EPBC Act), and provides the following comments in relation to the possible triggers for approval under Chapter 3 of the EPBC Act (as summarised in the words in italics).

Would the proposal impact the World heritage values of any World Heritage Property or National Heritage Place? No.

Would the proposal affect the National Heritage values of a National Heritage place (that is, a place which has been included on the National Heritage list)? No

Would the proposal affect the ecological character of any Ramsar wetland (that is, a wetland of international significance for migratory bird species listed under the Ramsar Convention)? No

Would the proposal affect any listed threatened species or community? No

Would the proposal affect any listed Migratory Species? No

Would the proposal involve any Nuclear Action? No

Would the proposal affect any Commonwealth Marine Area? No
In addition, the proposed modifications would not be carried out on any Commonwealth land or affect the environment of any Commonwealth land.

In consideration of the above, the RTA considers that separate approval for the proposed revisions to the approved project design is not required under the EPBC Act and referral to the Federal Minister for the Environment is not required.

8. Environmental Management Commitments

Based on the environmental assessment undertaken in Section 4 of this Report, the EIA Documents and the Minister for Planning's Conditions of Approval, the management measures outlined in the table below are proposed to minimise environmental impacts of the carrying out of the Modification Works during construction. The entity responsible for ensuring that each management measure is appropriately implemented is indicated down the right hand side of the table.

	Management Measures	**Responsibility**
1 Pre Construction		
1.1	Complete road safety audit on detailed design of Proposed Modifications	Project Manager
1.2	Prior to the commencement of construction the Proponent shall identify the services potentially affected by construction activities to determine requirements for diversion, protection and/or support. This shall be undertaken in consultation with the relevant service provider(s).	Project Manager
1.3	Notification in accordance with Section 5.3 of this Report	Project Manager
1.4	All site personnel will be tool boxed on these management strategies and the need to keep noise to a minimum	Project Manager
2 Construction Traffic Management		
2.1	Traffic Control Plans are to be prepared for all construction works	Traffic Manager
2.2	All construction traffic management is be completed in accordance with the relevant Road Occupancy Licence approved by the RTA's Transport Management Centre	Traffic Manager
3 Construction Noise Management		
3.1	Where practicable, surface breaking will be conducted by means other than hydraulic hammers or jackhammers. Where this is not practicable, jackhammers will be used in preference to hydraulic hammers. Only damped rock hammers will be used	Site Foreman
3.2	Use public address systems only in the event of an emergency	Site Foreman
3.3	Equipment will be oriented away from nearby residents, where practicable, and loading and unloading will be carried out away from noise sensitive areas, where practicable, to minimise impacts	Site Foreman
3.4	Plant and equipment will not left standing with engines running when not in use	Site Foreman
3.5	Works will be staged where practicable to avoid the co-incidence of noisy plant working at the same time close together and adjacent to sensitive receivers	Site Foreman
3.6	In the event of a construction noise and/or construction vibration complaint, consider the need to conduct construction noise and/or vibration monitoring	Project Manager
4 Construction Dust Management		
4.1	Covering any truckloads of material likely to generate dust	Site Foreman

	Management Measures	Responsibility
4.2	Considering the use of water sprays in conjunction with construction activities likely to generate some dust	Site Foreman
4.3	Limiting the duration that unsealed areas are exposed	Site Foreman
4.4	Cleaning any mud and/or spilt soil on the roadway or any sealed pavement using a mechanical road sweeper	Site Foreman
4.5	Covering any material likely to generate dust which is to be stockpiled for more than one day	Site Foreman
5 Water Quality Erosion and Sedimentation		
5.1	Protect drains in close proximity to construction work with appropriate erosion and sedimentation controls	Site Foreman
5.2	Consider locking drains during construction activities such as concreting	Site Foreman
6 Waste Management		
6.1	Order and use appropriate quantities of construction materials to avoid oversupply of materials and minimise waste generation	Construction Manager
6.2	Order and use recycled products where practicable	Construction Manager
6.3	Segregate and recycle concrete and asphalt waste where possible	Site Foreman
6.4	Ensure that only appropriately licensed waste contractors are used	Construction Manager
7 Hazards and Risk		
7.1	Quantities of dangerous goods on-site would not exceed the quantities that need to be licensed under applicable dangerous goods laws	Site Foreman
7.2	Hazardous substances will be stored in accordance with the requirements in the Material Safety Data Sheets	Site Foreman
7.3	Ensure any refuelling operations are undertaken away from drains	Site Foreman
7.4	Ensure spill kits are provided at the Palmer Street compound (if dangerous goods are stored there) and all worksites where dangerous goods are in use	Site Foreman
7.5	Ensure use of authorised contractors only for removal and disposal of temporary portable toilets	Site Foreman
8 Other Issues		
8.1	The urban design of the Queen Cross Works shall be completed in accordance with the Plan included in Appendix B of this Report	Project Manager
8.2	Any damage to buildings, structures, lawns, trees, sheds, gardens etc. resulting from the Modification Works shall be fully rectified at no cost to the owner(s)	Project Manager
8.3	If, during the course of construction, the Proponent becomes aware of any heritage items or archaeological material on any site(s) on which the Modification Works are being carried out, all work likely to affect the site(s) shall cease immediately and the relevant authorities, including the Department of Environment and Conservation, the Department of Planning	Project Manager

	Management Measures	Responsibility
	and/or the relevant Local Aboriginal Land Council(s) shall be consulted to determine an appropriate course of action prior to the recommencement of work at that site. Appropriate supporting documentation would need to accompany any application for required permit/consent(s),	
8.4	Implement the approved Operational Noise Management Sub Plan (Conditions 150 and 152), once updated, to address the Proposed Modifications.	Project Manager

The RTA would monitor compliance with these Environmental Management Commitments. It is proposed that the project's appointed Environmental Management Representative (EMR), who was initially appointed under condition 15 of the Approval, would oversee the construction of the Proposed Modifications. The EMR would monitor the implementation of the Environmental Management Commitments outlined above and, if required, make recommendations to the RTA on additional Commitments or alterations to the Commitments. The EMR would need to endorse any proposed amendments to the Environmental Management Commitments prior to any change being implemented.

9. Conclusions and Recommendations

The Cross City Tunnel project was approved by the Minister for Planning on 3 October 2001 and substantially modified on 12 December 2002. These approvals were issued pursuant to Part 5, Division 4 of the EP&A Act. As a result of amendments to the EP&A Act on 1 August 2005, and associated savings and transitional provisions, the Approval is now governed by Part 3A (Major Infrastructure and Other Projects) of the EP&A Act. Section 75W(2) of the EP&A Act provides that the proponent must request the Minister for Planning's approval to modify the Minister for Planning's approval for a project.

The changes made to surface roads as part of the Cross City Tunnel project have received wide criticism from motorists, the community and the media. Reversal of the road changes has been widely called for. While the EIA Documents for the Cross City Tunnel supported these surface traffic management works on the basis of improving the CBD's streets with respect to criteria other than traffic function, it has been the community's concern that too much traffic capacity has been withdrawn. The subsequent traffic congestion affects road users that are not potential users of the Cross City Tunnel and hence have no alternate route to avoid congestion.

The RTA has assessed the environmental impacts associated with the construction of the Proposed Modifications. While it is noted that there would be some construction impacts (in particular noise and traffic impacts) these impacts would be short in duration and are consistent with those of the Approved Project, or represent significant reductions in impact, when compared with those of the Approved Project.

In respect of operational impacts, it has been identified that Druitt Street, Park Street, Palmer Street, Riley Street and Sir John Young Crescent may potentially be affected by increased road traffic noise associated with the Proposed Modifications. Accordingly, the RTA will update the approved Operational Noise Management Sub Plan to monitor these roads and identify reasonable and feasible noise mitigation measures.

The RTA concludes that, cumulatively and individually; the Proposed Modifications would have acceptable environmental impacts that would be managed in accordance the Environmental Management Commitments included in Section 8 of this Report.

Accordingly, pursuant to Section 75W of the EP&A Act, the approval of the Minister for Planning is requested to modify the Approval for the Cross City Tunnel project as outlined in this Report. Recommended wording for modification to the Conditions of Approval to reflect the Proposed Modifications is provided at Appendix C.