

**ALBURY WODONGA  
PROPOSED NATIONAL  
HIGHWAY**

***Director-General's Report  
Section 115C  
of the Environmental  
Planning & Assessment Act***

*December 1997*

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## FOREWORD

The Roads and Traffic Authority (RTA) proposes to construct a National Highway between Albury and Wodonga.

The proposal constitutes an activity under Part 5 of the *Environmental Planning and Assessment Act, 1979 (EP&A Act)*. The Roads and Traffic Authority has determined that the project is likely to significantly affect the environment under the provisions of Part 5 of the EP&A Act. Since the proposal crosses the New South Wales - Victorian border, the RTA and VicRoads have jointly prepared and exhibited an Environmental Impact Statement/Environment Effects Statement (EIS/EES) in accordance with the requirements of the EP&A Act and the *Environment Effects Act, 1978 (Vic) (EE Act)*. The project will be funded by the Commonwealth Government and hence is also subject to Commonwealth environmental impact assessment legislation.

Following exhibition of the EIS/EES the Victorian Minister for Planning, pursuant to Section 9 of the EE Act, appointed a Panel to hold an inquiry into the environmental effects of the proposal. The Panel comprised of one nominee each from the Commonwealth, the New South Wales and the Victorian Governments. The Panel recommended that the inner route option should be adopted for a national highway between Albury and Wodonga.

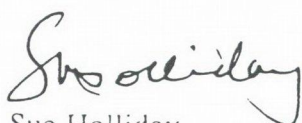
Following exhibition of the EIS/EES and the recommendations of the Panel Inquiry the Victorian Minister for Planning and Local Government conducted his environmental assessment of environmental effects of the proposal on 28 February 1997. The Minister's decision will be made public concurrently with the decision made in New South Wales.

In NSW the Roads and Traffic Authority sought the approval of the Minister for Urban Affairs and Planning for the inner route option under Section 115B of the EP&A Act.

This report has been prepared in accordance with Section 115C of the EP&A Act which requires that the Minister obtain a report from the Director-General of the Department of Urban Affairs and Planning before making a decision.

The purpose of this report is to review the EIS/EES, the issues raised in representations made in response to its exhibition, submissions from the Roads and Traffic Authority to the Victorian Panel Inquiry, the RTA's Representations Report and other relevant matters pertinent to the potential environmental impacts of the proposal.

The report concludes that the potential environmental impacts associated with the project are acceptable and can be mitigated by adopting further measures and safeguards contained in the recommended conditions of approval.



Sue Holliday  
Director-General



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## Glossary

AHC	Australian Heritage Commission
AS	Australian Standard
dB(A)	decibel (A-weighted scale)
Department, The former Department of Planning)	Department of Urban Affairs and Planning (and the
Director-General	Director-General of the Department of Urban Affairs and Planning
DLWC	Department of Land and Water Conservation
DoT&RD	Department of Transport and Regional Development (Commonwealth)
DUAP	Department of Urban Affairs and Planning
EES	Environment Effects Statement
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EMR	Environmental Management Representative
EMS	Environmental Management System
EPA	Environment Protection Authority
EA	Environment Australia (Commonwealth)
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP(IP) Act	<i>Environment Protection (Impact of Proposals) Act 1974 (Commonwealth)</i>
MDBC	Murray Darling Basin Commission
Minister, The	Minister for Urban Affairs and Planning
NPWS	National Parks and Wildlife Service
PCA	Pollution Control Approval
Regulation, The	<i>Environmental Planning and Assessment Regulation 1994</i>
RTA	Roads and Traffic Authority



## EXECUTIVE SUMMARY

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### The Proposal

The proposal is to provide a new section of National Highway through the Albury Wodonga region. The EIS considered two route options for the highway, an "inner" and an "outer" route. A Panel appointed under Victorian legislation to hold a Public Inquiry into the impacts of the two routes recommended the "inner" route as the preferred option. The RTA has sought approval for this option. The proposed route is shown on Figure 1. The total length of the proposed road is approximately 52 km.

The road would be a dual carriageway and extend from the existing Hume Highway at Mullengandra (approximately 30 km north east of the Albury CBD), traverse the Murray River Flood Plain and connect with the Hume Freeway at Wodonga (Victoria). Some sections of the road would follow the existing Hume Highway and other sections would follow new alignments. As such, the works required would range from minor road pavement rehabilitation and upgrading works to completely new road and bridge construction. New service roads, local road modifications, interchanges, road bridges, underpasses and pedestrian overbridges would also be constructed to maintain properties' access and facilitate local vehicle and pedestrian traffic movements.

The RTA has sought approval from the Minister for Urban Affairs and Planning for the "inner route" proposal as specified in the EIS/EES and the modifications as outlined in Section 5 of this report.

These modifications have been made following consideration of representations made to the RTA, the Panel Inquiry and from results of supplementary studies and consideration.

### EIS/EES Exhibition

The EIS was exhibited from 3 November 1995 to 1 January 1996. The EIS described both the "inner" and "outer" routes and assessed the environmental impacts of each of them.

A total of 704 representations were received in response to the EIS exhibition.

The key issues raised relevant to the proposed road include:

- whether the "inner" route or the "outer" route should be adopted;
- traffic noise;
- risk due to hazardous vehicles passing through the middle of Albury on the proposed road; and;
- reduction in accessibility to/from East Albury and potential severance of the community; and,
- social impacts.

## Key Issues

### Inner Route or Outer Route

RTA proposes to construct a dual carriageway highway following the inner route described in the EIS. The main justification is that the inner route would have higher benefits to the community than the outer route by alleviating the existing traffic problems in Albury-Wodonga, in particular at the existing Murray River Crossing (Lincoln Causeway). The Public Inquiry Panel supported this view.

The Department considers that the RTA has given due consideration to the two route options in selecting the preferred route. As reflected in the EIS and the Representations Report, the RTA is also aware of the relative environmental costs and benefits of the two alternatives and has also proposed various measures to minimise the potential adverse environmental impacts along the preferred corridor.

With the impact mitigation measures proposed by the RTA, the Department considers that there is no strong reason on environmental impact ground to object to the RTA's decision to adopt the inner route in the proposal.

### Traffic Noise

The supplementary information provided by the RTA indicates that with the proposed traffic noise mitigation measures in place, the traffic noise along the proposed road would meet the EPA's requirements. Furthermore, the Department also observes that there would be substantial improvement in the acoustic environment along the existing Hume Highway when the proposed road is completed.

### Risk from the Transport of Hazardous Goods

A comparison of risks from the existing road network and the proposed routes has indicated that risks from transportation of hazardous goods will be reduced by using either of the proposed highways. Though the risks associated with the outer route option is considered to be lower than from using the inner route, both risks are considered to be low and acceptable.

The Department has recommended conditions of approval that will further enhance the safety issues associated with the use of the proposed routes.

### Severance of Albury

In response to the community concerns that the proposed road would reduce accessibility of East Albury and further divide the city, the RTA modified the proposal by providing additional bridges and overpasses along the proposed route to facilitate pedestrian, cyclist and vehicle movements across the road.

The Department considers that, even with additional crossings, the proposed road would reduce the accessibility of East Albury by widening the existing 'barrier' caused by the railway line. This impact is likely to be felt by cyclists and pedestrians, in particular the young, the old and the disabled. In order to minimise the impact for pedestrians and cyclists, it is suggested that pedestrian and cyclist friendly features such as ramps, trees, and/or covered walkways should be provided at the bridges and overpasses where appropriate.



### Other Social Impacts

In addition to the major social impacts outlined above, there were concerns raised on the potential impacts on Albury such as road safety, amenity of the areas along the road, and impacts on recreational facilities.

### **Conclusion**

The Director-General's conclusion of the overall assessment is that the dual carriageway highway proposal will provide benefits over the existing Hume Highway which is single lane and poses serious accident risks due the mixture of local and through traffic using the road without controlled access. The proposed highway would result in consistent design speed, improved surface conditions, improved level of service, reduced travel times, improved traffic safety and controlled access.

In addition, it would provide a second Murray River crossing to the Lincoln Causeway which is operating near capacity. The highway would also directly connect with the existing Hume Freeway in Wondonga.

Section 8 of this report lists the recommended conditions of any approval, the key conditions include:

- the preparation and implementation of comprehensive environmental management plans for both the construction and operation stages;
- the appointment of a qualified environmental manager and employing contractors with accredited environmental performance;
- the establishment of a community liaison group and of a 24 hour complaint phone system;
- extensive monitoring and auditing requirements by independent persons, including making results publicly available;
- extensive landscaping;
- compliance with noise criteria to EPA satisfaction and ensuring noise during construction is managed and limited to day time unless otherwise agreed to by the EPA;
- instituting a comprehensive Local Traffic Management Program, prior to the development becoming operational;
- comprehensive water pollution control measures, including measures to contain and treat chemical spills;
- various conditions aimed at heritage conservation, minimising impacts on flora and fauna including fish, minimising impacts on businesses and maximising benefits for pedestrians and cyclists.

# **1. INTRODUCTION**

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## **1.1 Purpose of the Report**

The purpose of this report is to review the environmental impacts of the proposed inner route as outlined in the Environmental Impact Statement (EIS/EES) for the proposed construction of the Albury Wodonga National Highway, the issues raised in representations made in response to the EIS exhibition, the submissions made by the RTA, the recommendations of the Panel Inquiry, and subsequent changes and modifications as a result of recommendations from the Panel Inquiry as outlined in the RTA's Representations Report.

Although the EIS/EES assessed the environmental impacts of two route options i.e. the inner and outer routes, this report provides an assessment of impacts associated with the proposed inner route option.

This report is prepared in accordance with Section 115C of the EP&A Act which requires the Director-General to assess and report on the proposal to the Minister for Urban Affairs and Planning.

## **1.2 Nature of the Proposal**

The RTA proposes to construct a new National Highway through the Albury Wodonga region. The proposed road would extend from the existing Hume Highway at Mullengandra (approximately 30 km north east of the Albury CBD), traverse the Murray River Flood Plain and connect with the Hume Freeway at Wodonga (Victoria), (Figure 1). The total length of the proposed road is 52 km.

The road would be a dual, two lane carriageway construction. As some sections of the road would follow the existing Hume Highway while other sections would follow a new alignment, the works required would range from minor road pavement rehabilitation and upgrading works to completely new road and bridge construction. New service roads, local road modifications, road bridges, interchanges, overpasses and pedestrian bridges would also be built to access properties and to facilitate local vehicle and pedestrian traffic movements.

## **1.3 Background**

The Hume Highway is a federally funded National Highway which extends across New South Wales and Victoria between Sydney and Melbourne. Although managed by the RTA and VicRoads, all funding for the Hume Highway construction and maintenance is provided by the Federal Government through the Department of Transport.

Planning for an internal traffic relief route for Albury Wodonga commenced in the early 1960s. During the 1970s the NSW and VIC governments undertook the necessary



planning scheme amendments and commenced land acquisition along the proposed "inner" highway route. In 1974, the Federal Bureau of Roads undertook an investigation of possible alternatives for a bypass of Albury Wodonga between Bowena NSW and Barnawartha North VIC. This route became known as the "outer" route.

The results of that investigation were reported in 1978 by the Bureau of Transport Economics. They indicated that the inner route consisting of the proposed Wodonga bypass, the second Murray River crossing and the Albury traffic relief route were economically more efficient when compared to the external route in the short term.

The Federal government consequently resolved to consider the internal route as part of the Hume National Highway. The 1978 report also recommended that the outer route should be investigated in consultation with the public and a preferred route be reserved until construction was warranted.

During the 1980s as part of the National Highway System, major planning and construction activities, in particular in Victoria were undertaken, including the Wodonga Bypass.

In October 1989 the Federal Minister for Land Transport announced that the longer term need for an external bypass of Albury Wodonga would be examined. Following a comprehensive investigation into alternative route options, a preferred outer route was announced in October 1992.

The Federal, NSW and VIC Ministers agreed to reconvene the working party responsible for the Albury Wodonga project.

It was agreed that:

- Proper evaluation of the best course of action required full consideration of both the inner and outer routes; and
- A joint EIS/EES should be undertaken considering both options for the Albury Wodonga National Highway Project, ie. inner and outer routes. The EIS/EES was designed to assess the environmental impact of each of these routes (GHD, 1995).

#### **1.4 Preparation and Exhibition of the EIS/EES**

The RTA has determined that the project is likely to significantly affect the environment and consequently has prepared an EIS in accordance with Section 112 of the EP&A Act. In a letter received on 25 November 1993 the RTA wrote to the Director of the Department of Planning requesting the requirements for the form and content for an EIS for the proposal. The Director's Requirements were issued to the RTA on 24 December 1993, a copy of which is provided in Appendix A.

The EIS/EES was prepared to assess the impacts of route options which would best meet the following National Highway objectives:

- providing consistent traffic conditions along the highway;
- reducing total travel costs and travel time;

- improving road safety;
- providing limited access;
- facilitating regional trade, commerce and tourism;
- achieving a cost effective solution;
- accommodating medium term needs;
- providing the scope to accommodate long term needs;
- addressing short term issues where practicable;

and to meet the following regional and local objectives:

- improves upon the existing road and traffic conditions;
- minimises adverse impacts upon the community and the environment;
- complements urban development objectives;
- improves the linkages between Albury and Wodonga as well as NSW and Victoria;
- safeguards and enhances where possible environmental amenity in accordance with ecologically sustainable development principles; and
- creates the opportunity to improve regional amenity.

The EIS/EES was exhibited from 30 October 1995 to 26 January 1996. The RTA received 704 representations in relation to the proposal. After close of exhibition, the RTA forwarded copies of the representations to the Department of Urban Affairs and Planning.

Advertisements identifying public display locations and times were published in the Sydney Morning Herald and in local newspapers. The advertisements also indicated that copies of the EIS/EES were available for purchase.

## 1.5 Panel Inquiry

As part of Victoria's environmental impact assessment process and pursuant to Section 9 of the Victorian *Environment Effects Act, 1978 (EE Act)* a panel inquiry was held between 14 May and 13 June 1996. The panel was appointed by the Victorian Minister for Planning and Local Government and consisted of three members representing NSW, Victoria and the Commonwealth Governments, respectively. The panel members were Helen Gibson (Chair) (VIC), Rod Calvert (C'th) and Kevin Cleland (NSW). A total of 45 individuals and groups took the opportunity to appear at the public hearing. The terms of reference of the inquiry required the panel to recommend which route development strategy would best meet the project objectives. The following strategies were evaluated by the panel:

- build inner route and reserve outer route;
- build inner route and abandon outer route;
- build outer route and reserve inner route;



- build outer route and abandon inner route; and
- abandon both routes (the base case).

The panel subsequently recommended that the development strategy which best meets the project objectives would be to build the inner route and abandon the outer route.

## 1.6 Statutory Provisions

Since Division 4 of Part 5 of the EP&A Act became operative on 22 April 1994, the approval of the Minister for Urban Affairs and Planning is required for projects undertaken by state agencies where an EIS/EES has been prepared under Part 5 of the EP&A Act and where the agency also has a determining role.

The Director's Requirements for the preparation of an EIS for the proposal were issued before Division 4 came into effect. This means that Division 4 does not apply to the proposal unless the Minister so directs.

On 19 November 1997, the Minister directed under section 115F(2) of the EP&A Act that the proposed activity shall be assessed and determined under Division 4, Part 5 of the EP&A Act.

Under Division 4 an assessment report must be prepared by the Director-General of the Department of Urban Affairs and Planning for the proposal before the Minister makes a decision. The Director-General's report together with the Minister's decision are to be made publicly available.

As the project would be funded by the Commonwealth government, it is also subject to Commonwealth environmental legislation. The project has the potential to significantly affect the environment and accordingly is subject to the *Environment Protection (Impact of Proposals) Act, 1974* (EP(IP) Act). This Act is administered by the Commonwealth Agency, Environment Australia, which must be satisfied that the procedures and requirements of the EP(IP) Act have been satisfied by the NSW process, otherwise the Commonwealth can require further assessment to be undertaken which may include preparation of a Public Environment Report (PER) or a further EIS.

## 1.7 Request for the Approval of the Minister for Urban Affairs and Planning

The RTA sought approval for the proposed inner route from the Minister in a letter received by the Department on 3 December 1997. The request included modifications to the project as described in the EIS and described as project description changes in the RTA's Representations Report.

## 2. THE PROPOSAL AS DESCRIBED IN THE EIS/EES

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*This section provides a description of the project as outlined in the EISEES. The proposed modifications to the proposal are described in Section 5 of this report.*

### 2.1 Project Description

A brief description of the proposal as described in the EIS/EES follows. The purpose is to provide an overview of the information presented in the EIS/EES and does not necessarily represent the views of the Department. The Department's consideration of the EIS/EES is provided in Section 6 of this report.

The proposal is to construct a four-lane divided carriageway linking the Wodonga Bypass (Victoria) to the Hume Highway at Mullengandra, generally via a route immediately east of the Main Southern Railway line (Plates 1-20). The total length of the inner route from Mullengandra to Barnawartha is approximately 52 km.

The inner route has been constructed in Victoria from Barnawartha to the proposed Lincoln Causeway interchange (High Street), a distance of 9.5 km. In NSW, a 2.9 km section of the inner route has also been constructed between Tynans Road and Billy Hughes Bridge at Table Top (known as the "Table Top Duals"). This section would be rehabilitated as part of this proposal and the costs for this rehabilitation have been included in the \$203M estimate of cost for the inner route. The remaining 39.6 km comprises new construction of dual carriageways, mostly in NSW.

This report will assess the environmental impacts of the proposal as they relate to NSW. The NSW - VIC border is situated along the southern bank of the main Murray River channel.

The inner route (Figure 2) would have the following interchange and crossing points.

- Thurgoona Drive - full grade separate interchange, Thurgoona Drive over internal route.
- Corrys Road and Dallinger Road - ramp connection to the inner route southbound only and an overpass to a new connector road between Dallinger Road and Union Road.
- Union road - underpass closed to road traffic but open to pedestrians.
- North Street - crossing only, North Street over inner route.
- Borella Road - full grade separated interchange, Borella Road over inner route.
- Bridge Street - full grade separated interchange.
- Lincoln Causeway - full grade separated interchange.

In addition to the crossings, three new link roads are proposed.

- link Hume Street at its intersection with Young Street to the new Bridge Street underpass.



- reconstruction of Jelbart Street to link Fallon Street to North Street; and
- link Union Road to Dallinger Road.

Construction is anticipated to take three to five years including investigation and design. The RTA notes that no single section of the route would take five years to build and the complete route could be built with minimal interference to any existing traffic arrangements

#### *2.1.2 Need, Benefit, Project Justification and Consequences of Not Proceeding*

The need, benefit and justification of the proposed Albury Wodonga Highway as stated in the EIS/EES would be to improve the National Highway system by increasing road capacity, improving transport economics, improving amenity along the existing highway route, reducing the number of accidents and hence increase accident cost savings, and by yielding a benefit cost ratio of about 2.2.

The consequences of not proceeding as stated in the EIS/EES are the National Highway system would not improve but remain at an inconsistent standard, increase economic disbenefits to users such as vehicle operating costs and travel time, transport economics would deteriorate, safety and access conditions would continue to deteriorate, and increased congestion and resultant delays would occur.

#### *2.1.4 Analysis of Alternatives*

The EIS/EES assessed the environmental impacts of two route options. For the outer route the EIS/EES assessed alternative route options within a number of artificial and natural constraints. No alternative route options were assessed for the inner route. The reasons for this given in the EIS/EES include; that the inner route has been designated for road purposes in the relevant environmental planning instruments for many years and its location had therefore been the focus of strategic planning decisions for Albury Wodonga for some time.

The constraints identified for the location of the outer route options were:

- topography;
- urban/industrial development;
- Murray River floodplain;
- Lake Hume; and
- geology.

To determine a preferred route a weighted ranking using social, environmental, engineering and economic criteria was applied to the remaining options. Four route options stood out as performing best against the criteria. All four options had the following characteristics:

- use of the shorter of the two Murray River floodplain crossings;
- no crossing of Lake Hume;
- following the same route through difficult terrain, west of Albury;
- impacts on urban and rural developments that are not greatly different for each

of the four options.

The four options as depicted in (Figure 3) were:

- Option 5 - comprising links, Q,F,H,J, M and N
- Option 17 - comprising links Q, F, H, J, M and O
- Option 18 - comprising links Q, F, R, M and N
- Option 19 - comprising links Q, F, R, M and O

Finally, the RTA selected option 5 as the preferred option for the outer route alignment as it ranked best against social, environmental, engineering and economic criteria.

#### *2.1.9 Major Beneficial and Adverse Effects Identified in the EIS*

The EIS states that direct benefits to road users of the project which would also translate as benefits to the broader community include:

- improved National Highway route;
- a consistent design speed;
- improved surface conditions;
- divided carriageways;
- widening to four lanes for full length;
- improved level of service;
- reduced travel times;
- reduced vehicle operating costs;
- improved traffic safety;
- controlled access.

With regard to negative environmental impacts due to the proposal, the EIS/EES states that the environmental assessment clearly shows that there would be minor and acceptable impacts with the nominated safeguards implemented, and that the regional benefits of the proposal are considered to outweigh any adverse local aspects.



### 3. SUMMARY OF REPRESENTATIONS

A total of 704 representations were received as a result of exhibition of the EIS/EES.

The category types of the representations are summarised below:

Type	Number
Federal Government	1
State Government	6
Local Government	3
Regional bodies	4
Community Groups, Private	
Individuals and Businesses	690
Total	704

A summary of the representations from government agencies, local councils and regional bodies is presented in (Table 1). The most frequently raised issues in representations are summarised in Figure 4. Further discussion on the issues raised is provided in below.

#### 3.1 Overview of Key Issues Raised in Representations

##### 3.1.1 *Route Preference*

The greatest number of submitters raised issues with respect to the social impact of the proposal. Most submitters expressed a strong preference for the outer route option.

##### 3.1.2 *Division of City*

People raised concerns that the City of Albury would be divided by the proposed highway, that it would disrupt their lifestyle and the proposal would result in severance of the township of Albury, particular because of the limited access between east Albury and the town centre would be minimised.

##### 3.1.3 *Traffic modelling*

Many representations questioned the traffic modelling and traffic data used in the EIS/EES. Supplementary studies were submitted by the proponent and a peer review was conducted by Traffic Planning. The peer review confirmed the overall adequacy of the traffic studies.

#### *3.1.4 Noise and Visual Impact from Noise Walls*

Noise was also a major issues raised in particular by residents from east Albury. The visual impact of noise walls was also raised as a concern by residents.

#### *3.1.5 Transportation of dangerous goods through urban area*

The use of the proposed highway for the transport of a variety of hazardous and dangerous substances was raised as a major concern. In particular, the view was expressed that heavy vehicles carrying such substances should not be travelling through urban areas when an outer route options exists.

#### *3.1.6 Property value impacts and property access*

Property value, land acquisition and property access issues were raised by a number of submitters.

#### *3.1.7 Flora, Fauna and Water Quality*

Some submitters including government agencies were concerned about the impact of the proposal on flora fauna and water quality matters. The proposal would traverse the environmentally sensitive Murray River floodplain and cross several tributaries to Lake Hume which serves as water supply for the region.



## **4. PANEL INQUIRY**

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### **4.1 Introduction**

Following the public exhibition of the EIS/EES, the Victorian Minister for Planning and Development directed a public inquiry into the proposed alternatives for Albury Wodonga National Highway Route as outlined in the EIS/EES. The panel has no decision making power, its responsibility is to provide advice and recommendations in respect of the proposals.

The NSW Minister for Urban Affairs and the Federal Minister for the Environment were advised of the holding of an inquiry and each was invited to nominate a representative to the panel. A panel comprised of three members, one nominee from each of the Victorian, New South Wales and Federal Governments was appointed to carry out the inquiry with the Victorian member chairing the Panel Inquiry.

The panel's Terms of Reference was agreed between the three Governments. Major tasks included considering the EIS/EES, inquiring into the environmental effects of the proposals, advising on what development strategy best meets the project objectives and recommending conditions on any approval.

The Panel conducted public hearings at Albury over 15 days between 14 May and 13 June 1996. Seventeen government agencies, organisations and community groups (with 35 representatives and 16 witnesses) and 29 individuals appeared in the Panel Inquiry.

The Panel Inquiry covered a wide range of matters such as the functions and justification of roads, the strategic significance of Albury Wodonga, selection of routes, the impacts of the bypass on the nature of the Cities of Albury and Wodonga, and environmental considerations.

### **4.2 Summary of the Panel's Findings and Recommendations**

The Panel found that the do-nothing option is not acceptable and should be rejected. If the proposal does not proceed or is deferred, extensive rehabilitation works would be required and parts of the existing road system would reach capacity.

Benefits of either proposals include an improved National Highway system, improved transport economics, improved amenity along the existing Hume Highway, increased Road capacity, shorter regional travel distances, reduced travel times, travel and accident cost savings and reduced road maintenance.

The cost of the project, including the cost to the wider community was taken into consideration, however, the source of funding was not a relevant consideration in the inquiry.



The Panel's recommendations are summarised as follows:-

1. The development strategy which best meets the project objectives is to build the inner route and abandon the outer route.
2. This development strategy is supported on the basis of its net community benefit.
3. The stages of the Inner Route from the Hume Freeway in Victoria to Thurgoona Road in NSW should be constructed concurrently and opened together.
4. The Inner Route (including the Common Route) should be constructed as described in Appendices 2 and 3 of the Panel Report with the following additions:
  - relocate the carriageway to avoid as far as possible the land in the control of the Albury Rural Land Protection Board, known as Sage's reserve;
  - provide an additional pedestrian overpass in the vicinity of Wilson and Rau Streets;if feasible, provide:
  - an overpass at Fallon Street;
  - a road linkage between Atkins Street and Bridge Street, on the western side of the railway line, to facilitate the efficient movement of commercial traffic away from residential areas;
  - a low height underpass at Willgrove, adjacent to Olive Street;
  - alternative access arrangements for Diggerville Tennis Club, Lapidary Club and Central Caravan Park, adjacent to the North Street overpass.
5. Operational noise level increases should be minimised and in particular:
  - night time noise increases measured as LA(EQ)-8 hr at the most affected resident should be limited where feasible to less than 5 dBA even though this may require additional mitigation works;
  - design of noise barriers should take into account the social and amenity benefits of limiting the modulation depth to between 8 and 10 dBA at the most affected residence;
  - consideration should be given to more extensive use of sound barriers in consultation with the affected community including schools;
  - open grade asphalt should be used in all urban areas of Albury;
  - the Bandiana Link Road should be constructed 2 metres below grade with an earthen noise barrier to further reduce noise at Milos Boulevard;
  - all residences in rural areas which are affected by night time noise increases greater than 5 dBA following construction of the road should be individually treated if requested by the owner; and
  - sound barriers and tree screening should be commenced early in the construction program to reduce construction noise and visual impacts.
6. In cases where RTA's and VicRoads' noise criteria are more stringent than those set



out in paragraph 5, the RTA's and VicRoads' criteria should apply.

7. Construction noise levels should be in accordance with NSW EPA construction noise guidelines.
8. Where appropriate, the consultants' recommendations set out in Volumes 3A and 3B (Working Papers) of the EIS/EES should be adopted unless amended in submissions to the Panel hearing, in which case the latter should be adopted, unless specifically modified by the Panel.
9. The project should be carried out in accordance with the conditions of consent proposed by the RTA and VicRoads as set out in the Proponent's Final Submission to the Panel Inquiry (Appendix B) which have an overall purpose of :
  - providing for detailed management at the design and operation stages, of identified environmental issues relating to the proposal
  - involving community and NSW EPA in identification and management of environmental issues relating to the proposal,
  - minimising the environmental impacts of the proposal, and
  - ensuring that procedures are in place to detect and remedy any variations

The Panel noted that these proposed conditions are general in nature and will need to be revised and vetted for legal certainty.

## 5. PROPOSED CHANGES TO THE EIS PROPOSAL

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*This section provides a description of the proposed changes to the proposal as exhibited. To enable easier comparison with the EIS/EES proposal, aerial photographs are provided in this section comparing the EIS/EES proposal with the proposed modifications.*

### 5.1 Introduction

In response to issues and concerns raised in the representations and the Panel Inquiry, and as a result of road design refinement, the RTA has proposed a number of changes to the EIS/EES proposal as exhibited. Some of the changes were proposed during the Panel Inquiry while the others are proposed after the inquiry in the Representations Report. In general terms the modifications would be contained within the existing alignment except for the East Albury section where the alignment has been moved closer to the railway line.

### 5.2 Proposed Modifications

Plates A to G are aerial photographs showing the proposed modifications of the route. The route as originally proposed in the EIS/EES is shown in white.

#### 5.2.1 Sages Reserve

The proposed alignment of the road near Mullengandra Creek (Plate A) would be changed to avoid crossing Sage's Reserve which contains a remnant stand of mature Grey Box trees which are considered to have significant value as fauna habitat. The new alignment will cross through agricultural properties.

#### 5.2.2 Bells Road Interchange

This change is proposed after the panel inquiry. The "trumpet" interchange design (Plate B) proposed in the EIS/EES is revised by realigning a section of a carriageway along the Main Southern Railway to favor the traffic from Wagga Wagga to Albury, and linking Bells Road to Hume Highway by dual carriageway.

#### 5.2.3 Combined Stock Route/Service Road

The proposed stock route and service road between Bells Road and Knox's Roads would be combined to reduce the agricultural land to be resumed.

#### 5.2.4 Perryman's Lane and Tynans Road

The existing intersections with the highway would be retained at Perryman's Lane and Tynans Road. It was a drafting error that the EIS/EES Figures 4.5(h) and 4.5(i) showing these roads as being closed. The EIS/EES was prepared on the basis of these intersections being retained.



#### *5.2.5 Corrys Hill Interchange*

This is a post-inquiry change. The design of interchange will be revised by shifting the overpass across the rail to the north to join Corrys Road, and locating the southbound entry ramp within the Corrys Hill cutting (Plate C) so as to reduce noise and visual impacts.

#### *5.2.6 Fallon Street*

Fallon Street (Plate D) would be kept open by an overpass of the highway and the railway land to reduce severance effects.

#### *5.2.7 Upgrade of Drome Street and North Street and Link between Fallon and North Streets*

Drome and North Streets will be upgraded to allow truck traffic from East Albury to access Borella Road Interchange without going through residential streets such as Kenne Street and East Street. A link between Fallon Street and North Street at the western end of the airport is also proposed to compliment the upgrade. This proposal is subject to negotiations with Council and consultation with the community.

#### *5.2.8 Borella Road Interchange*

The interchange with Borella Road (Plate E) would be a compact diamond interchange junction between Bollera Road and the ramps, this is proposed to reduce the width of the road. This change is proposed after the Inquiry as a design refinement.

#### *5.2.9 Road Realignment, Noise Barriers and Urban Park through East Albury*

This is a post-inquiry change. The road alignment along East Albury between Borella and Bridge Streets would be shifted to the west onto State Rail Authority (SRA) land by 30 meters to allow a larger buffer between the road and residential areas (Plate F). This would increase the width of the proposed linear park along the highway from 20m to 50m and would create significant urban parkland for recreation purposes.

With the shift of the alignment to the west by 30m, the additional buffer allows replacement of the 3.5m noise wall as proposed in the EIS/EES by landscaped mounds topped with a lower wall/fence.

The road re-alignment of East Albury to the west allows the park between North and Olive Streets as proposed in the EIS/EES to be widened to approximately 40-50m.

#### *5.2.10 Atkins Street/ Bridge Street*

An access road would be constructed from Atkins Street to Bridge Street which would remove heavy vehicle traffic from residential streets (Plate G).

#### *5.2.11 Olive Street*

A limited clearance underpass would be provided to allow access from farmers residences in South Albury to agricultural land on the flood plain (Plate G).



#### *5.2.12 Pedestrian Overpasses at Wilson/Rau Streets and Dean Street*

A pedestrian overpass would be constructed to replace the existing pedestrian bridge at Wilson/Rau Streets as recommended by the panel (Plate F).

A bridgeway (of approximately 4m in width) across the transport corridor would be provided at Dean Street. This change is proposed after the inquiry. The bridgeway would be complimented by landscaped pedestrian space on the Dean Street axis and the creation of pedestrian space between Young Street and the railway and on the eastern side of the bypass. The urban design of this area will complement the character of Dean Street.

#### *5.2.13 Urban Park and Landscaped Area*

The Representations Report and additional information from the RTA indicate that the residual land as a result of the proposal would provide an opportunity to create a linear urban park in East Albury to the east of the route (as described in Section 5.2.9 above) (Plate F) recreation/landscaped areas to the west side of the railway line between Hovell Street and Bridge Street, and landscaped public space around Dean Street to the west of the railway. Detailed design of the urban park and landscaped areas are subject to community consultation and design refinement.

#### *5.2.14 Noise Barriers*

Changes to the location and design of noise barriers are proposed after the inquiry (Plates C, E & F). The changes include: additional noise barrier to be constructed near Horan Court and the Racecourse; the noise barrier near Scotts schools will be located on the western side of the railway line; additional noise barrier will be constructed along the section of highway adjacent to Alexander Park; modifying the design of noise wall along East Albury to a landscaped mound and lower noise walls/fences (as described in Section 5.2.9 above). Detail design is subject to consultation with the community and the EPA.



## 6. ASSESSMENT OF KEY ISSUES RELATING TO THE MODIFIED PROPOSAL

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*This section outlines the Department's consideration of the current proposal having regard to information provided in the EIS/EES, the Panel Inquiry, representations received in response to the EIS/EES exhibition, issues raised by DUAP and from additional information provided by the RTA in addressing the proposed changes.*

*The RTA has also provided the Department with an assessment of issues raised in representations. The assessment by the RTA has been reviewed by the Department and where required further assessment has been undertaken.*

*The Panel Inquiry covered a wide range of matters including the functions and justification of roads, strategic significance of Albury Wodonga and the selection of routes. The Department's assessment focuses on the environmental impacts of the inner route rather than further discussing the relative merits of the outer vs the inner.*

### 6.1 Overall Project Justification

#### 6.1.1 General

The majority of the representations (539 out of 704) opposed construction of the inner route. The Save Our City Action Group presented the panel with a copy of a petition containing an estimated 11,000 signatures opposing the inner route.

The Cities of Wodonga and Albury and the Albury Wodonga Development Corporation supported the inner route. The Shire of Hume supported immediate construction of the outer route but submitted that if the inner route was chosen, land for the outer route should be reserved and purchased for the future.

The panel considered that it was quite clear, both from material presented in the EIS/EES and anecdotally by submitters, that the "do-nothing" option is not acceptable and should be rejected. Of particular concern is the Lincoln Causeway, the sole river crossing between Albury and Wodonga, which presently carries about 40,000 vehicles per day.

The panel considered that we live in a climate of economic restraint and that it therefore must assess the costs of the project: not just the cost of constructing the inner or outer route, but the associated costs which will flow from that choice to the wider community. Thus, as part of the wider picture, the panel looked, not only at the costs of construction of the outer route, but at likely costs necessary to address local and regional traffic needs which, it considered, the outer meet but the inner route could. The panel indicated that it therefore approached its task based on the principle of determining which of the alternative development strategies exhibits the greatest net community benefit.

The panel notes on the basis of information provided in the EIS/EES and in representations that major traffic works would still be required within Albury to relieve present congestion and cater for future growth if the outer route is constructed. The



panel further states that having acknowledged the need for such works, the issue becomes one not so much of function, but of the form these works will take.

Many submitters to the panel talked about Albury being a country town: that they live in Albury because it is not a 'city': that their notion of amenity is not linked to high growth rates and they are prepared to forego many of the benefits of city life to enjoy superior natural environmental benefits.

Many representations to the EIS/EES expressed the view that Albury would be the only major town between Sydney and Melbourne which would not be bypassed by the highway.

The panel compares Albury and Wodonga with populations of 42,500 and 31,500 respectively with other towns along the Hume Highway such as Goulburn (NSW) with a population of 21,500 and Wangaratta (VIC) with a population of 20,000 and concludes that to describe Albury as a country town or to compare it with other bypassed towns is inappropriate because of its size, location and importance as an industrial and residential centre which give it strategic significance which these other towns don't have.

The panel further considered that the residential needs of the city, whilst very important, must be balanced with the needs of business and industry.

The Department considers that in particular the traffic and economic information and the assessment outcome of the independent Panel Inquiry all support greater benefits from the inner route relative to the outer route. However, there are a number of social impacts relevant to the proposal which should be considered. These are summarised into the following categories:

- health;
- psychological;
- cultural and heritage;
- recreation;
- public safety;
- access and community severance;
- neighbourhood amenity;
- aesthetic;
- inter-generational equity.

No monetary values have been allocated to these impacts and hence the cost-benefit analysis provided in the EIS/EES does not include social values. The EIS/EES notes that the major social concerns identified during a community survey were as follows:

- division of the city;
- major new infrastructure such as airport and hospital will be split from the city's other major infrastructure;
- limited pedestrian access from one side of the highway to the other, especially for school children;



- not really a bypass; Albury should be bypassed like most other towns along the Hume Highway.
- traffic noise will be stressful for nearby residents;
- restriction of outdoor social activities due to noise and dirt.

The EIS/EES attempted to assess the likely impact of the proposal on the health of individuals and the wider community in terms of potential air, dust noise and vibration, potential disease, hazards and risk.

The air quality study found that impacts on regional air quality would be minimal and that the issue of dust pollution would only be relevant during construction where mitigation measures to minimise impacts would be used.

With regard to noise and vibration impacts the EIS/EES considers that with the implementation of ameliorative measures these impacts can be reduced to levels which are not considered to be harmful to the health of the community.

In terms of impacts on recreational amenity and severance of Albury, the Department considers that the modifications incorporated into the proposal following review of representations by the community and recommendations by the panel such as the creation of parkland in East Albury, property access provisions, the inclusion of extra pedestrian crossings and maintaining access via Fallon Street, adequately addresses the community's concerns regarding severance and recreational amenity impacts.

Impacts from noise, on air quality and dangerous goods transports are further discussed below. Overall, the Department accepts the conclusion by the Panel that greater net benefit to the wider community would result from the inner route while the detrimental localised impacts can be mitigated to acceptable levels through implementation stringent conditions.

## 6.2 Traffic and Transport

### 6.2.1 *Traffic General*

The traffic study showed that 25,000 vehicles enter and 25,000 vehicles depart the study area during a 24 hour period. The total volume of study area traffic which is considered to be potentially divertable is 3,194 vehicles, or 13 %. This means that even if the outer route was built, this still leaves 87 % of existing traffic needing to use Albury roads.

### 6.2.2 *Traffic analysis*

Some residents challenged aspects of the traffic analysis undertaken in the EIS/EES. The EIS/EES described the existing travel characteristics in Albury Wodonga including the road network, traffic volumes and capacities, accident statistics, public transport routes, and current traffic surveys. Supplementary studies were submitted to the Panel Inquiry by the proponent and a peer review of traffic issues by Dr S Moore of Traffic Planning and Mr G Pindar of Traffix was also submitted. An origin/destination survey (OD) was carried out by the NRMA with Save Our City Action Group volunteers. The result of this survey were also questioned. A second OD survey conducted by the NRMA confirmed the previous study. The results survey showed that the outer route



would be relatively lightly used compared with the internal route. Because of the relative large size of the towns, the proportion of highway traffic with an origin and destination in the area is relatively high.

The Department is satisfied that the traffic data used in the modelling was adequate. The RTA has indicated that further modelling will be required for local traffic at the detailed design stage. The Department supports further modelling of local traffic which will be useful for the management of the local traffic network both during construction and operation and the further noise assessments which require to be undertaken on local roads. This is specified in Recommended Condition of Approval No. 34.

#### *6.2.3 Commercial Vehicle Traffic*

Representations made comment that an outer route would keep most trucks out of Albury. The results of the origin destination (OD) survey showed that of all trucks entering the study area via the Hume Highway, approximately 32 % (day) and 56 % (night) are potentially bypassable. The proportions of semitrailers contained in the potentially divertible commercial traffic during day and night timer periods are 90 % and 97 % (330 and 740) respectively.

The Panel Report considered that the relatively high commercial vehicle component (ie. 68 % (day) and 44 % (night) within Albury Wodonga is likely to be due to the following reasons: because of the size of the towns, the towns generate a large truck volume to service their daily needs; the towns form a regional centre of significance and acts as a transport distribution point for the region; and some interstate freight operators use it as a transfer station for more efficient operation.

The Department accepts that the relatively high component of heavy traffic will impact on the nearby community in particular with regard to noise and possibly air quality. Noise and air quality impacts and mitigation measures proposed are discussed in Section 6.3 and Section 6.4 below.

#### *6.2.4 Traffic access*

Many representations raised concerns that access, particularly between East Albury and the City Centre would be reduced and isolation increased for residents, businesses and sporting facilities.

The Panel Inquiry made several recommendations regarding access. It supported an underpass/flyover at Fallon Street and access to be maintained along Olive Street. The Panel also supported a new access road between Bridge and Atkins Streets and a further pedestrian bridge in the vicinity of Wilson and Rau Streets.

The RTA has adopted all the Panel's recommendations in order to provide improved access. These modifications have been described in Section 5.2 above. It must be noted that with these additions the only vehicle access change to the existing situation will be the closure of Dean Street. A drafting error in the EIS/EES showed the roads being closed at Perryman's Land and Tynans Road, however, the proposal would retain the existing intersections with the highway at these locations.

The Department is satisfied following incorporation of the Panel's recommendations into the proposal that adequate provision has been given to provide access between East



Albury, the city centre and other parts of Albury.

### 6.3 Noise and Vibration

196 representations to the EIS/EES raised concerns related to noise and vibration, it is one of the most frequently raised issues.

#### 6.3.1 Construction Noise and Vibration

The EIS/EES claimed that as the proposal is a "freeway" not a scheduled premise and therefore is not subject to the control of Noise Pollution Control Act and does not require a noise pollution license. It also indicates that the RTA's construction noise targets of ambient level +25dBA or ambient level +35 dBA can be achieved practically and cost-effectively. A noise management plan was suggested to control the impacts.

The highest levels of vibration are likely to arise when pile driving is used. The predicted levels of ground vibration from blasting comply with EPA's general human comfort criterion of 5 mm/s; and the level of peak airblast from blasting comply with EPA's general human comfort criterion of 115dB Linear.

The peer review considers that the noise criteria provides a reasonable guide to construction noise impacts assessment and the noise, blasting and vibration from construction works have been adequately addressed.

EPA in its representations and submissions to the Panel Inquiry raised that the proposal is "highway" and is a scheduled premise and therefore requires EPA's pollution control license.

The Panel considers that if EPA guidelines are used, noise, vibration and blasting can be satisfactorily managed using standard methods without undue adverse impacts on potentially affected residences.

The Representations Report committed that all properties potential to be affected by construction will be inspected and documented prior to construction, and any damage resulted by the construction would be rectified. An EMP would require construction to be carried out in a manner which preclude structural damage. All affected people will be informed of the onset, nature and duration of all construction activities likely to generate noticeable vibration.

The Department considers that as the proposal is a scheduled premise, it needs to be in accordance with EPA's construction noise guidelines. As the construction time ranges from 3 to 5 years, it is important to comply with EPA's noise criteria. The Department agrees with the conclusion of the Panel that the construction noise and vibration impacts can be contained if the EPA guidelines are complied with.

To ensure that the noise, blasting and vibration impacts during construction are effectively controlled, the proponent is required to comply with the EPA's guidelines on construction noise and vibration. This is specified in Conditions of Approval Nos. 27 to 33.



### 6.3.2 Operation Stage - Noise Criteria and Noise Level

Key issues raised in the representations, including the representations made by EPA are: the appropriateness of noise criteria used in the studies, noise impacts of heavy vehicles, change in noise environment for newly exposed areas, lack of noise impacts assessment along Hume Highway or on the road network surrounding the inner route.

The noise criteria used in the EIS/EES and subsequent RTA's noise studies are based on RTA's Interim Traffic Noise Policy, which sets the base noise objective as LAeq(24 hr) 60 dBA and LAeq(8hr) 55dBA (with low noise area objective as ambient +12dBA and high noise area as ambient +3dBA).

The EIS/EES indicated that without noise mitigation measures, noise exceedance would be resulted in six areas, mainly East and South Albury. The EIS/EES concluded that the noise impacts in these areas may be reduced to meet RTA noise criteria by implementing noise mitigation measures such as noise barriers, use of open graded asphalt and architectural treatment of individual affected residence.

The noise studies in the EIS/EES were subject to peer review by Renzo Tonin and Associates. The peer review considers the methodology of the noise study is sound and agreed that the proposal will generally comply with RTA's noise objective with the mitigation measures implemented, however, noise attenuation measures in additional areas may be required to contain the noise level within the objective.

EPA considers noise impacts should have been more fully addressed. EPA indicated that the night time noise criteria of TNL55 would be exceeded by up to 20dBA in the urban areas along the route between Lavington and South Albury, even with proposed noise attenuation measures in place.

The peer review considers increases in noise level of 5dBA and above are significant and may lead to complaints. The study shows that the increases are up to 3dBA at day time and 7dBA at night time in the common route, and up to 7dBA and 10dBA in the urban areas of Albury.

The noise studies and the issues raised in the representation were also considered by the Panel Inquiry. The Panel considers that the predicted noise levels, though will comply with RTA's noise criteria, they are very significant in some areas and the higher increases in noise levels are likely to result in residents annoyed and suffering sleep disturbance. The Panel recommends night time noise increases at the most affected residences to be limited to less than 5dBA (though this may require additional mitigation works), and in case where the RTA's criteria is stricter, the RTA's criteria shall apply. During the Inquiry, RTA and EPA had agreed both will work together try to achieve the TNL criterion wherever possible and to use current best practice noise amelioration in any event.

The Representations Report has included some preliminary findings on noise based on revised traffic figures. It indicates that the corresponding traffic noise for the traffic flow variations are about plus or minus 2dBA. However, there is no information provided on the likelihood of exceedances. Noise impacts of the proposal on Hume Highway and local streets due to traffic redistribution has not been assessed. This information would have had implications on any noise mitigation measures and local traffic management matters.



The RTA's Representations Report has proposed a number of changes which would have implications to noise impacts. These changes include redesign of Corrys Hill intersection, shifting of the road alignment between Borella Street and Bridge Street at East Albury to the west by 30m, additional noise barriers upgrade of Drome Street. The Representation Report indicates that these proposals would reduce the noise impacts compared to the EIS/EES proposal; however, the analysis of changes in noise impacts provided in the Representations Report is very crude.

Since the Panel Inquiry, a new noise criteria, Leq(15 hr) 55 and Leq(9 hr) 50 has been developed by EPA, and RTA has been involved in the process. However, the new noise criteria has not been adopted in any of the above mentioned noise assessment. A noise impact report, based on the noise criteria Leq(15 hr) 55 and Leq(9 hr) 50 and revised traffic figures, need to be prepared for the proposal, including the proposed changes at Corrys Hill and East Albury and the noise impacts on the Hume Highway and local streets as a result of traffic redistribution. It is expected that noise exceedances is likely to be resulted in a number of noise sensitive locations and mitigation measures need to be put in place.

The Department considers that the environmental criteria for road noise endorsed by EPA should be the target to be achieved by the Proponent; and the Proponent need to consult with EPA about the feasibility and cost effectiveness of additional noise measures

The proponent should be required to provide detailed noise assessment based on the revised traffic figures, and assessment of change in noise environment of the local road network as a result of traffic redistribution. This is specified in Condition of Approval No. 34.

To ensure the noise level is within the acceptable level, the Proponent needs to demonstrate that the proposal is able to achieve the environmental criteria for road traffic noise endorsed by EPA, ie. Leq(15 hr) 55 and Leq(9 hr) 50. In designing the noise mitigation measures, the RTA needs to consult with the EPA so to ensure that the operational noise level will be contained within the target. This is specified in Recommended Conditions of Approval Nos. 34 to 36.

### *6.3.3 Ameliorative Measures*

The EIS/EES has suggested a range of ameliorative measures to mitigate the noise impacts, these include noise walls along the noise sensitive locations, use of open grade asphalt material and architectural treatment to the affected residences. The peer review suggests the ameliorative measures in the EIS/EES are minimum and additional areas with mitigation measures may be required to achieve RTA's own noise criteria. However, EPA raised that the suggested mitigation measures would not be adequate to achieve the noise criteria of TNL 55.

The Panel recommended use of open grade asphalt in all urban area in Albury; design of noise barriers should take into account the social and amenity benefits of limiting the modulation depth to between 8 and 10 dBA at the most affected residence; consideration to be given to more extensive use of noise barriers in consultation with the affected community; and mitigation measures to be placed to contain the night time noise increase to less than 5dBA.



The Representation Report proposes some changes to the location and design noise barriers. The changes include additional noise barrier to be constructed near Horan Court and Racecourse; the noise barrier near Scots schools will be located on the western side of the railway line; additional noise barrier will be constructed along the section of highway adjacent to Alexander Park; modifying the design of noise wall along East Albury to landscaped mound and lower noise walls/fences. The Representations Report stated that the use of open graded asphalt or material of similar acoustic performance will be considered for the areas need amelioration measures to achieve agreed noise objectives. The Representations Report stated that there will be two dwellings which need architectural treatment.

The Department considers that the proposals in the Representation Report are an attempt to implement some of the recommendations made by the Panel. However, proper assessment based on appropriate noise criteria and revised traffic figures has not been provided and hence make it impossible to give a proper evaluation of the effectiveness of the proposed ameliorative measures. RTA should be required to provide this information.

To ensure the noise amelioration measures are designed to achieve the environmental criteria for road traffic noise ie. Leq(15 hr) 55 and Leq(9 hr) 50, the RTA need to consult with the EPA; on the other hand, consultation with the community is equally important for taking into account the social and amenity benefits. This is specified in Recommended Conditions of Approval Nos. 34 to 36.

## **6.4 Air Quality,**

Key issues raised in the representations to the EIS/EES include increase lead and dust in air, health related concerns, inadequate discussion on concentrations of air pollutants such as carbon monoxide, smoke, nitrogen oxide, diesel emissions. Construction dust is also raised as a concern.

### **6.4.1 Construction Stage**

The major issue is construction dust. The EIS/EES has taken into account of low level wind and dispersion conditions and considers dust during construction could be a short term problem.

EPA raised that the EIS/EES lacks detail as to the likely level of dust and of effective dust control measures. Cessation of works may be necessary during certain adverse weather conditions. The Panel concluded that construction dust can be adequately managed if dust control measures is placed.

To ensures that the impacts of dust is to be contained, a Construction Stage Air Quality Management Procedure needs to be developed to the satisfaction of the EPA. The construction stage air quality impacts and measures to mitigate and control need to be addressed in the Procedure. Monitoring is equally important to make sure the measures adopted are effective in mitigating the adverse impacts, particularly for the construction period of 3 to 5 years. This is specified in Recommended Condition of Approval No. 37 and 38.



#### 6.4.2 Operation Stage

The EIS/EES has taken into account of the low level wind and dispersion condition in Albury. It indicates that the inner route would attract a larger proportion of traffic over better road conditions than currently exist; the free flowing conditions result in a minor reduction in emission per vehicle. A reduction in emission of carbon dioxide, and nitrogen oxides from 1994 to 2020 is expected and the standards would continued to be met. The increase in traffic as a result of the proposal will have negligible effect on respirable particle concentrations in the region and the proposed PM10 limit of 40ug/m<sup>3</sup> will be met.

EPA considers the EIS/EES is accurate in its qualitative statements, however, quantitative modeling of air emissions needs to be provided to substantiate the qualitative analysis.

The Panel considers that there is no evidence to substantiate that blood lead levels are of concern. Evidence presented to the Panel suggested that there will be a "small increase" in particulate levels adjacent to the inner route but still meeting the guidelines as recommended by World Health Organization. The Panel agreed that any significant increase in particulate matter will be confined to within about 20m of the road pavement and will be further roadside vegetation. The Panel also supports the initiatives by RTA and EPA to further reduce exhaust emissions where feasible.

It is considered that there could be some adverse impacts on road side air quality along the route. This however needs to be understood in the context of regional air quality impacts. Roads which is likely to experience less traffic, such as Hume Highway, is expected to experience less local air pollution. However, some roads could have experience more traffic as a result of traffic redistribution to local roads. Overall speaking, the most effective way of controlling emission levels is by controlling emissions from vehicles.

RTA need to prepare a detailed Air Quality Management Procedure to provide details of air quality control measures to be undertaken during the operation stage. This is specified in Recommended Condition of Approval No. 39.

### 6.5 Design Issues Relating to Visual Impacts, Access and Public Land

The route of the proposal would run rural area, rural-residential area as well as developed urban environment. Given the scale of the proposal and the diversity of character zones along the route, a wide range of design issues needs to be addressed.

Design matters embrace a wide range of issues such as impacts of the roadscape, visual impacts, community links/connectivity, configuration and quality of open space. These issues are inter-related and will have the chance to enhance each other.

#### 6.5.1 Visual Impacts

The EIS/EES has provided an analysis of the existing character zones along the route, and proposed a roadscape strategy emphasizing character transitions and significant address points using visual management and civic/landscape treatment. The roadscape strategy seeks to create a visually strong travel experience. The EIS/EES concludes that



the proposal would not have any significant and unmitigatable adverse impacts. The proposal would provide an opportunity for achieving improved visual amenity, particularly for Albury area.

The major concern of visual impacts raised in the representations are those related to the noise barriers, graffiti, interchanges and overpasses in the urban area of Albury. It was also raised that the EIS/EES analysis gave more thoughts to the views of motorists than to the views of residents.

The Panel considers that the final design of the interchanges, bridges, noise barriers and the landscaping will substantially affect the community's attitude to the proposal. The Panel is satisfied that there would be sufficient land for providing landscaped buffer to the adjoining land and landscaping could reduce significantly the adverse impacts in the majority of locations except for bridges and interchanges. The Panel also raised that on-going maintenance of visual amenity works and landscaping will be very important. The Panel supports close liaison with the community and developing a management plan covering visual amenity and landscaping issues.

The Representations Report undertook to involve the community in determining the design and the location for the noise barrier. The proponent also undertook to minimise the visual impacts of the noise barriers by good design, appropriate colour scheme/texturing and screen planting.

The Department considers the EIS/EES provides a reasonable analysis of the diversity of the character of the environment along the route. The proposed road strategy sets the objectives and a framework for the overall design and visual treatment of the road and the features such as noise barriers, interchange and bridges, and landscaping. This strategy still needs consultation with the community and to be substantiated by a detail design and landscape plan and. Visual amenity need to be considered in the design of noise barriers. Special consideration should be given to the design, colour, treatment and finish of the interchange and bridges which cannot be effectively screened by landscaping.

To ensure the final design of the features and landscaping are of high quality and are acceptable to the community, a design and landscape plan needs to be prepared in consultation with the community, relevant councils and to the satisfaction of the Director General. A management plan for maintenance of visual amenity works and landscaping should be prepared to the satisfaction of the Director-General. This is specified in Recommended Condition of Approval No. 40 to 44.

#### *6.5.2 Community Links and Access*

The major concern raised in the representations is the proposal would divide the city of Albury and sever East Albury from the rest of the city.

The Panel considers that the railway line already exists as a man made barrier in the city and the proposed roadway will not be more divisive than the railway already is. Visual impacts and accessibility are the major issues in determining the impacts of the barriers. The Panel is satisfied that the proposal would provide an opportunity to improve some aspects of the existing visual amenity, and the proposal would not result in isolation of Albury.



According to the Representations Report, that there will be no less point of access between parts of urban Albury, except for the closure of Deans Street, yet pedestrian and cyclist access will still be provided over the railway line and the proposed road to join East Albury. Fallon Street will remain open by an overpass with pedestrian access. At Corrys Hill, Union Road will be reverted to join Corrys Road and Dallinger Road will be closed.

All existing pedestrian access will be retained, a total of five points of pedestrian access, including three bridges will be provided to cross the railway line and the proposed road between Borella and Bridge Streets. The access to major recreational facilities such as Alexandra park remains unchanged. The Representations Report indicated that the design of the proposal would allow for a cycle running parallel to the route and would connect to bridges over the route. The Department considers that the proposal would not have significant adverse impacts on community links.

To ensure the pedestrian and cyclist access is adequate, the design of the pedestrian bridges, as part of the "urban design plan" need to be prepared in consultation with the community and relevant Councils and to the satisfaction of the Director-General.

Bicycle facilities are to be provided during the detailed design stage in consultation with local councils and Bicycle NSW.

### *6.5.3 Public Open Space*

The proposal would have sufficient land for landscaped buffer and would create significant recreation space. The Representations Report and additional information from RTA indicate that a linear park (approximately 1.4km in length and 20-30m in width) would be created in East Albury to the east of the route, recreation/landscaped space to the west side of the railway line between Hovell Street and Bridge Street, and the landscaped area around Dean Street to the west of the railway. This offers an opportunity to provide significant improvement to urban amenity in inner city. Appropriate design is important in enhancing the visual and recreation value of these land. Proper arrangement for on-going maintenance is also important.

Specific landscape plan(s), as part of the urban design and landscape plan, need to be developed for the linear park and recreation space created by the proposal. The plan need to be prepared in consultation with the community and Albury Council and to the satisfaction of the Director-General. The plan needs to include arrangement for on-going maintenance. This is specified in Recommended Condition of Approval No. 40 to 44.

## **6.6 Heritage and Archaeology**

### *6.6.1 European Heritage*

The EIS/EES identifies several European heritage issues in the inner route. The proposal may have potential impacts on various items/buildings/precinct which are of heritage significance. These items/buildings/precinct include: the Hanel and Kenilworth Street Conservation Areas, Albury railway Station yard; the ruins of the Murry Valley Vineyard cella and the railway gate keeper's cottage in Dallinger Road, the remains of a



plough found 650 metres north of Thurgoona Road. The Panel was satisfied that the impacts on items/buildings/precinct in NSW can be effectively mitigated.

The Representation Report has proposed some changes to the design and alignment of the proposal. The impacts of these changes, particularly the impacts of shifting of the alignment of the route between Borella and Bridge Streets to the west by 30m on Albury Railway Station Yard has not been assessed.

To ensure that any adverse impacts on the heritage items are to be mitigated, a Conservation Management Procedure needs to be prepared and implemented. The purpose of the Strategy is to identify and manage the heritage items within the impact zone of the proposal. This is specified in Recommended Conditions of Approval Nos. 45 and 46.

#### 6.6.2 *Aboriginal Archaeology*

The EIS/EES indicated that three Aboriginal archaeological sites and three isolated artifacts were recorded along the inner route during the survey. All sites are open campsites scatters of quartzstone material. The EIS/EES recommends excavation of one site.

The Panel considers further and more intensive archaeological surveys would be required and if further sites are identified, advice need to be sought from NPWS and local Aboriginal representatives on measures need to be taken.

The impacts of the changes proposed for the Bells Road interchange on the site identified as BP4 in Chapter 19 of the EIS/EES has not been assessed. The additional assessment needs to be undertaken. the Department considers that preparation and implementation of proper procedures for identification and management of archeological items is necessary to mitigate the adverse impacts.

To ensure that any adverse impacts on the archeological items are to be mitigated, a Procedure needs to be prepared and implemented. The purpose of the Archaeological Procedure is to identify and manage the archeological items with the impact zone of the proposal.

Construction work should cease if archaeological or heritage material is discovered during the course of such work. This is specified in Recommended Conditions of Approval Nos. 47 to 49.

### 6.7 **Flora and Fauna**

The impact of the proposal on native fauna was assessed in the EIS/EES under the *Endangered Fauna (Interim Protection) Act, 1991*. For the purpose of deciding whether there is likely to be a significant impact on the environment of endangered fauna the "Seven Part Test" was undertaken. This test found that a Fauna Impact Statement was not required.

On 1 January 1996 the *Threatened Species Conservation Act, 1995* commenced. The TSC Act replaced the *Endangered Fauna (Interim Protection) Act, 1991* and made substantial amendments to the EP&A Act and the NPWS Act. One such amendment



was the introduction of the "Eight Part Test" of Section 5A of the EP&A Act which must be applied to assess whether a proposal is likely to have a significant impact on threatened species, populations or ecological communities, or their habitats. This refers to both flora and fauna species.

Subsequent to this legislative amendments the RTA engaged a consultant to undertake the 8 Part Test to assess the impacts on threatened species that may potentially occur along the inner route (Appendix C). These species for which the test was carried out were the Bush Stone-curlew, the Regent Honeyeater and the Swift Parrot, the latter two species were listed by the then Australian Nature Conservation Agency (ANCA) (now Environment Australia) as potentially occurring along the routes. The former species was subject to the 8 Part Test because it was known to occur along the outer route. No species of threatened flora were detected during the flora survey, however, ANCA noted that there were two nationally vulnerable species that may potentially occur along the inner route. These are a herb: Austral Toad Flax *Thesium austral* and a grass: *Amphibromus fluitans*. These two species are now also listed on Schedule 2 of the TSC Act. Supplementary 8 Part Tests were provided for these species as well as two additional flora species: *Brachyscome muelleroides* and *Swainsona recta*.

The 8 Part Test concluded that for the inner route proposal there would be no significant effect on threatened species or their habitats and consequently there would be no requirement by the proponent to prepare a Species Impact Statement.

In its representation, the NPWS agreed with the RTA's conclusions that most endangered species in the region are only likely to utilise the study area occasionally, and that they are unlikely to be significantly adversely affected by the activity. The NPWS supported the ameliorative measures proposed by the report which include the maximum retention of hollow-bearing trees, the creation/enhancement of wetlands, the use of tree species utilised by threatened fauna for revegetation works, and bridge and culvert designs which include fauna underpasses. The NPWS considered the fauna survey method adequate with the exception of surveys for microchiropteran bats which it considered may have been undersampled.

In response to this the Representations Report states that there are other species of microchiropteran bats potentially occurring along the proposed routes. Further surveys would be conducted in warmer weather, when movement is more likely to be occurring.

With regard to vegetation management the RTA have adopted the NPWS recommendations which are as follows:

- where achievable, set aside greater areas than those to be cleared for revegetation, basing revegetation around existing native vegetation and shaping such vegetation in clumps rather than long, thin strips;
- fencing of woodlands land acquired adjacent to the roadside;
- where practical and feasible, using artificial wetland to increase such habitat and as an alternative to conventional runoff control; and
- have these measures written into the Environmental Management Plan and further into the Contract Specifications.

Following DUAP's request the RTA provided in Appendix 8 of its Representations



Report an outline of a proposed Vegetation Management Plan (VMP). Some of the measures included in the VMP are:

- the use of native plant species endemic to the Albury region for revegetation including sourcing from seed collected from plants that will be destroyed by the construction activities;
- to eradicate noxious weeds and introduced plant;
- to assist the long-term survival of locally, regionally or nationally rare or threatened species; and
- to provide on-going maintenance of the revegetated area, possibly in association with local Landcare groups.

The revegetation program would include the use of the nationally vulnerable plant, *Thesium australe* and *Amphibromus fluitans*, and the three regionally significant eucalypts, *Eucalyptus sideroxylon*, *E. Blakelyi* and *E. microcarpa*. Several species of eucalypt which are important sources of food for threatened fauna in the region. These include *E. sideroxylon*, *E. albens*, *E. mellidora* and *E. leucoxylon* for the Regent Honeyeater and these as well as *E. ovata* for the Swift Parrot would also be planted.

The Department supports the NPWS's recommendations adopted by the RTA with regard to vegetation management and the RTA's commitment to undertake further surveys on bats and some flora species. This is specified in Recommended Condition of Approval No. 50.

In additions, the Department recommends a condition that a comprehensive Species Management Procedures shall be prepared and be included as part of the construction EMP. This is specified in Recommended Condition of Approval No. 51.

## 6.8 Fish

NSW Fisheries expressed concern that baseline studies were not undertaken on the fish fauna of the billabongs and waterways of the Murray River and its upstream tributaries that are crossed by the proposed pypass. Waterway crossings could have a deleterious impact on fish passage and consequently fish communities.

While there was no baseline study provided in the EIS/EES to assess the composition of the fish fauna, the River habitat Assessment in Working Paper 6, Volume 3B of the EIS/EES targeted aquatic invertebrates, waterbirds and water quality. The Representations Report notes that the apparent abundance of aquatic invertebrates found during the riverine habitat assessment suggests that the fish fauna of the region would also be diverse.

The RTA does not consider it to be likely that the inner route would have any effect on fish fauna, however the RTA would:

- consult with NSW Fisheries concerning appropriate and relative baseline studies;
- undertake these studies as part of the design process;



- consult with NSW Fisheries as to appropriate design across waterways, where there is a probable or potential effect due to the inner route proposal;
- advise VicRoad of NSW Fisheries' concerns; and
- undertake a five-year, annual monitoring of the crossings to determine if the habitat restoration is successful and if the effects of the works are as predicted.

The Department supports further studies being undertaken on possible impacts on fish fauna in waterbodies potentially impacted by the proposal. The above listed further work to be carried out by the RTA in consultation with NSW Fisheries is also supported. This is specified in Recommended Conditions of Approval Nos. 54 and 55.

## 6.9 SEPP No. 46 - Protection and Management of Native Vegetation

The RTA considers that consent under State Environmental Planning Policy No. 46 would not be required in the area covered by the Murray Regional Environmental Plan No. 2 - Riverine Land (MREP2) as these lands are specifically excluded from SEPP 46 by clause 3(g). In the area not covered by the MREP 2, the provisions of Section 88 of the *Roads Act (1993)* would apply.

The RTA notes that the DLWC would be consulted during the preparation of a Vegetation Management Plan, with a view to minimising native vegetation. The RTA would also seek any necessary permits under Section 21D of the *Soil Conservation Act, 1939* for any clearance of vegetation within riparian areas of prescribed streams.

The Department considers that it is the responsibility of the proponent to obtain all relevant approvals and licences from relevant organisations. Should SEPP 46 or any legislation superseding the application of SEPP 46 apply to the proposal, the applicant will have to have regard to the relevant requirements for approval for the clearing and management of native vegetation.

## 6.10 Hydrology, Flooding and Groundwater

### 6.10.1 Hydrology, Flooding and Drainage

The assessment of flooding was concentrated on the 100 year average recurrence interval (ARI) flood event which is the design event for the waterway crossings. The EIS/EES notes that some local increased flooding could occur upstream of bridges and culverts but considers that the effect will be transient and of little consequence for property, agriculture or soil waterlogging.

The EIS/EES acknowledges that road cuttings may result in a localised lowering of groundwater levels while those sections located on fill may result in a localised elevation of groundwater levels.

The DLWC raised a number of issues with regard to further details required on flooding impacts, structures over watercourses, groundwater conditions, investigations of groundwater salinity, the drainage system, and the need for an Erosion and Sediment Control Plan. DLWC expressed that it wishes to be involved in these matters during



detailed design.

The Department recognises that further detailed investigations need to be carried out to provide for adequate drainage and to avoid flooding and groundwater impacts. It is considered that design details are best determined in consultation with the DLWC, the EPA, the relevant councils and affected landholders. A comprehensive Soil and Water Management Plan shall be prepared in to the satisfaction of the relevant Council(s), the EPA and the DLWC and in consultation with affected landholders. A number of conditions are specified in this regard.

#### Bowna Creek Interchange

The Department also notes that due the modification of design of the Bowna Creek interchange at Bells Road. The proposed trumpet interchange has been revised to favour traffic movements from Wagga Wagga as these movements are significantly higher than movements from Bowna to Wagga Wagga. The change of the design is likely to have a different impact on the local hydrology. These need to be further assessed in consultation with the DLWC. This is specified in Condition of Approval No. 60.

#### *6.10.2 Water Quality*

The RTA notes that during the construction phase of the project, there is a potential for water quality downstream to be adversely affected if safeguard measures are not put in place and maintained. This would occur primarily because of erosion from earthworks areas during storm events.

The Department supports the water quality monitoring during construction and initial operation of the proposal. A detailed water quality monitoring program should be prepared to the satisfaction of the EPA as specified in Recommended Condition of Approval No. 59.

The RTA proposed the installation of an oil and chemical spill collection system at the Murray River crossing. The EIS/EES also proposed water quality monitoring during both construction and initial operation of the route at the locations selected by the Murray Darling Basin Commission.

To safeguard against water quality impacts the Panel strongly supports the installation of the proposed oil and chemical spill collection system at the Murray River crossing. The Panel also endorsed the water quality monitoring during both construction and initial operation of the route as proposed in the EIS/EES.

The Department agrees that an oil and chemical spill collection system be installed at the Murray River crossing but considers that this requirement should be extended to other stream crossings along the route where spills could impact on water quality. This is specified in Recommended Condition of Approval No. 65

### **6.11 Hazards and Risk**

Working Paper No. 10 of the EIS/EES contains the risk assessment of hazardous goods transportation for both the inner and outer routes and comparison with the "do nothing" scenario.



The report identifies those hazards and scenarios considered to have the potential to affect people and the biophysical environment, particularly in areas adjacent to the prescribed routes. It provides a number of recommendations aimed at further reducing the risks from the transportation of hazardous materials. These include:

- mitigation measures to prevent chemical spills from impacting on water resources such as the Murray River, the Bowna Creek and farm dams located in proximity to the routes, particularly where the accidents occur on river and creek crossings; and
- independent review of the selected route design, to ensure that adequate measures such as provisions for warning signs (eg. for adverse conditions), emergency access and provisions for water supply have been incorporated in the design.

The assessment concludes that both highway options (ie. inner and outer routes), provide a significant risk reduction over the existing Hume Highway route. It submits that risk reduction is related primarily to the well separated carriageways and the limited number of intersections.

In assessing the project, the Department of Urban Affairs and Planning has undertaken a preliminary review of the risk assessment which was provided in the EIS/EES. It also noted that the Panel's Report - produced in August 1996 by the public inquiry in Victoria, pursuant to Section 9 of the Victorian *Environment Effects Act 1978* - expressed its satisfaction that, subject to the study recommendations, either route option could be constructed and operated such that the "...fatality risk to the community and the natural environment is adequately addressed".

The Department of Urban Affairs and Planning considers that based on the information provided in the EIS it is highly likely that transportation risks associated with the proposal will be lower than from using the existing Hume Highway.

The Department however believes that further work needs to be undertaken to remove some uncertainties related to the present risk assessment. These uncertainties mainly refer to the need for furnishing further information on the incident scenarios presented and the soundness of some of the suggested recommendations.

In this regard the Department submits that it is necessary that all credible accidents/collision scenarios be considered for each option. This issue is addressed explicitly in the Recommended Condition of Approval. Furthermore, the Department is of the view that the recommendation to restrict traffic on the Murray River crossing subject to certain chemicals being transported warrants further consideration.

In conclusion, the Department is satisfied that the proposal is likely to result in a reduction of risk to people and the biophysical environment from the transportation of hazardous goods. The Recommended Conditions of Approval Nos. 67 to 69 will further lead to the enhancement of safety issues associated with the proposal.

## **6.12 Property Impacts**

### **6.12.1 Urban Areas**

One hundred and seventy seven representations related to property impacts. Major concern is devaluation of properties adjacent to the route as a result of degradation in



amenity. Compensation for the loss was requested.

The Proponent on the other hand indicated the proposal would bring benefits to local amenity such as opportunity too improve visual amenity, provision of urban parkland and landscaped area, reduced through traffic on certain streets. The Panel indicates that the impacts of property values is difficult to judge and would depends much on the amelioration measures.

The impacts on noise, air quality, visual amenity and access have direct implications on the amenity and hence the value of the property. The Department agrees with the Panel that the impacts on residential amenity depends on the effectiveness of the amelioration measures. It is therefore important to ensure effective measures to ameliorate the adverse impacts will be put in place. The Proponent needs to consult and liaise closely with EPA in designing the mitigation measures so as to achieve EPA's noise and air quality objectives. Preparation and implementation of a quality and widely accepted Urban Design and Landscape Plan is important in ensuring visual amenity and community links are not compromised.

#### *6.12.2 Rural Properties*

The majority of the agricultural land affected by the route is growing either annual pasture or improved perennial pasture, capable of carrying stockrates of 3 to 15 DSE/ha and 12 to 20 DSE/ha respectively. Agricultural Land classification for majority of the land is Class 3 and Soil Conservation classification ranges from II to VI for the route. The EIS/EES has analysed the potential impacts on rural properties such as farm viability, land severance, loss of agricultural production, disturbance and erosion problems.

The EIS/EES identified land severance will be resulted in two properties to the east of Knox Road. Impacts on farm viability is another issue, particularly when the landholders are dependent upon their farms as the sole source of income. The EIS/EES suggests this can be addressed by acquisition, compensation and provision of suitable facilities such as underpasses. Loss in agricultural land and production will be resulted when land is required for the proposal. The Representations Report has analysed the impacts on farm viability of the affected properties and suggested options of acquisition/compensation.

The Department considers that acquisition of any land shall be in a responsive and sensitive manner. If only part of the farm is to be acquired, acquisition should sensitive and in a manner not affecting the viability of the farm, eg. retaining access, water supply, etc. or as agreed by the farm owner. Acquisition need to be in accordance with the Land Acquisition (Just Term Compensation) Act 1991.

The inconvenience caused to both rural and urban properties during construction stage should be minimised by careful planning and close liaison with property owners. Any damage caused to the structure as a result of the proposal need to be rectified by the Proponent at no cost to the owner.



### 6.13 Utilities and Services

The construction of any roadway through an established urban area would have a potentially significant impact on the public utilities and services already established in the road corridor itself and where these utilities and services cross the proposed route. Impacts are likely to be caused because of disruption to services during the construction works, potential damage to some of the service providers' infrastructure and by the need to relocate such services either within the road corridor itself or at some other location.

RTA need to contact all relevant public authorities with utilities and services within the corridor and to incorporate their requirements as part of the concept design services.

Generally, suitable design and operational conditions could be imposed to ensure that any impacts could be managed, that the continuity of supply is maintained and that the temporary or permanent relocation of utilities and services could be carried out in a manner acceptable to the relevant service authorities and users.

It is necessary to require the RTA to identify those services potentially affected by construction activities and that any alteration is determined in consultation with the relevant authority and that any costs incurred shall be paid for by the RTA; to ensure that the RTA is responsible for minimising any disruption to services and advising the local community of any disruptions to supply. This is specified in Recommended Conditions of Approval 78 and 79.

## 7. CONCLUSIONS AND RECOMMENDATIONS

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The Roads and Traffic Authority (NSW) and VicRoads (VIC) are the proponents for the proposal to construct a 52 km section of dual carriageway forming the National Highway between Albury and Wodonga.

A joint Environmental Impact Statement / Statement of Environmental Effects (EIS/EES) has been prepared. 704 representations were received following exhibition of the EIS/EES. The EIS/EES assessed the environmental impacts of two route options. The inner route and the outer.

The most frequently expressed issue in representations was whether the inner or the outer route should be built. Most other concerns related to impacts from the inner route. The major ones were: noise impacts; air quality impacts; severance of Albury; risk from the transport of dangerous goods and social impacts generally. Representations from government agencies also raised issues with respect to water quality impacts, and impacts on threatened flora and fauna.

An inquiry into the environmental effects of the proposal was held under Victorian legislation. The Panel consisted of one nominee each from the Commonwealth, the New South Wales and the Victorian Governments. The Panel recommended that the inner route option should be adopted for a national highway between Albury and Wodonga.

Subsequently, the Roads and Traffic Authority sought approval from the Minister for the inner route. The RTA expects the proposal to bring significant benefits to the broader community such as: improved National Highway route; a consistent design speed; improved surface conditions; divided carriageway; widening to four lanes for full length; improved level of service; reduced travel times; reduced vehicle operating costs; improved traffic safety; and controlled access.

Overall, as with any major infrastructure projects of this nature, it is expected that there will be benefits as well as disbenefits. The extent of disbenefits could be substantially reduced and mitigated by way of conditions. If the proposal is to proceed it should be subject of stringent conditions which would ensure that any impact is kept to a minimum and within tolerable levels relative to the overall projects benefits.

### **Recommendations**

The Director-General's recommendation of the overall assessment is that, should the proposal proceed, it will be essential for comprehensive and advanced conditions to be imposed so as to maximise its benefits and manage residual impacts. These conditions are specified in the following section and are based on the assessment of issues raised in representations to the EIS/EES, in submissions to the Panel Inquiry, and by the Department to ensure that environmental impacts associated with the proposal can be managed and mitigated to an acceptable level.



## 8. RECOMMENDED CONDITIONS OF APPROVAL

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*This section provides the Department's recommended conditions of approval. The recommended conditions have been based on the Director-General's assessment of the EIS/ESS, the representations made to the EIS/EES and further supplementary investigations, the Panel Inquiry, studies and subsequent advice from the proponent and relevant government agencies*

*The recommended conditions should be implemented in addition to those procedures and mitigation measures proposed in the EIS/EES and the supporting documents. Where there are inconsistencies between the EIS/EES and other documents with these recommendations, the recommended conditions apply.*

The following acronyms and abbreviations are used in this section:

Department, The	Department of Urban Affairs and Planning
Director-General, The Affairs and	Director-General of the Department of Urban Planning (or nominee)
DLWC	Department of Land and Water Conservation
DoT	Department of Transport
EES	Environment Effects Statement
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EMR	Environmental Management Representative
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPA	NSW Environment Protection Authority
MDBC	Murray Darling Basin Commission
Minister, The	Minister for Urban Affairs and Planning
NPWS	National Parks and Wildlife Service
RTA	Roads and Traffic Authority
The Proponent	Roads and Traffic Authority

### General

1. The proposal must be carried out in accordance with:
  - the proposal contained in the environmental impact statement/environment effects statement prepared for the RTA and VicRoads by Gutteridge Haskins & Davey Pty Ltd. dated October 1995, *Proponent's Final Submissions to Panel Inquiry* prepared by Freehill Hollingdale & Page for the RTA and

VicRoads dated 13 June 1996, subject to modifications as described in Chapter 4.3 of the RTA's *Representations Report* dated September 1997;

- all identified procedures, safeguards and mitigation measures identified in the EIS; and
- the conditions of approval granted by the Minister.

Despite the above, in the event of any inconsistency the conditions of this approval shall prevail.

**These conditions do not relieve the Proponent of its 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 must comply with the terms and conditions of such approvals and licences.**

**It shall be the ultimate responsibility of the Roads and Traffic Authority to ensure compliance with all conditions of approval granted by the Minister.**

### **Commencement of Operation**

2. Except as provided below, the whole proposal must commence operation at the same time, unless the prior approval of the Director-General has been obtained for staged opening.

Prior to seeking approval for staged construction, the Proponent must consult with the relevant council(s) and any other relevant agency nominated by the Director-General. Any request for approval must be made at least one month prior to the commencement of operation. In seeking approval, the Proponent must provide a report on the traffic implications of opening that stage prior to the remainder of the proposal. The report must also address the impacts of any changes to traffic patterns on noise, amenity and local traffic movements.

### **Compliance**

3. The Proponent shall comply or ensure compliance with all requirements of the Director-General in respect of the implementation of any measures arising from the conditions of this approval, including the implementation of works and actions detailed in plans, procedures and statements prepared in accordance with this approval. The Proponent shall bring to the attention of the Director-General any matter that may require further investigation and the issuing of instructions from the Director-General. The Proponent shall ensure that these instructions are implemented to the satisfaction of the Director-General within such time that the Director-General may specify.

For the purposes of this approval the date of commencement shall be from the date that the RTA determines to proceed with the proposal. The Director-General shall be provided with the date of commencement one month prior to commencement together with notification of all matters required to be complied with before construction can commence.



### **Dispute Resolution**

4. The Proponent shall endeavour as far as possible to resolve any dispute with relevant public authorities arising out of the implementation of the conditions of this approval. Should this not be possible the matter shall be referred to the Minister for resolution. The Minister's determination of the disagreement shall be final and binding on all parties.

### **Complaints Telephone Number**

5. Prior to commencement of construction, the Proponent shall institute and publicise a 24 hour complaints contact telephone number to enable any member of the general public to reach a person who can arrange appropriate response action to the complaint.

### **Complaints Register**

6. A Complaints Register shall be maintained and used to record details of all complaints received and actions taken during the construction stage. The Complaints Register shall be available to all relevant government agencies and relevant council(s) upon request.

### **Advertisement of Activities**

7. The Proponent shall ensure that on approval the proposed route is publicly exhibited and at three-monthly intervals from commencement of construction, the advertisement in relevant local newspapers of the nature of works proposed for the forthcoming three months, the areas in which these works are proposed to occur, the hours of operation and the contact telephone number. The Proponent shall ensure that the local community is kept informed (by way of local newsletters, leaflets, newspaper advertisements and community notice boards etc.) of the progress of the project including any traffic disruptions and controls, construction of temporary detours and work required outside of the nominated working hours prior to such works being undertaken.

### **Environmental Management Representative**

8. A suitably qualified Environmental Management Representative (EMR) shall be employed throughout the construction stage. The EMR shall be responsible for considering and advising on the implementation of the Environmental Management Plans (EMPs) and on matters specified in the conditions of this approval and compliance with such, and shall facilitate an induction and training program for all persons involved with the construction activities. The EMR shall have the independence and the authority to stop work immediately if an unacceptable impact on the environment is likely to occur or to require other reasonable steps to be taken to avoid or minimise the impacts. The appointment of the EMR shall be subject to the approval of the Director-General.

## Environmental Management System

9. The Proponent shall ensure the appointment of contractors who:
- a) have a demonstrated capability and experience in the implementation of an Environmental Management System (EMS) prepared in accordance with AS/NZS ISO 14000 or BS7750-1994 certified by an accredited certifier; and/or
  - b) have a proven environmental management performance record.

## Environmental Management Plan (Construction Stage)

10. Prior to the commencement of construction works, a project specific EMP shall be prepared to the satisfaction of the Director-General following consultation with relevant approval/consent authorities. Where construction activities may be undertaken in discrete stages (in space and/or time), the Proponent may submit for separate approval those sections of the EMP pertaining to the relevant specific stages.

The EMP shall be prepared in accordance with the conditions of this approval, all relevant Acts and Regulations and accepted best practice management procedures and shall reference applicable environmental goals and issues set out in the relevant EPA guidelines.

The EMP must be submitted to the Director-General for approval at least two month prior to the commencement of construction, or within such other time as agreed by the Director-General.

The EMP shall:

- a) address construction activities associated with all key constructions sites;
- b) cover specific environmental management objectives and strategies for the main environmental system elements and include, but not be limited to: noise and vibration; water; air; erosion and sedimentation; access and traffic; property acquisition and/or adjustments; heritage and archaeology; groundwater; contaminated spoil and material, spoil disposal; waste/resource management; soil and groundwater salinity, flora and fauna; flooding and stormwater control; geotechnical issues; recreational facilities; visual screening, landscaping and rehabilitation; hazards and risks; energy use, resource use and recycling; and utilities.
- c) where separate approvals are sought for discrete stages (in space and/or time), clearly indicate the relationship of each stage to other stages of the EMP and the manner of their integration into the overall EMP.
- d) address, but not be limited to:
  - i. identification of the statutory and other obligations which the Proponent is required to fulfil during project construction including all approvals and consultations/agreements required from authorities



and other stakeholders, and key legislation and policies which control the Proponent's construction of the project;

- ii. definition of the role, responsibility, authority, accountability and reporting of personnel relevant to the EMP;
- iii. measures to avoid and/or control the occurrence of environmental impacts;
- iv. measures (where possible and cost effective) to provide positive environmental offsets to unavoidable environmental impacts;
- v. the role of the EMR, including the EMR's experience relevant to his/her role;
- vi. environmental management procedures for all construction processes which are important for the quality of the environment in respect of permanent and/or temporary works;
- vii. monitoring, inspection and test plans for all activities and environmental qualities which are important to the environmental management of the project including performance criteria, specific tests, protocols (e.g. frequency and location) and procedures to follow;
- viii. environmental management instructions for all complex environmental control processes which do not follow common practice or where the absence of such instructions could be potentially detrimental to the environment;
- ix. steps the Proponent intends to take to ensure that all plans and procedures are being complied with;
- x. consultation requirements with relevant government agencies; and
- xi. community consultation and notification strategy (including local community, relevant government agencies and relevant councils), and complaint handling procedures.

Specific requirements for some of the main environmental system elements referred to in (b) shall be as required under the conditions of this approval and/or as required under any licence or approval.

The EMP (Construction Stage) shall be made publicly available.

#### **Environmental Monitoring - Construction**

- 11. The Proponent shall obtain and make public a report(s) in respect of the environmental performance of the construction works and compliance with the EMP (Construction Stage) and any other relevant conditions of this approval. The report(s) shall be prepared at six monthly intervals or at other such periods as requested by the Director-General to ensure adequate environmental performance over the duration of the construction works. The report(s) shall include, but not be limited to, information on:

- a) applications for consents, licences and approvals, and responses from relevant authorities;
- b) implementation and effectiveness of environmental controls and conditions relating to the work undertaken;
- c) identification of construction impact predictions made in the EIS/EES and any supplementary studies and details of the extent to which actual impacts reflected the predictions;
- d) details and analysis of results of environmental monitoring; threatened species management procedure;
- e) number and details of any complaints, including summary of main areas of complaint, action taken, response given and intended strategies to reduce complaints of a similar nature; and
- f) any other matter relating to the compliance by the Proponent with the conditions of this approval or as requested by the Director-General.

The report(s) shall also be submitted to the EPA, the DLWC, the NPWS, NSW Fisheries, relevant councils and any other relevant government agency nominated by the Director-General. The report(s) shall also be made publicly available.

12. All sampling strategies and protocols undertaken as part of any monitoring program shall include a quality assurance/quality control plan and shall require approval from the relevant regulatory agencies to ensure the effectiveness and quality of the monitoring program. Only accredited laboratories shall be used for laboratory analysis.

#### **Environmental Management Plan (Operation Stage)**

13. An EMP shall be prepared for the operation of the proposal. The Plan shall be prepared to the satisfaction of the Director-General and in consultation with the EPA, the DLWC, NSW Fisheries, relevant councils and any other relevant government agency nominated by the Director-General. The Plan shall be prepared in accordance with the conditions of this approval, all relevant Acts and Regulations and accepted best practice management procedures. The Plan must be submitted to the Director-General for approval at least three months prior to the commencement of operation, or within such other time as agreed to by the Director General.

The EMP shall address at least the following issues:

- a) identification of the statutory and other obligations which the Proponent is required to fulfil including all licences/approvals and consultations/agreements required from authorities and other stakeholders, and key legislation and policies which control the Proponent's operation of the project;
- b) requirements of and compliance with relevant approval and licences;
- c) sampling strategies and protocol to ensure the quality of the monitoring



program including specific requirements of the EPA, DLWC, NPWS and NSW Fisheries; inclusion of the threatened species management procedure;

- d) monitoring, inspection and test plans for all activities and environmental qualities which are important to the environmental performance of the project during its operation including description of potential site impacts, performance criteria, specific tests and monitoring requirements, protocols (e.g. frequency and location) and procedures to follow;
- e) steps the Proponent intends to take to ensure that all plans and procedures are being complied with;
- f) consultation requirements including relevant government agencies, the local community and relevant councils and complaint handling procedures; and
- g) procedures for the main environmental system elements and include, but not be limited to: noise and vibration; water; air; erosion and sedimentation; access and traffic; property acquisition and/or adjustments; heritage and archaeology; groundwater; settlement; contaminated spoil; waste/resource management/removal/ disposal; flora and fauna; hydrology and flooding; land management; recreational facilities; visual screening, landscaping and rehabilitation; hazards and risks; energy use, resource use and recycling; and utilities.

Specific requirements for some of the main environmental system elements referred to in (g) shall be as detailed under the conditions of this approval and/or as required under any licence or approval.

The EMP (Operation Stage) shall be made publicly available.

- 14. All sampling strategies and protocols undertaken as part of the EMP (Operation Stage) shall include a quality assurance/quality control plan and shall require approval from the relevant regulatory agencies to ensure the effectiveness and quality of the monitoring program. Only accredited laboratories shall be used for laboratory analysis.

#### **Environmental Impact Audit Report**

- 15. An environmental impact audit report shall be submitted to the Director-General, the EPA, the DLWC, the NPWS, NSW Fisheries and relevant councils upon request by the Director-General to any other relevant government agency 12 months after commissioning of the project and at any additional periods thereafter as the Director-General may require. The Report shall be prepared by an independent person to be appointed by the Director-General and at the Proponent's expense. The report shall assess the key impact predictions made in the EIS and any supplementary studies and detail the extent to which actual impacts reflect the predictions. In particular the report shall provide details on actual versus predicted traffic volumes, groundwater changes, settlement, noise and air emissions, accidents involving transportation of hazardous goods, water



quality and flooding and all other key impact issues identified in the EIS/EES. Suitability of implemented mitigation measures and safeguards shall also be assessed. The report shall detail recommended works or other actions to ensure compliance with the predicted impacts. It shall also assess compliance with the Environmental Management Plan (Operation Stage).

The Report shall also 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. The Proponent shall comply with all reasonable requirements of the Director-General, the EPA, the DLWC, the NPWS, NSW Fisheries and any other relevant determining authority with respect to any reasonable measure arising from, or recommendations in the report.

The Report shall be made publicly available and accessible to individuals and organisations with an interest in the proposal.

### **Community Liaison Group(s)**

16. A Community Liaison Group or Groups including the EMR, representatives from the RTA, the contractor, relevant local community and business groups and relevant councils, must be formed prior to the commencement of construction to discuss detailed design issues and methods for minimising the impact on the local community and businesses, including but not limited to: local vehicle, pedestrian and cyclist access requirements; construction stage traffic diversions; groundwater control; settlement; noise barriers and other noise mitigation measures, air quality; water quality; flooding; landscaping requirements (including design of noise barriers, urban parklands design); and any other issues as considered relevant by the Group. Appropriate facilities and information shall be provided by the Proponent to assist the Group in carrying out its functions. The Group may make comments and recommendations about the design and implementation of the proposal which shall be considered by the Proponent.

### **Traffic Management**

#### **Construction Stage**

17. As part of the EMP referred to in Condition 10, a detailed Construction Traffic Management Procedure must be prepared, prior to the commencement of construction, for various affected sites. The Procedure must assess the impacts and management of any temporary road closures, detours or other major disruptions to traffic flows and pedestrian/cyclist access during the construction of the scheme. The Procedure shall be prepared in consultation with the relevant local council(s). The Procedure shall provide details on but is not limited to: traffic management principles; timing of road disturbance; measures so as not to discourage public transport; modifications to existing roads and intersections; truck manoeuvring and access to construction sites; spoil and material disposal routes; implications and arrangements for bus and taxi stops; pedestrian/cyclist management; and requirements for adequate signage; public notification of



proposed road changes; signposting and markings; lighting; speed limiting devices and any other relevant matters. No traffic changes including lane and road closures, detours, intersection changes or the like shall occur without prior consultation with the relevant council(s).

18. A road dilapidation report must be prepared for all non-State roads likely to be used by construction traffic prior to their use by construction traffic and then after construction is complete. Copies of the report shall be provided to all relevant councils. Any road/footpath damage, aside from that resulting from normal wear and tear, shall be repaired to a standard at least equivalent to that existing prior to any disturbance at the cost of the Proponent or as otherwise agreed with the relevant local council(s).
19. Monitoring of any local roads affected by the proposal to be used by heavy vehicle traffic to the satisfaction of the local council(s) shall be undertaken in consultation with the relevant council(s) to develop measures to minimise and/or restrict the use of local roads by heavy vehicle traffic. Details on the intervals and duration for monitoring shall be developed in consultation with the relevant local council(s).
20. No local roads shall be used by construction traffic unless otherwise agreed by the relevant local council(s).

#### Operational Stage

21. Prior to commencement of operation, a Technical Advisory Committee shall be established to oversee the preparation of the Local Traffic Management Program (LTMP). The Committee shall include representatives from the RTA, the NSW Police Service, the State Rail Authority, relevant councils, local and interstate bus services, and any other relevant road user groups.
22. The LTMP shall include a comprehensive consultation process, including the agencies represented in (Condition 69) as well as community, business and bicycle groups.
23. The LTMP should identify the potential to introduce traffic calming measures brought about by the opening of the proposal. It should also identify any additional traffic that may be generated on local roads as a consequence of the opening, and propose mitigation measures. The Proponent shall be responsible for funding any measures required to mitigate adverse impacts resulting from the proposal.
24. Prior to the implementation of the LTMP, the Proponent shall ensure that there is appropriate environmental impact assessment of any measures to be implemented and adequate involvement of the local council(s), community and local business groups.
25. As part of the LTMP, the Proponent must specifically identify roads where traffic is likely to increase as a consequence of the opening of the proposal.



Consideration must be given to the impacts on local amenity and traffic conditions, particularly heavy vehicle impacts. The LTMP must contain a detailed strategy for addressing these impacts.

26. Prior to the commencement of the operation of the proposal, the Proponent shall have in place to the greatest extent practicable and have agreed on all funding requirements for the necessary LTMP measures.

## **Noise and Vibration**

### Noise and Vibration Management Procedure

27. A detailed Noise and Vibration Management Procedure must be prepared as part of the EMPs referred to in Conditions 10 and 13 to the satisfaction of the EPA. The Procedure must provide details of noise and vibration control measures to be undertaken during both the construction and operation stages sufficient to address the technical requirements for any EPA approvals/licences, including a Noise Impact Report required in Condition No. 34.

The Procedure must include, but not be limited to, tests for ascertaining acoustic parameters; anticipated airborne noise and vibration for all major noise and vibration generating activities and locations and duration of these activities; impacts from site compounds/construction depots; location, type and timing of erection of temporary and permanent noise barriers; specific physical and managerial measures for controlling noise and vibration; noise and vibration control equipment to be fitted to machinery; predicted noise and vibration levels at sensitive receivers; noise and vibration monitoring and reporting procedures (including monitoring locations, techniques and relevant criteria); measures for dealing with exceedances; arrangements to inform residents of construction activities likely to affect their noise amenity; contact point for residents; complaints handling systems; reporting of complaints and response actions.

The Procedure must be prepared prior to the construction and operation (as appropriate) of the proposal and must be made publicly available.

## **Construction Noise and Vibration**

### Construction Hours

28. All construction activities including entry and departure of heavy vehicles are restricted to the hours 7.00 am to 6.00 pm (Monday to Friday); 8.00 am to 1.00 pm (Saturday) and at no time on Sundays and public holidays.

The following works may be permitted outside these hours, providing the prior approval of the EPA is obtained:

- any works which do not cause noise emissions to be audible at any nearby residential property;
- the delivery of materials which is required outside these hours as requested



by police or other authorities for safety reasons;

- emergency work to avoid the loss of lives property and/or to prevent environmental harm.

Other works may be undertaken outside the specified hours, providing the prior approval of the EPA is obtained. The EPA must be satisfied, before it grants any approval for such works, that there is a demonstrated genuine need to undertake the work and all reasonable measures will be taken to minimise noise impacts.

Public notification shall be in a manner to the satisfaction of the EPA.

#### Construction Noise Impact Assessment

29. A specific noise impact report must be prepared for each stage of construction consistent with the noise management procedure identified above. The statement must include:

- a) description of proposed processes and activities;
- b) valid background levels;
- c) examination of alternative methods that would potentially reduce noise impact;
- d) assessment of potential noise from proposed construction methods;
- e) description and commitment to work practices which limit noise;
- f) description of specific noise mitigation treatments and time restrictions, and consideration of their effectiveness;
- g) justification for any activities outside the normal hours;
- h) consideration of construction vehicle movements;
- i) noise impacts of traffic diversions;
- j) compliance with EPA criteria;
- k) monitoring of construction activities; and,
- l) community consultation and notification.

The statement must ensure that construction noise will be within the following criteria unless otherwise agreed with the EPA:

- For a construction period of four weeks and under, the  $L_{10}$  level measured over a period of not less than 15 minutes when the construction site is in operation must not exceed the background level by more than 20 dB(A).
- For a construction period of greater than four weeks and not exceeding 26 weeks, the  $L_{10}$  level measure over a period of not less than 15 minutes when the construction site is in operation must not exceed the background level by more than 10 dB(A).
- For a construction period greater than 26 weeks, the  $L_{10}$  level measured over a period of not less than 15 minutes when the construction site is in

operation must not exceed the background noise level by more than 5 dB(A).

Each noise impact statement shall be prepared in consultation with the relevant council(s) and be subject to the approval of the EPA as part of the information required to obtain a Pollution Control Approval.

#### Construction Noise Level Monitoring

30. Construction noise levels must be monitored to verify compliance with the requirements specified in the Noise and Vibration Management Procedure and in the noise impact statements. The Proponent must submit to the EPA, at intervals specified by the EPA, monitoring reports that outline environmental performance and compliance with conditions of approval. Should monitoring indicate exceedance, the Proponent must ensure consultation with the EPA and must ensure the implementation of any additional mitigation measures as required.

#### Blasting

31. Prior to any blasting being undertaken a Blasting Management Strategy must be prepared in accordance with Chapter 154 of the EPA's ENCM to the satisfaction of the EPA.
32. Blasting can only be undertaken between the hours of 9.00 am and 5.00 pm (Monday to Friday) and 9.00 am to 1.00 pm on Saturdays and at no time on Sundays or public holidays, unless otherwise approved by the EPA.

#### Vibration/Structural Borne Noise

33. The vibration level due to construction activities including both above ground and underground work must meet the requirements of the EPA as specified in its pollution control approval. In general the EPA's noise control manual dealing with Vibration in Buildings in Chapter 174 of the ENCM shall be applied for all buildings potentially affected unless otherwise agreed to by the EPA.

#### **Operational Noise**

34. A noise impact report, on the operation of the proposal, must be prepared as part of the Noise and Vibration Management Procedure. The report must be prepared in consultation with the local community, relevant councils and must be to the satisfaction of the EPA. The report must include the following:
  - a) identification of noise catchments and predicted noise levels;
  - b) specific consideration of noise sensitive receptors;
  - c) relationship of predicted noise levels to the environmental criteria for road traffic noise endorsed by the EPA;
  - d) available noise control measures and those proposed to be used including consideration of their likely effectiveness. The urban design principles identified in Condition No. 40 must be addressed in the assessment of



noise control measures.

The report must address traffic noise associated with the proposal, including the traffic noise on Hume Highway and local streets affected by traffic redistribution as a result of the proposal. The report should demonstrate that the proposal will comply with the environmental criteria for road traffic noise endorsed by the EPA in all areas, unless the EPA agrees otherwise taking into account community views, and the practicality of achieving the noise criteria.

35. Monitoring of the operational traffic noise on both the proposed highway and the affected local roads must be undertaken as part of the Noise and Vibration Management Procedure. A monitoring program for at least 12 months from commencement of operation should be established. The monitoring program shall include measuring background noise (both Leq 15 hr and Leq 9 hr) immediately before construction begins and traffic noise levels of normal operational traffic flows. The Proponent must, in consultation with the EPA, assess the adequacy of the traffic noise mitigation measures. Should the assessment indicate a clear trend in traffic noise levels which are higher than the general predictions made in the noise impact report, the Proponent must ensure the implementation of further noise mitigation measures if practicable and cost effective to the satisfaction of the EPA, and after community consultation.
36. Prior to installation of permanent noise control measures the Proponent shall, in consultation with the EPA and the community, ensure that further investigations are conducted into the feasibility and cost effectiveness of additional noise mitigation measures using the EPA's noise criteria as the target.

## **Air Quality**

### Construction Stage

37. As part of the EMP referred to in Condition No. 10, a specific Construction Stage Air Quality Management Procedure must be prepared to the satisfaction of the EPA. The Procedure shall provide details of all dust control measures to be implemented during the construction stage sufficient to address the technical requirements for any EPA approvals/licences. The Procedure must include measures to reduce dust from stockpiles and cleared areas or other exposed surfaces. Measures such as temporary planting of stockpiles and progressive rehabilitation of any exposed areas should be designed to achieve EPA local air quality protection goals. The Procedure must also identify the potential for odours and incorporate strategies for dealing with this issue.

Air quality at construction stage must be monitored to verify compliance with the requirements specified in the Air Quality Management Procedure. Should monitoring indicate exceedance, the Proponent must ensure consultation with the EPA and must ensure the implementation of any additional mitigation measures as required.

38. All construction vehicles shall be maintained and covered to prevent any loss of

load whether in the form of dust, liquid, solids or otherwise and shall be maintained in such a manner that they will not track mud, dirt or other material onto any street which is opened and accessible to the public. Without limiting the generality of this requirement, the Proponent shall install and maintain a wheel wash facility for effective wheel cleaning of construction equipment prior to it leaving construction areas and/or other such devices to ensure that material from construction vehicle tyres is not deposited on nearby streets.

#### Operation Stage

39. As part of the EMP referred to in Condition No. 13, a detailed Air Quality Management Procedure shall be prepared to the satisfaction of the EPA. The Procedure shall provide details of air quality control measures to be undertaken during the operation stage and shall reference health-based regional ambient air quality goals.

#### **Urban Design/Landscaping**

##### Urban design and landscape plan for the overall route

40. Prior to the commencement of construction, a detailed urban design and landscape plan for the entire proposal shall be prepared to the satisfaction of the Director-General. The plan must be submitted for approval at least two months prior to the commencement of construction, or as otherwise agreed by the Director-General. The plan must be prepared by a qualified urban designer.

The plan must:

- a) be presented as an integrated proposal with the final Albury-Wodonga National Highway road design;
- b) be in consultation with the community, all relevant land owners, and councils to the satisfaction of the Director-General; and
- c) consist of a report with accompanying annotated plans, sections and perspective sketches at a scale and level of detail which is adequate to convey the nature of the proposed work.

The plan(s) shall include but not be limited to:

##### *Urban Design Issues*

- proposed structures or fixtures pedestrian bridges, noise walls, cycle ways, interchanges, overpasses, paving materials and lane barriers;
- emergency phone locations;
- street furniture and fixtures including planter boxes, lighting, fencing, signage;
- footpaths and pedestrian crossings;
- proposed treatments, finishes and materials of exposed surfaces. Colours, specifications and samples should be detailed;



- proposals if any for community art or interpretation in public spaces along the proposal;
- measures proposed to ameliorate visual impact along the route should be highlighted; and,
- the location and design of road and pedestrian/cycle signage.

#### *Landscape Issues*

- the location and type of new and existing plants and details of hard and soft landscaping features including mounds, terraces and retaining walls, road medians and roadside planting; and,
- timing and staging of works; monitoring and maintenance.

#### Management, Implementation and Maintenance Issues

41. The Plan should include a Management, Implementation and Maintenance Strategy. The Strategy should:
- clearly indicate the extent of work to be undertaken;
  - provide indicative costings of the proposed urban design and landscape works and funding commitments;
  - set out responsibilities for implementing all the urban design and landscape works, and expected dates for completion.
  - set out arrangements and responsibilities for on-going maintenance of all urban design and landscape works.

#### Detailed Urban Design Guidelines

42. Detailed urban design guidelines for the following components of the proposal must be prepared by a qualified urban designer:
- noise amelioration and edge conditions;
  - pedestrian circulation;
  - built elements;
  - finishes and materials;
  - signage and advertising; and
  - lighting.

#### Specific Urban Design and Landscape plans for Key Areas

43. As part(s) of the Urban Design and Landscape Plan for the overall route, specific urban design and landscape plan(s) are to be prepared by a qualified urban designer, at least two months prior to commencement of construction, or as otherwise agreed by the Director-General, in consultation with councils and local community to the satisfaction of the Director-General, for the following sections of the proposal:

### *City/East Albury Precinct*

A specific plan to provide design details of, including but not limited to the pedestrian bridges, interchanges, overpasses, gateway treatment, footpaths and lighting in City/East Albury precinct; details should include the exact locations, designs, colour, finishes and materials proposed for the structures. The plan should provide details of landscaping, furniture and fixtures in the proposed urban park and landscaped areas along the route between Borella and Bridge Streets and include the integration with the existing pedestrian network; details should include location and types of plants, details of landscaping features including mounds and terraces; park boundary definition, security fencing/landscaping and proposed gateway treatments.

### *Corrys Hill Precinct*

A specific plan to provide design details of, including but not limited to the overpasses, footpaths, landscaping including types of plants proposed and their location, landscape vista and gateway treatment.

### *Bells Road Precinct*

A specific plan to provide design details of, including but not limited to the bridges, landscaping including types of plants proposed and their location, landscape vista and gateway treatment.

## Monitoring of Implementation

44. Monitoring of the implementation of the urban design and landscape plans and urban design guidelines must be undertaken by a qualified urban designer during construction. Regular progress reports must be provided to the Director-General. The Proponent must comply with any reasonable requirements of the Director-General arising from her consideration of these reports.

## **Heritage and Archaeology**

### Heritage

45. As part of the EMPs referred to in Conditions 10 and 13, the Proponent must prepare a Conservation Management Plan, to the satisfaction of the Director-General, which identifies, and presents management options, for heritage items. In preparing this plan the Proponent must consult with the Heritage Council and the relevant councils. Particular attention must be given to: Hanel and Kenilworth Street Conservation Area, the remains of the plough found 650m north of Thurgoona Road, the railway gatekeeper's cottage and remnants of a cellar associated with Murray Valley vineyards in Dallinger Road, and the buildings of heritage significance in Albury Railway Station Yard.

The procedure shall include the need to provide specific plans for any item to be relocated or resited, assessment and archival recording of items to be demolished and procedures for carrying out detailed assessment.



46. Prior to commencement of substantial construction activities in areas where heritage buildings may be affected, building surveys shall be undertaken for any heritage items identified in the Plan. The Proponent shall ensure that all damages occurring as a result of the construction are fully rectified at no cost to the owner.

#### Archaeology

47. As part of the EMPs referred to in Conditions 10 and 13, the Proponent must prepare a Procedure, to the satisfaction of the Director-General, which identifies, and presents management options, for archaeological sites/items. In preparing this Procedure, the Proponent must consult with the relevant councils, the NPWS, the Heritage Council and the relevant Local Aboriginal Land Council(s).
48. The Proponent must obtain necessary permits or consents from the NPWS prior to causing affectation, disturbance, or destruction to any archaeological heritage identified in the Procedure.
49. If, during the course of construction, the Proponent becomes aware of any heritage or archaeological material, all work likely to affect the site(s) must cease immediately and the relevant authorities including the NPWS, the Heritage Council and the relevant Local Aboriginal Land Council(s) shall be consulted in terms of an appropriate course of action prior to recommencement of work. Any required permits/consents shall be obtained and shall be accompanied by appropriate supporting documentation.

#### **Threatened Species**

50. Additional surveys shall be undertake for threatened bat species which were considered undersampled by the NPWS during initial surveys and the two threatened flora species: Austral Toad Flax *Thesium australe*, *Amphibromus fluitans*, *Brachyscome muelleroides*, and *Swainsona recta* and any other threatened species as deemed appropriate.

The above surveys should also include three regionally significant eucalypts *Eucalyptus sideroxylon*, *E. blakelyi* and *E. microcarpa* and mitigation measures propose to minimise the impact on any of these species.

51. A part of the EMPs referred to in Conditions 10 and 13, the Proponent shall prepared a detailed threatened Species Management Procedure(s) to the satisfaction of the NPWS and the Director-General. The Procedures for the construction EMP shall be prepared prior to commencement of construction activities and shall identify requirements for minimising habitat disturbance, appropriate remediation of degraded habitat, monitoring procedures, training of construction personnel, etc.

All reasonable measures shall be taken to ensure minimal harm and/or risk to threatened species during both construction and operation of the line.

52. Immediately prior to the commencement of construction activities, an inspection



shall be made by a suitably qualified specialist of all habitat to be disturbed.

53. If, during the course of construction any threatened flora or fauna species are encountered, the Director-General of the NPWS shall be advised immediately. No activity which places any of these species at risk shall be undertaken until advice has been received from the NPWS. All recommendations by the NPWS shall be complied with prior to any works being undertaken which are likely to affect any threatened species.

## **Fish**

54. In consultation with NSW Fisheries and the MDBC, further investigations shall be undertaken on the possible impacts on fish an appropriated construction design of watercourses shall be selected to minimise impacts on fish.
55. Habitat restoration shall be undertaken to the satisfaction of NSW Fisheries and a five year annual monitoring program implemented to determine the success of the restoration works.

## **Flooding and Water Quality**

### Flooding and Stormwater Management

56. A detailed Stormwater Management Procedure shall be prepared in consultation with the DLWC and the relevant councils. The Procedure shall provide details on catchment analysis (including localised flooding as recognised by the relevant local councils), existing drainage systems and capacity, drainage changes resulting from the proposal and implications for the system, detention requirements and environmental impacts of such. Agreement shall be reached with the relevant government agencies and council(s) on appropriate and specific measures to be implemented at various locations.
57. All stormwater flows from the proposed highway shall be detained through appropriate measures to ensure that there is no exacerbation of existing flooding to the satisfaction of DLWC. Agreement shall be reached with the relevant councils on appropriate and specific measures to be implemented at various locations.
58. Seepage, spillages, contaminated water, fire fighting or other water which is likely to contain pollutant levels above the background concentrations of natural discharge points shall be directed into separate sumps with pump out facilities. This water shall not be discharged to the stormwater system unless otherwise agreed by the EPA.

### Soil and Water Management Procedure

59. As part of the EMPs referred to in Conditions 10 and 13, a detailed Soil and Water Quality Management Procedure shall be prepared to the satisfaction of the EPA and in consultation with the DLWC, and the relevant councils. The Procedure shall provide details of pollution control measures to be undertaken during both



the construction and operation stages sufficient to address the technical requirements for obtaining relevant EPA approvals/licences.

The Soil and Water Quality Management Procedure shall include, but not be limited to: identification of baseline stream water quality monitoring; environmental limits/criteria; performance objectives; measures to handle and dispose of stormwater; effluent and contaminated water and soil; the capacity of the proposed on-site detention systems to contain all runoff; procedures for analysing the degree of contamination of potentially contaminated water; sedimentation and control measures to prevent erosion and pollution; measures of dealing with overland flow; measures for the use of water reclaimed or recycled on-site; monitoring program including monitoring of baseline stream water quality at locations potentially affected by the construction and operation of the proposal shall form part of the soil and water management procedure

The Procedure shall have regard to the criteria and principles detailed in the *Managing Urban Stormwater* series prepared by the EPA for the State Stormwater Coordinating Committee and the Department of Housing's *Soil and Water Management for Urban Development*.

#### Bells Road Interchange

60. The hydrological, flooding, salinity and water quality impacts resulting from the modified design of the Bells Road interchanges shall be assessed and appropriate mitigation measures implemented to the satisfaction of the DLWC.

#### Construction Stage Water Pollution Control Measures

61. The Soil and Water Management Procedure shall incorporate a detailed Erosion and Sediment Control Plan and Site Rehabilitation Plan which shall be prepared and submitted to the satisfaction of the DLWC and the EPA to satisfy the technical information requirements for issuing of all relevant pollution control approvals and licences. The Plan shall include details of the location and design criteria for erosion and sediment control measures and shall specifically address measures for treatment of stormwater before disposal including performance objectives as required in the EPA Pollution Control Approval. The use of vegetated treatments systems shall be maximised. The measures shall follow the RTA's *Guidelines for the Control of Erosion and Sedimentation in Roadworks* and DLWC's *Urban Erosion and Sediment Control*.
62. Control of river bank and bed sediment within the Murray River, with measures such as silt curtains, drying basins, testing and treatment procedures must be provided and implemented to the satisfaction of the EPA. Details of the type of mitigation measures to be installed, maintained and replacement strategies must also be addressed.
63. The Proponent shall ensure that all soil and erosion and sediment control works are completed and in place prior to the commencement of any works that may have the potential to generate soil erosion or sediment. Erosion and sediment



protection measures shall also be in place before the commencement of any stockpiling activities.

66. At construction depots the Proponent shall install appropriate bunding of storage areas for all liquid materials with a potential to harm the environment.

#### Operational Stage Water Pollution Control Measures

64. All stormwater and wastewater systems of the proposal shall be designed, constructed, operated and maintained to meet the requirements of the relevant authorities including the EPA, the DLWC and relevant councils.
65. In addition to trap gullies and trashracks the Proponent shall incorporate detention systems for containing spills and materials arising from accidents and install appropriate detention systems to the satisfaction of the EPA. The Proponent shall also ensure the investigation into the cost of removal of sediment, oil and grease.

### **Groundwater**

#### Groundwater Management Plan

66. A detailed Groundwater Management Plan shall be prepared to meet the requirements of the DLWC and the EPA. The Plan shall cover the complete proposal and shall provide details of groundwater control measures to be undertaken during both the construction and operation stages and include but not be limited to: impacts on nearby structures from potential settlement; impacts on existing authorised groundwater users; impacts on salinity, groundwater inflow control; handling; treatment and disposal of contaminated groundwater; monitoring; auditing; mitigation measures; and response actions.

### **Hazards, Risks and Safety**

#### Emergency Planning

67. At least 6 months prior to commissioning the proposal an Emergency Response Plan shall be prepared to the satisfaction of the NSW Fire Brigades, the NSW Police Service and the State Emergency Services. Two months prior to commissioning of the proposal there shall be a thorough testing of emergency procedures and evacuation systems to the satisfaction of the NSW Police Service and the NSW Fire Brigades. Testing thereafter shall be at least annually, or as requested by the relevant authorities.
68. Within twelve months of the date of determination or within such time as the Director-General agrees, a final hazard analysis shall be completed by the proponent, to the satisfaction of the Director-General. This study shall be accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 6: Hazard Analysis Guidelines* and in consultation with the Department. The Proponent shall comply with all reasonable requirements of the Director-General in respect of the implementation of any measures arising from the study within such time as the Director-General may agree.



### Dangerous Goods

69. An oil and chemical spill collection and treatment system shall be installed at the Murray River crossing and any other watercourse crossing as required by the NSW EPA and to the satisfaction of the DLWC, the MDBC and in consultation with the relevant council(s) and landowners. The RTA shall consult with VicRoads to integrate proposed design measures at the Murray River crossing.

### **Property Matters**

70. Structural surveys shall be undertaken for all buildings and major structures located within 50 m of construction works prior to commencement of construction works or other major vibration inducing construction activities in the vicinity of such buildings/structures. A copy of the survey shall be given to each affected property owner together with information on how to pursue a claim for damage. The Proponent shall ensure that any damages occurring as a result of the construction are fully rectified at no cost to the owner(s).
71. The Proponent shall notify the owner of any property that is to be adjusted, acquired or for which an easement or stratum is to be obtained. This notice shall contain sufficient details to identify the land of interest being adjusted/acquired and is to include dimensions, location with respect to boundaries and any other information necessary to enable the identification of the land in relation to the development. This notification shall be given prior to access for construction purposes.
72. The Proponent must consult with any property owner where temporary access is required over the property. This consultation must occur prior to any access occurring. The Proponent must comply with any reasonable requests of the owner.
73. Alternative access arrangements shall be provided to the reasonable satisfaction of the relevant council, to any property or public area which would otherwise be denied access as a result of the construction or operation of the proposal. Such alternative access shall be provided at an appropriate standard to the reasonable satisfaction of the relevant council. Any temporary access road(s) shall be removed and any affected areas reinstated to the reasonable satisfaction of the relevant council when no longer required.
74. All affected property, which is not acquired by the Proponent, (including any affected buildings, structures, lawns, trees, sheds, gardens etc.) shall be fully restored to at least the condition it was in prior to disturbance at no cost to the owner(s). Restoration shall be completed in a timely manner and, unless otherwise agreed to by the owner, within 3 months of completion of works. Construction activities undertaken within private property shall be sympathetic to the specific needs of individual property owners particularly in terms of requirements for temporary facilities such as fencing, access to footpaths/driveways etc.

75. The acquisition of any land shall be in a responsive and sensitive manner and in accordance with the *Land Acquisition (Just Terms Compensation ) Act 1991*.

### **Concrete Batching plant**

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### **Fill Material for Construction**

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during the detailed design of the proposal in terms of the design of specific cyclist facilities including, provision of on-road facilities, intersection treatments, linemarking, signposting and stencils, drainage grates, and kerb and gutter treatments.

## **Spoil Disposal and Waste Management**

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## FIGURES



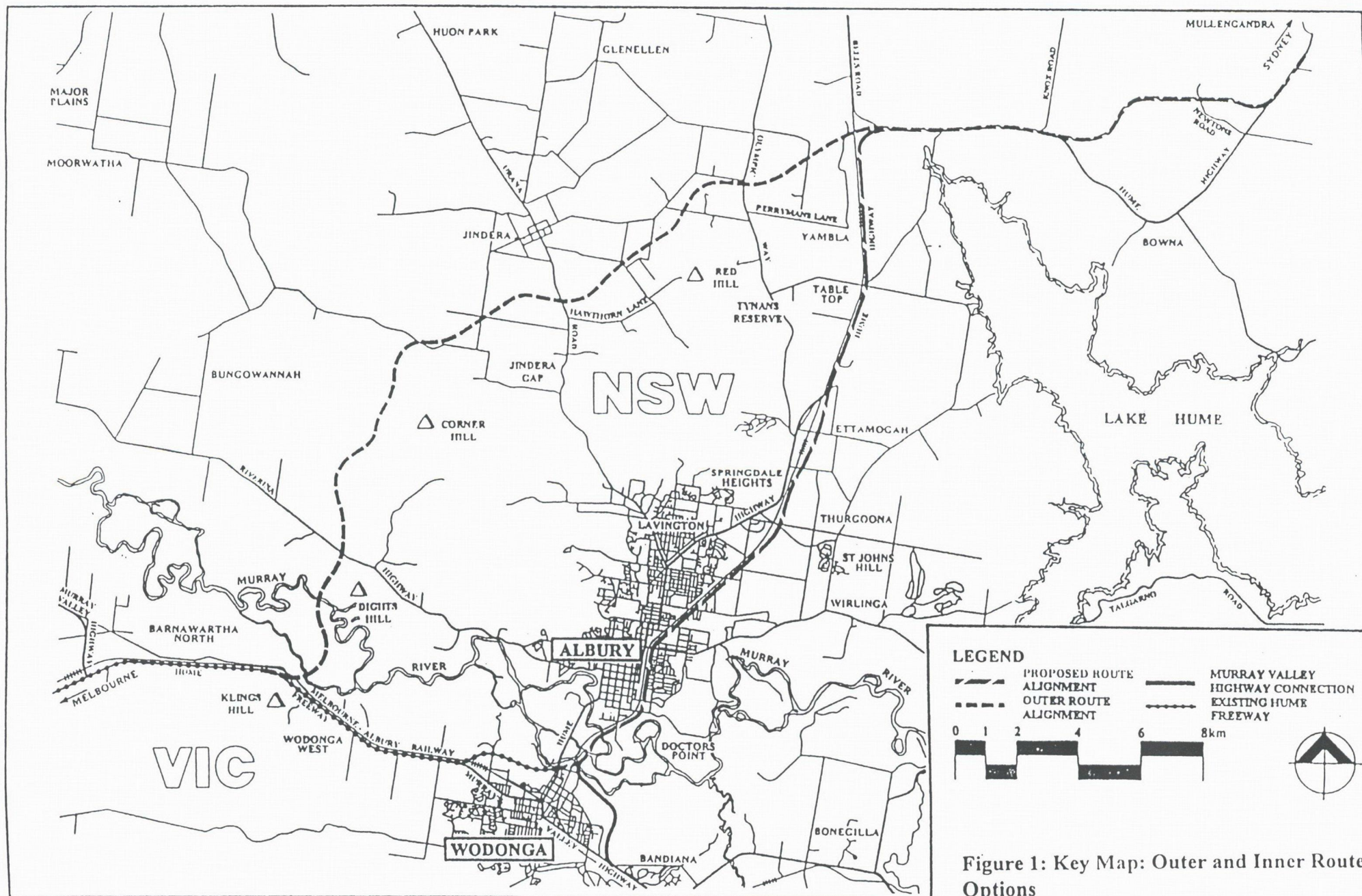
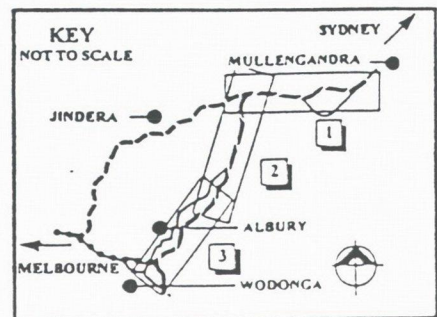
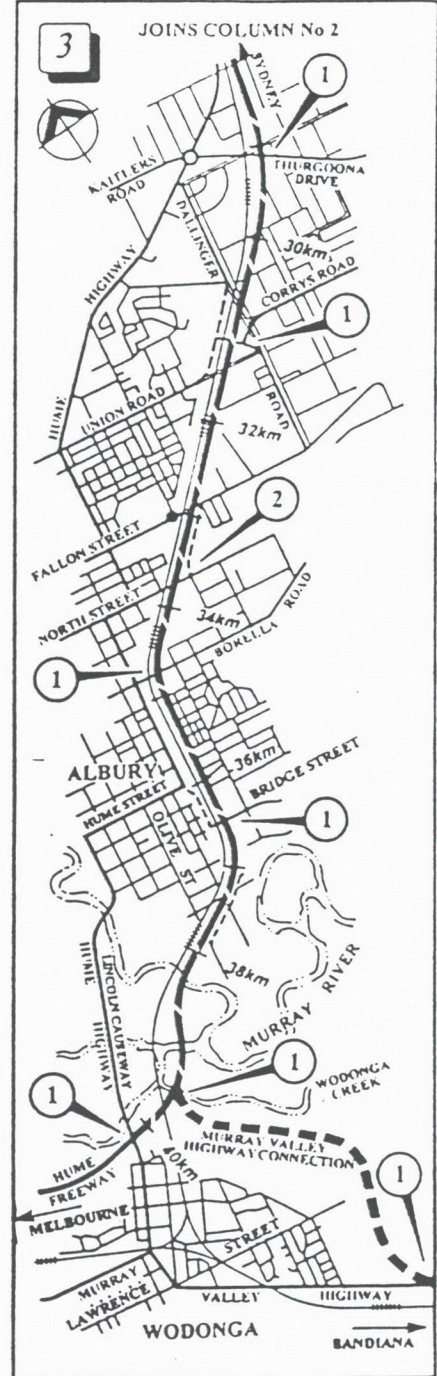
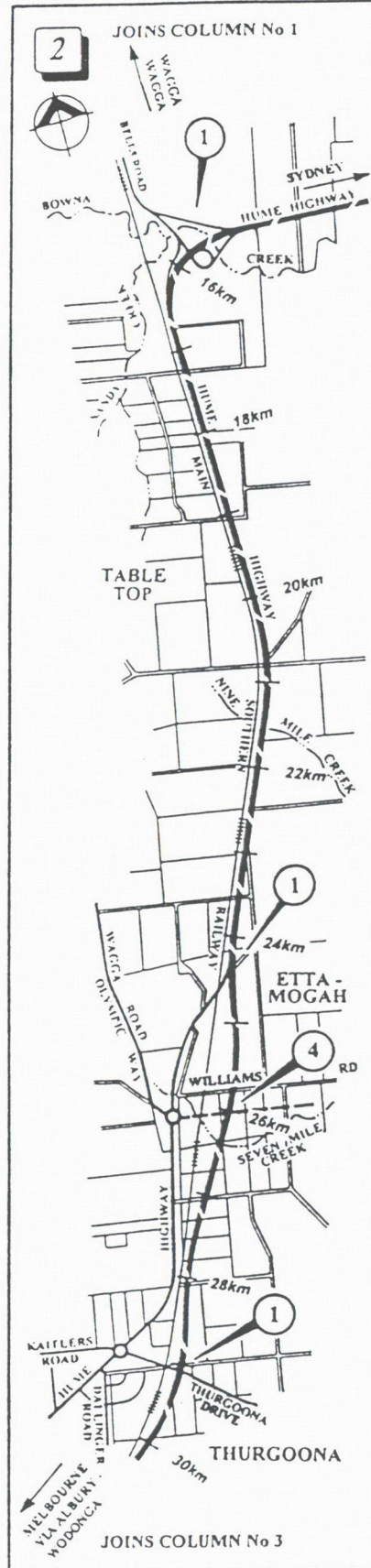
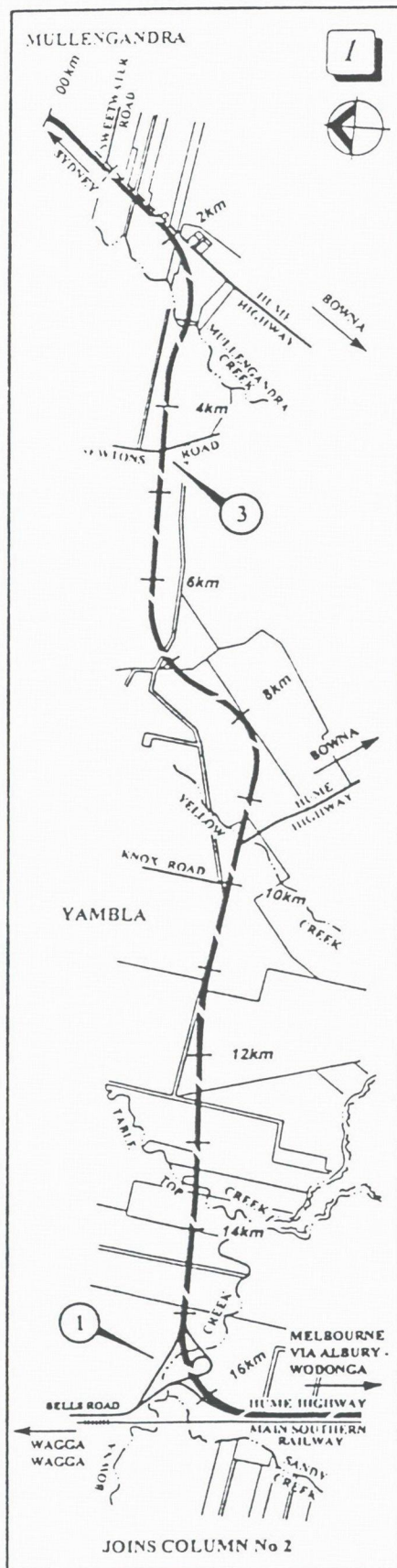


Figure 1: Key Map: Outer and Inner Route Options  
(Source: GHD EIS/EES)





# LEGEND

- ROUTE ALIGNMENT
- LOCAL ROAD CLOSURE
- - - NEW LOCAL ROAD
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- ② FLYOVER (HIGHWAY UNDER)
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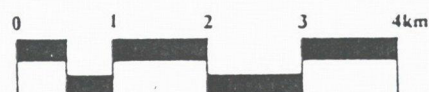


Figure 2: Inner Route Option  
(Source: GHD EIS/EES)



## 4.5 Detailed Route Descriptions

Horizontal and vertical alignments are shown in a series of maps numbered Figures 4.4 (a) to 4.4 (s) of the outer route and 4.5 (a) to 4.5 (r) of the inner route. The following describes the features of the routes by referring to chainages and locations. The "chainage" is the location described in terms of kilometre distance from the origin of the project at Sweetwater Road. Other locations are described in terms of place names and features such as creeks, rivers and localities.

Typical cross sections have been adopted for the concept design of both the inner and outer routes. The location of the cross sections is shown in Figure 4.6 (a) and the typical cross sections are shown in Figures 4.6 (b) to 4.6 (e).

### 4.5.1 Inner and Outer Routes -- Sweetwater Road to Bowna Creek

This section of the route is approximately 15 km in length and is common to both the inner and the outer routes. It comprises the northernmost section from Sweetwater Road on the existing Hume Highway near Mullengandra, to the Bells Road intersection. Here the route follows the Hume Highway from chainage 0 km 000 at its intersection with Sweetwater Road to its deviation from the highway at chainage 1 km 345. A local service road would be constructed along this length to provide access to properties and to the bypassed section of the Hume Highway which would be de-declared as a part of the National Highway System. This bypassed section would then be maintained as a part of the local road system. Construction in this section would consist of a mixture of widening to create a second carriageway and rehabilitation of the existing pavement.

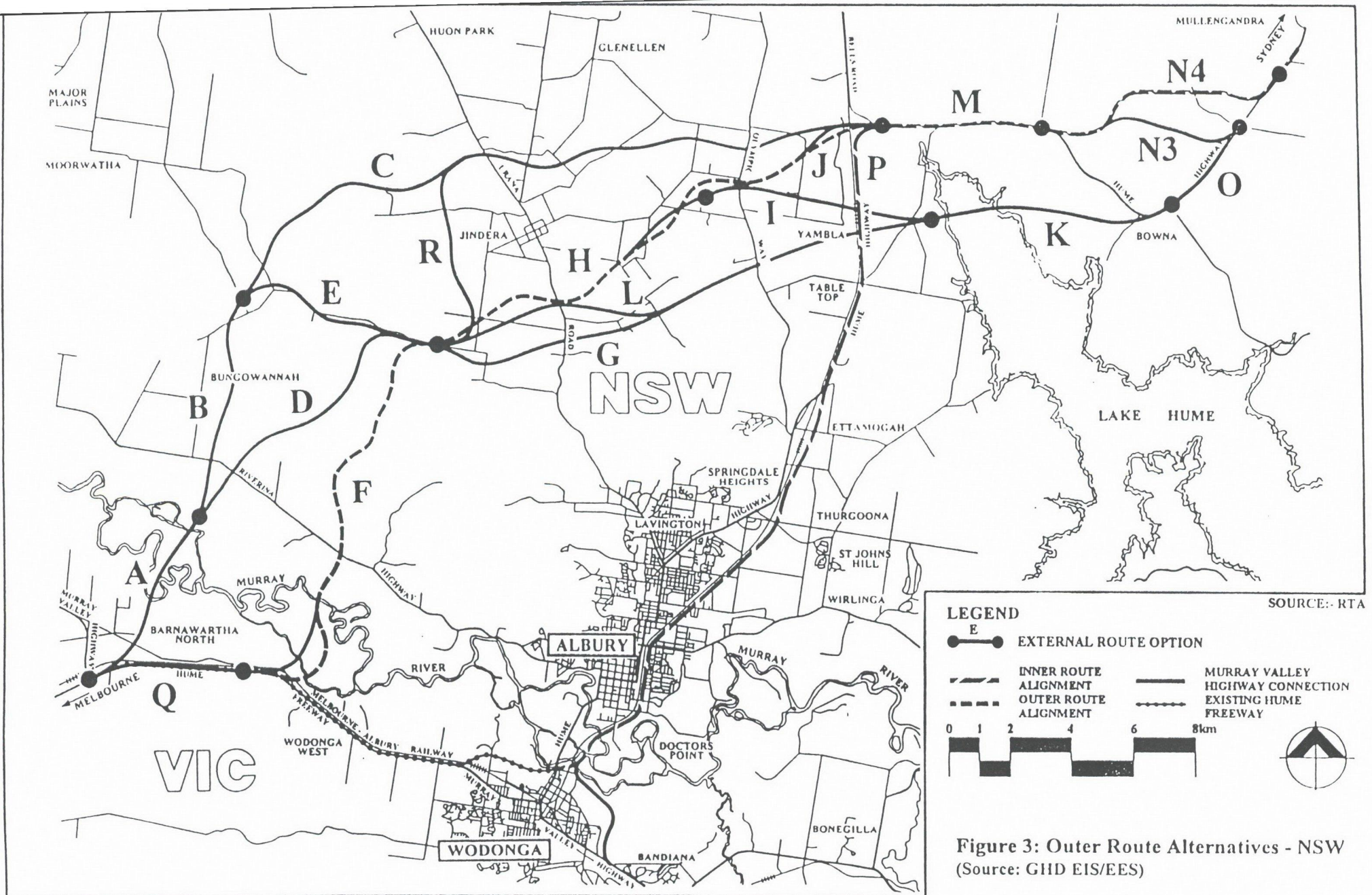
From the point of deviation, the route significantly shortcuts the existing highway by crossing Mullengandra Creek and ascending up and over the high ground ridge. The route cuts across farmland and descends to rejoin the existing Highway near Knox Road at chainage 9 km 585. Newtons Road would remain with the new route passing over on a bridge flyover. New construction would be required over this section's entire length with minor adjustment required to maintain property access to the existing local road network.

From Knox Road, the route embraces an undulating 6 km section of the existing Hume Highway in NSW, with grades of approximately 2% or less. Passing through farmland, the section comprises a generally straight east to west alignment from Knox Road to the "dogleg" at Bowna Creek. Depending on the condition of the existing highway pavement, work required would involve either:

- reconstruction of the existing two-way pavement and approximately a 15 m strip widening of the existing road reserve to accommodate construction of the two lane duplication. To enable movement of stock, a service link some 30 m wide would be constructed adjacent to the new work from just east of Knox Road at chainage 9 km 585, to near the highway connection with Bells Road at chainage 15 km 750.

or







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#### (f) Geological Investigation

Geotechnical issues were progressively assessed as route possibilities were refined. Options were located to avoid areas of high relief to limit the visual and erosional impact of deep cuts and fills and unfavourable materials, e.g., granite boulders and adverse bedding planes.

In the rugged areas where heavy earthworks are required, extensive erosional mitigation works would be required to prevent scarring/scouring of the landscape.

Routes crossing flat to undulating areas cause few geotechnical problems apart from material suitability for earthworks, risk of erosion and surface water drainage requirements. Two areas located on the outer route which show particular susceptibility to erosion are Bungowannah and Tynan's Reserve (see Figure 3.1).

The Murray River floodplain is crossed by all routes, and varies in width from 3 km to 5 km. Potential crossing points were selected to fit with existing river channel locations.

As the routes' locations were developed to avoid problem areas as much as possible, geological issues did not unduly affect the selection of the preferred route.

### 3.4 Route Alternatives

#### 3.4.1 Outer Route Alternatives -- NSW

Information outlined in this section is extracted from the *Route Selection Report - Albury Wodonga External Bypass* May 1992 and *Albury Wodonga External Bypass Route Selection Supplementary Report - Comparison of Alternatives of Link 'N'*, February 1993 undertaken by the RTA.

Initial planning for the outer route bypass of the National Highway around Albury Wodonga assessed routes to the north-west of the city (see Figure 3.2), owing to limitations imposed to the east of Albury.

The assessment of options was carried out in two stages, the preliminary stage being based on a simple, broad brush framework aimed at culling options which clearly presented major difficulties. For the second stage of the assessment, route selection objectives were adopted under broad areas of assessment including National Highway objectives, engineering/geometric requirement, economic considerations, social considerations and environmental impact. Other constraints which limited potential route locations included horizontal and vertical road alignments, topographic limitations of the Jindera Hills, current and planned areas for urbanisation, industrial or agricultural uses, house locations, the high environmental impact of crossing the Murray River floodplain, and the presence of Lake Hume.

After the initial constraints were identified, the route selection process included an extensive community consultation program which was undertaken to gain an understanding of public opinion and concerns about the route options. The next step was a general removal of all



### *City/East Albury Precinct*

A specific plan to provide design details of, including but not limited to the pedestrian bridges, interchanges, overpasses, gateway treatment, footpaths and lighting in City/East Albury precinct; details should include the exact locations, designs, colour, finishes and materials proposed for the structures. The plan should provide details of landscaping, furniture and fixtures in the proposed urban park and landscaped areas along the route between Borella and Bridge Streets and include the integration with the existing pedestrian network; details should include location and types of plants, details of landscaping features including mounds and terraces; park boundary definition, security fencing/landscaping and proposed gateway treatments.

### *Corrys Hill Precinct*

A specific plan to provide design details of, including but not limited to the overpasses, footpaths, landscaping including types of plants proposed and their location, landscape vista and gateway treatment.

### *Bells Road Precinct*

A specific plan to provide design details of, including but not limited to the bridges, landscaping including types of plants proposed and their location, landscape vista and gateway treatment.

### Monitoring of Implementation

44. Monitoring of the implementation of the urban design and landscape plans and urban design guidelines must be undertaken by a qualified urban designer during construction. Regular progress reports must be provided to the Director-General. The Proponent must comply with any reasonable requirements of the Director-General arising from her consideration of these reports.

### **Heritage and Archaeology**

#### Heritage

45. As part of the EMPs referred to in Conditions 10 and 13, the Proponent must prepare a Conservation Management Plan, to the satisfaction of the Director-General, which identifies, and presents management options, for heritage items. In preparing this plan the Proponent must consult with the Heritage Council and the relevant councils. Particular attention must be given to: Hanel and Kenilworth Street Conservation Area, the remains of the plough found 650m north of Thurgoona Road, the railway gatekeeper's cottage and remnants of a cellar associated with Murray Valley vineyards in Dallinger Road, and the buildings of heritage significance in Albury Railway Station Yard.

The procedure shall include the need to provide specific plans for any item to be relocated or resited, assessment and archival recording of items to be demolished and procedures for carrying out detailed assessment.



46. Prior to commencement of substantial construction activities in areas where heritage buildings may be affected, building surveys shall be undertaken for any heritage items identified in the Plan. The Proponent shall ensure that all damages occurring as a result of the construction are fully rectified at no cost to the owner.

#### Archaeology

47. As part of the EMPs referred to in Conditions 10 and 13, the Proponent must prepare a Procedure, to the satisfaction of the Director-General, which identifies, and presents management options, for archaeological sites/items. In preparing this Procedure, the Proponent must consult with the relevant councils, the NPWS, the Heritage Council and the relevant Local Aboriginal Land Council(s).
48. The Proponent must obtain necessary permits or consents from the NPWS prior to causing affectation, disturbance, or destruction to any archaeological heritage identified in the Procedure.
49. If, during the course of construction, the Proponent becomes aware of any heritage or archaeological material, all work likely to affect the site(s) must cease immediately and the relevant authorities including the NPWS, the Heritage Council and the relevant Local Aboriginal Land Council(s) shall be consulted in terms of an appropriate course of action prior to recommencement of work. Any required permits/consents shall be obtained and shall be accompanied by appropriate supporting documentation.

#### **Threatened Species**

50. Additional surveys shall be undertake for threatened bat species which were considered undersampled by the NPWS during initial surveys and the two threatened flora species: Austral Toad Flax *Thesium australe*, *Amphibromus fluitans*, *Brachyscome muelleroides*, and *Swainsona recta* and any other threatened species as deemed appropriate.

The above surveys should also include three regionally significant eucalypts *Eucalyptus sideroxylon*, *E. blakelyi* and *E. microcarpa* and mitigation measures propose to minimise the impact on any of these species.

51. A part of the EMPs referred to in Conditions 10 and 13, the Proponent shall prepared a detailed threatened Species Management Procedure(s) to the satisfaction of the NPWS and the Director-General. The Procedures for the construction EMP shall be prepared prior to commencement of construction activities and shall identify requirements for minimising habitat disturbance, appropriate remediation of degraded habitat, monitoring procedures, training of construction personnel, etc.

All reasonable measures shall be taken to ensure minimal harm and/or risk to threatened species during both construction and operation of the line.

52. Immediately prior to the commencement of construction activities, an inspection



shall be made by a suitably qualified specialist of all habitat to be disturbed.

53. If, during the course of construction any threatened flora or fauna species are encountered, the Director-General of the NPWS shall be advised immediately. No activity which places any of these species at risk shall be undertaken until advice has been received from the NPWS. All recommendations by the NPWS shall be complied with prior to any works being undertaken which are likely to affect any threatened species.

## **Fish**

54. In consultation with NSW Fisheries and the MDBC, further investigations shall be undertaken on the possible impacts on fish an appropriated construction design of watercourses shall be selected to minimise impacts on fish.
55. Habitat restoration shall be undertaken to the satisfaction of NSW Fisheries and a five year annual monitoring program implemented to determine the success of the restoration works.

## **Flooding and Water Quality**

### Flooding and Stormwater Management

56. A detailed Stormwater Management Procedure shall be prepared in consultation with the DLWC and the relevant councils. The Procedure shall provide details on catchment analysis (including localised flooding as recognised by the relevant local councils), existing drainage systems and capacity, drainage changes resulting from the proposal and implications for the system, detention requirements and environmental impacts of such. Agreement shall be reached with the relevant government agencies and council(s) on appropriate and specific measures to be implemented at various locations.
57. All stormwater flows from the proposed highway shall be detained through appropriate measures to ensure that there is no exacerbation of existing flooding to the satisfaction of DLWC. Agreement shall be reached with the relevant councils on appropriate and specific measures to be implemented at various locations.
58. Seepage, spillages, contaminated water, fire fighting or other water which is likely to contain pollutant levels above the background concentrations of natural discharge points shall be directed into separate sumps with pump out facilities. This water shall not be discharged to the stormwater system unless otherwise agreed by the EPA.

### Soil and Water Management Procedure

59. As part of the EMPs referred to in Conditions 10 and 13, a detailed Soil and Water Quality Management Procedure shall be prepared to the satisfaction of the EPA and in consultation with the DLWC, and the relevant councils. The Procedure shall provide details of pollution control measures to be undertaken during both



the construction and operation stages sufficient to address the technical requirements for obtaining relevant EPA approvals/licences.

The Soil and Water Quality Management Procedure shall include, but not be limited to: identification of baseline stream water quality monitoring; environmental limits/criteria; performance objectives; measures to handle and dispose of stormwater; effluent and contaminated water and soil; the capacity of the proposed on-site detention systems to contain all runoff; procedures for analysing the degree of contamination of potentially contaminated water; sedimentation and control measures to prevent erosion and pollution; measures of dealing with overland flow; measures for the use of water reclaimed or recycled on-site; monitoring program including monitoring of baseline stream water quality at locations potentially affected by the construction and operation of the proposal shall form part of the soil and water management procedure

The Procedure shall have regard to the criteria and principles detailed in the *Managing Urban Stormwater* series prepared by the EPA for the State Stormwater Coordinating Committee and the Department of Housing's *Soil and Water Management for Urban Development*.

#### Bells Road Interchange

60. The hydrological, flooding, salinity and water quality impacts resulting from the modified design of the Bells Road interchanges shall be assessed and appropriate mitigation measures implemented to the satisfaction of the DLWC.

#### Construction Stage Water Pollution Control Measures

61. The Soil and Water Management Procedure shall incorporate a detailed Erosion and Sediment Control Plan and Site Rehabilitation Plan which shall be prepared and submitted to the satisfaction of the DLWC and the EPA to satisfy the technical information requirements for issuing of all relevant pollution control approvals and licences. The Plan shall include details of the location and design criteria for erosion and sediment control measures and shall specifically address measures for treatment of stormwater before disposal including performance objectives as required in the EPA Pollution Control Approval. The use of vegetated treatments systems shall be maximised. The measures shall follow the RTA's *Guidelines for the Control of Erosion and Sedimentation in Roadworks* and DLWC's *Urban Erosion and Sediment Control*.
62. Control of river bank and bed sediment within the Murray River, with measures such as silt curtains, drying basins, testing and treatment procedures must be provided and implemented to the satisfaction of the EPA. Details of the type of mitigation measures to be installed, maintained and replacement strategies must also be addressed.
63. The Proponent shall ensure that all soil and erosion and sediment control works are completed and in place prior to the commencement of any works that may have the potential to generate soil erosion or sediment. Erosion and sediment



protection measures shall also be in place before the commencement of any stockpiling activities.

66. At construction depots the Proponent shall install appropriate bunding of storage areas for all liquid materials with a potential to harm the environment.

#### Operational Stage Water Pollution Control Measures

64. All stormwater and wastewater systems of the proposal shall be designed, constructed, operated and maintained to meet the requirements of the relevant authorities including the EPA, the DLWC and relevant councils.
65. In addition to trap gullies and trashracks the Proponent shall incorporate detention systems for containing spills and materials arising from accidents and install appropriate detention systems to the satisfaction of the EPA. The Proponent shall also ensure the investigation into the cost of removal of sediment, oil and grease.

### **Groundwater**

#### Groundwater Management Plan

66. A detailed Groundwater Management Plan shall be prepared to meet the requirements of the DLWC and the EPA. The Plan shall cover the complete proposal and shall provide details of groundwater control measures to be undertaken during both the construction and operation stages and include but not be limited to: impacts on nearby structures from potential settlement; impacts on existing authorised groundwater users; impacts on salinity, groundwater inflow control; handling; treatment and disposal of contaminated groundwater; monitoring; auditing; mitigation measures; and response actions.

### **Hazards, Risks and Safety**

#### Emergency Planning

67. At least 6 months prior to commissioning the proposal an Emergency Response Plan shall be prepared to the satisfaction of the NSW Fire Brigades, the NSW Police Service and the State Emergency Services. Two months prior to commissioning of the proposal there shall be a thorough testing of emergency procedures and evacuation systems to the satisfaction of the NSW Police Service and the NSW Fire Brigades. Testing thereafter shall be at least annually, or as requested by the relevant authorities.
68. Within twelve months of the date of determination or within such time as the Director-General agrees, a final hazard analysis shall be completed by the proponent, to the satisfaction of the Director-General. This study shall be accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 6: Hazard Analysis Guidelines* and in consultation with the Department. The Proponent shall comply with all reasonable requirements of the Director-General in respect of the implementation of any measures arising from the study within such time as the Director-General may agree.



### Dangerous Goods

69. An oil and chemical spill collection and treatment system shall be installed at the Murray River crossing and any other watercourse crossing as required by the NSW EPA and to the satisfaction of the DLWC, the MDBC and in consultation with the relevant council(s) and landowners. The RTA shall consult with VicRoads to integrate proposed design measures at the Murray River crossing.

### **Property Matters**

70. Structural surveys shall be undertaken for all buildings and major structures located within 50 m of construction works prior to commencement of construction works or other major vibration inducing construction activities in the vicinity of such buildings/structures. A copy of the survey shall be given to each affected property owner together with information on how to pursue a claim for damage. The Proponent shall ensure that any damages occurring as a result of the construction are fully rectified at no cost to the owner(s).
71. The Proponent shall notify the owner of any property that is to be adjusted, acquired or for which an easement or stratum is to be obtained. This notice shall contain sufficient details to identify the land of interest being adjusted/acquired and is to include dimensions, location with respect to boundaries and any other information necessary to enable the identification of the land in relation to the development. This notification shall be given prior to access for construction purposes.
72. The Proponent must consult with any property owner where temporary access is required over the property. This consultation must occur prior to any access occurring. The Proponent must comply with any reasonable requests of the owner.
73. Alternative access arrangements shall be provided to the reasonable satisfaction of the relevant council, to any property or public area which would otherwise be denied access as a result of the construction or operation of the proposal. Such alternative access shall be provided at an appropriate standard to the reasonable satisfaction of the relevant council. Any temporary access road(s) shall be removed and any affected areas reinstated to the reasonable satisfaction of the relevant council when no longer required.
74. All affected property, which is not acquired by the Proponent, (including any affected buildings, structures, lawns, trees, sheds, gardens etc.) shall be fully restored to at least the condition it was in prior to disturbance at no cost to the owner(s). Restoration shall be completed in a timely manner and, unless otherwise agreed to by the owner, within 3 months of completion of works. Construction activities undertaken within private property shall be sympathetic to the specific needs of individual property owners particularly in terms of requirements for temporary facilities such as fencing, access to footpaths/driveways etc.

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### Spoil Disposal

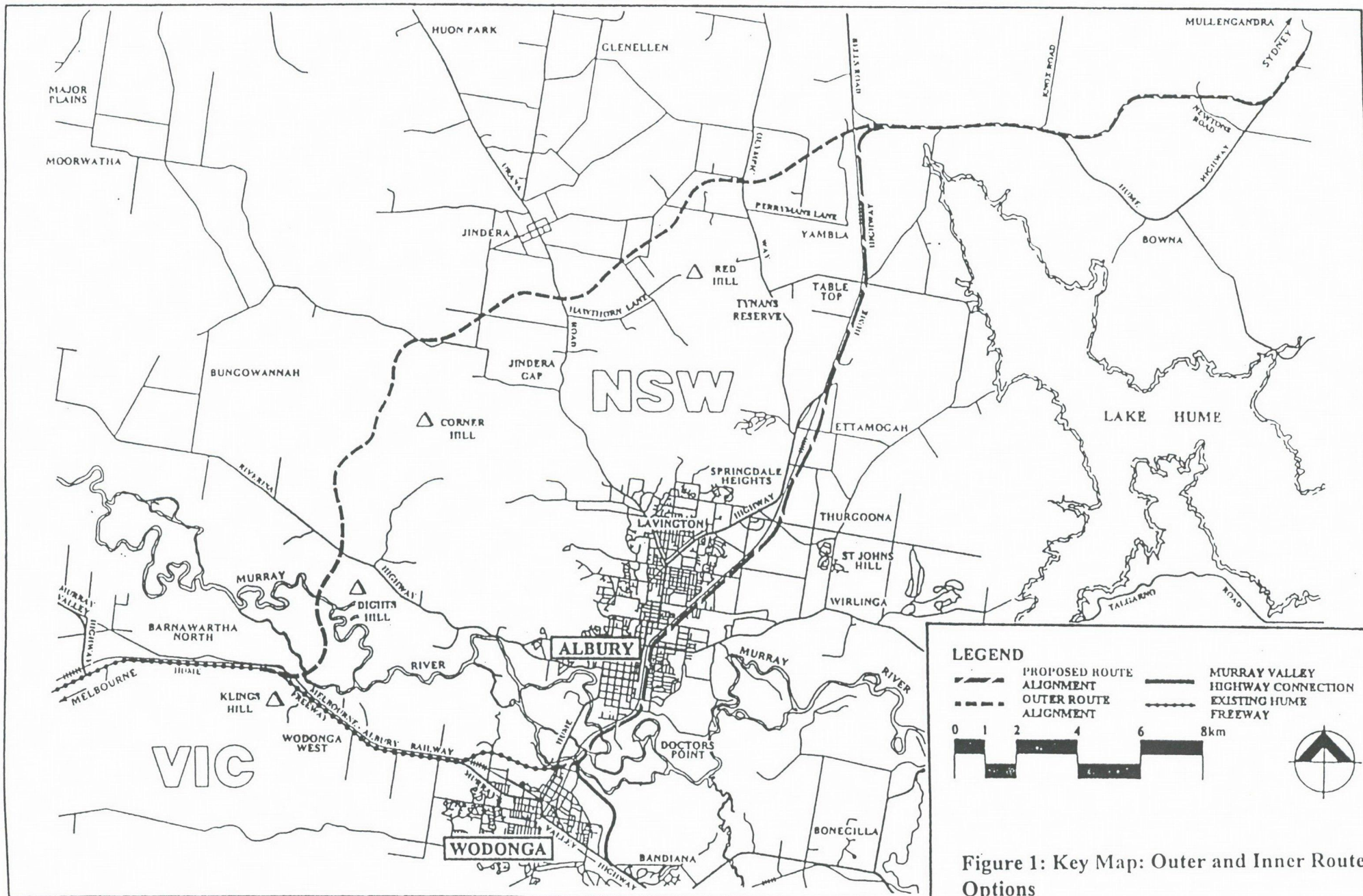
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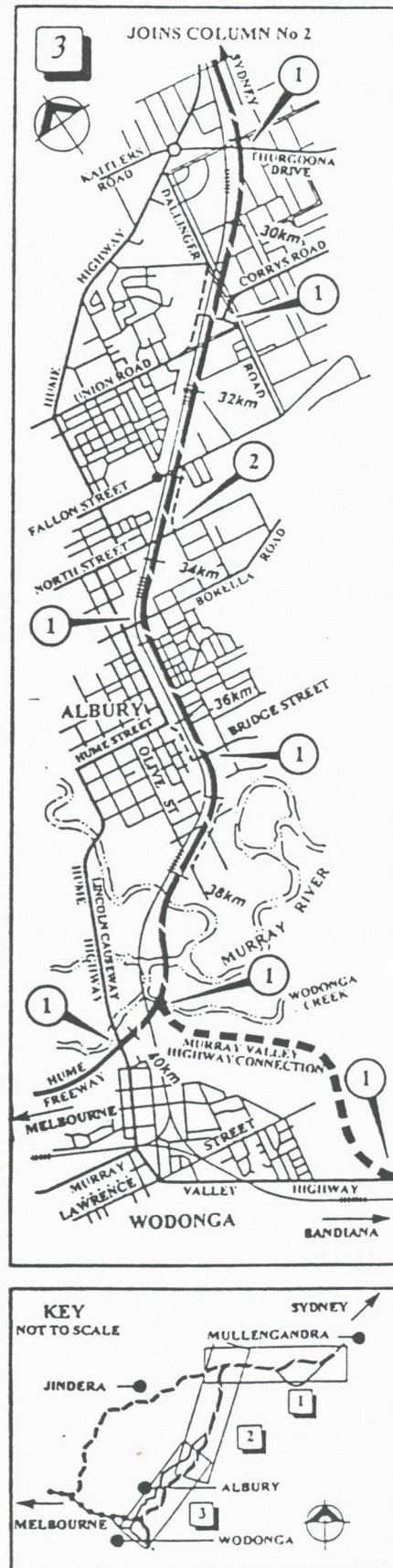
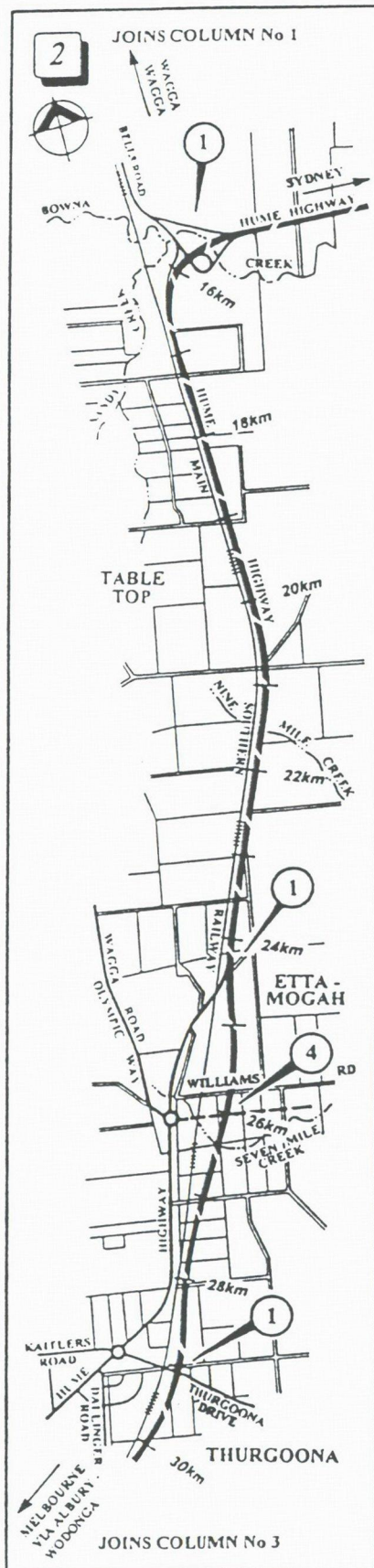
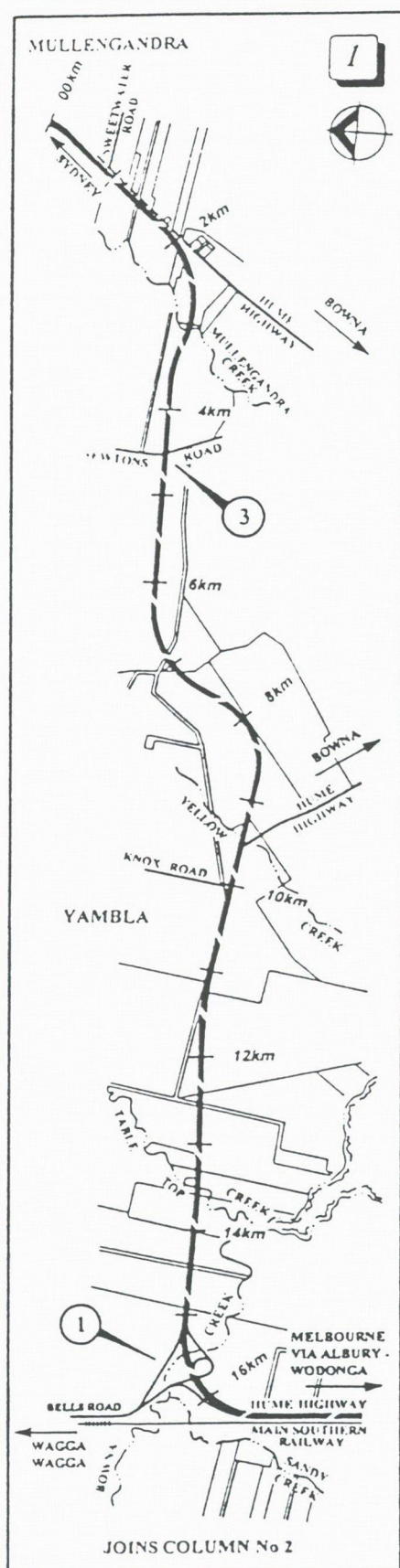
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## FIGURES



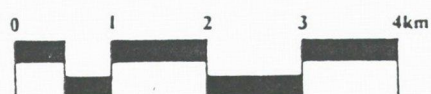






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**Figure 2: Inner Route Option**  
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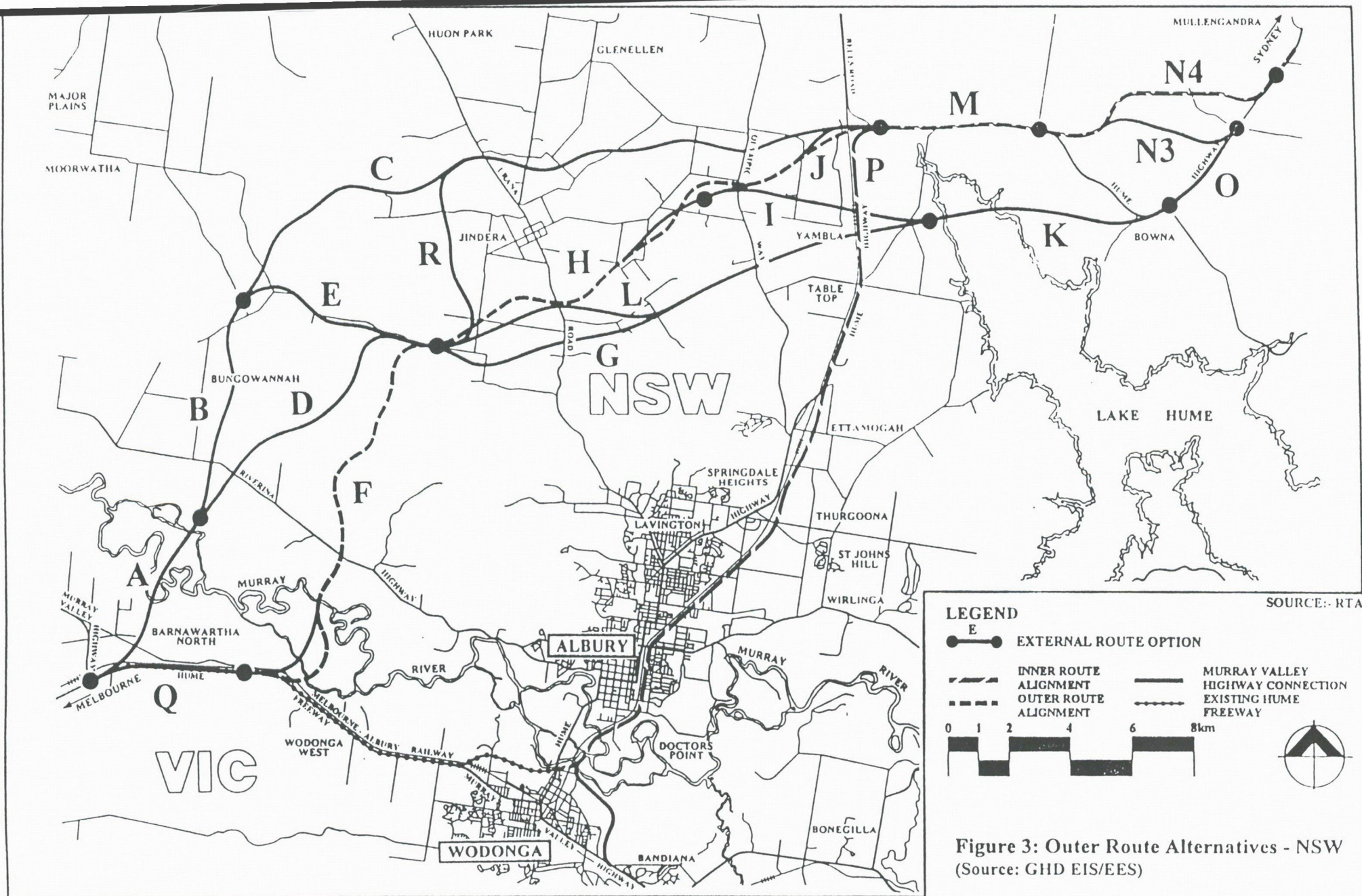
From the point of deviation, the route significantly shortcuts the existing highway by crossing Mullengandra Creek and ascending up and over the high ground ridge. The route cuts across farmland and descends to rejoin the existing Highway near Knox Road at chainage 9 km 585. Newtons Road would remain with the new route passing over on a bridge flyover. New construction would be required over this section's entire length with minor adjustment required to maintain property access to the existing local road network.

From Knox Road, the route embraces an undulating 6 km section of the existing Hume Highway in NSW, with grades of approximately 2% or less. Passing through farmland, the section comprises a generally straight east to west alignment from Knox Road to the "dogleg" at Bowna Creek. Depending on the condition of the existing highway pavement, work required would involve either:

- reconstruction of the existing two-way pavement and approximately a 15 m strip widening of the existing road reserve to accommodate construction of the two lane duplication. To enable movement of stock, a service link some 30 m wide would be constructed adjacent to the new work from just east of Knox Road at chainage 9 km 585, to near the highway connection with Bells Road at chainage 15 km 750.

or







---

## (f) Geological Investigation

Geotechnical issues were progressively assessed as route possibilities were refined. Options were located to avoid areas of high relief to limit the visual and erosional impact of deep cuts and fills and unfavourable materials, e.g., granite boulders and adverse bedding planes.

In the rugged areas where heavy earthworks are required, extensive erosional mitigation works would be required to prevent scarring/scouring of the landscape.

Routes crossing flat to undulating areas cause few geotechnical problems apart from material suitability for earthworks, risk of erosion and surface water drainage requirements. Two areas located on the outer route which show particular susceptibility to erosion are Bungowannah and Tynan's Reserve (see Figure 3.1).

The Murray River floodplain is crossed by all routes, and varies in width from 3 km to 5 km. Potential crossing points were selected to fit with existing river channel locations.

As the routes' locations were developed to avoid problem areas as much as possible, geological issues did not unduly affect the selection of the preferred route.

## 3.4 Route Alternatives

### 3.4.1 Outer Route Alternatives -- NSW

Information outlined in this section is extracted from the *Route Selection Report - Albury Wodonga External Bypass* May 1992 and *Albury Wodonga External Bypass Route Selection Supplementary Report - Comparison of Alternatives of Link 'N'*, February 1993 undertaken by the RTA.

Initial planning for the outer route bypass of the National Highway around Albury Wodonga assessed routes to the north-west of the city (see Figure 3.2), owing to limitations imposed to the east of Albury.

The assessment of options was carried out in two stages, the preliminary stage being based on a simple, broad brush framework aimed at culling options which clearly presented major difficulties. For the second stage of the assessment, route selection objectives were adopted under broad areas of assessment including National Highway objectives, engineering/geometric requirement, economic considerations, social considerations and environmental impact. Other constraints which limited potential route locations included horizontal and vertical road alignments, topographic limitations of the Jindera Hills, current and planned areas for urbanisation, industrial or agricultural uses, house locations, the high environmental impact of crossing the Murray River floodplain, and the presence of Lake Hume.

After the initial constraints were identified, the route selection process included an extensive community consultation program which was undertaken to gain an understanding of public opinion and concerns about the route options. The next step was a general removal of all



### *City/East Albury Precinct*

A specific plan to provide design details of, including but not limited to the pedestrian bridges, interchanges, overpasses, gateway treatment, footpaths and lighting in City/East Albury precinct; details should include the exact locations, designs, colour, finishes and materials proposed for the structures. The plan should provide details of landscaping, furniture and fixtures in the proposed urban park and landscaped areas along the route between Borella and Bridge Streets and include the integration with the existing pedestrian network; details should include location and types of plants, details of landscaping features including mounds and terraces; park boundary definition, security fencing/landscaping and proposed gateway treatments.

### *Corrys Hill Precinct*

A specific plan to provide design details of, including but not limited to the overpasses, footpaths, landscaping including types of plants proposed and their location, landscape vista and gateway treatment.

### *Bells Road Precinct*

A specific plan to provide design details of, including but not limited to the bridges, landscaping including types of plants proposed and their location, landscape vista and gateway treatment.

## Monitoring of Implementation

44. Monitoring of the implementation of the urban design and landscape plans and urban design guidelines must be undertaken by a qualified urban designer during construction. Regular progress reports must be provided to the Director-General. The Proponent must comply with any reasonable requirements of the Director-General arising from her consideration of these reports.

## **Heritage and Archaeology**

### Heritage

45. As part of the EMPs referred to in Conditions 10 and 13, the Proponent must prepare a Conservation Management Plan, to the satisfaction of the Director-General, which identifies, and presents management options, for heritage items. In preparing this plan the Proponent must consult with the Heritage Council and the relevant councils. Particular attention must be given to: Hanel and Kenilworth Street Conservation Area, the remains of the plough found 650m north of Thurgoona Road, the railway gatekeeper's cottage and remnants of a cellar associated with Murray Valley vineyards in Dallinger Road, and the buildings of heritage significance in Albury Railway Station Yard.

The procedure shall include the need to provide specific plans for any item to be relocated or resited, assessment and archival recording of items to be demolished and procedures for carrying out detailed assessment.



46. Prior to commencement of substantial construction activities in areas where heritage buildings may be affected, building surveys shall be undertaken for any heritage items identified in the Plan. The Proponent shall ensure that all damages occurring as a result of the construction are fully rectified at no cost to the owner.

#### Archaeology

47. As part of the EMPs referred to in Conditions 10 and 13, the Proponent must prepare a Procedure, to the satisfaction of the Director-General, which identifies, and presents management options, for archaeological sites/items. In preparing this Procedure, the Proponent must consult with the relevant councils, the NPWS, the Heritage Council and the relevant Local Aboriginal Land Council(s).
48. The Proponent must obtain necessary permits or consents from the NPWS prior to causing affectation, disturbance, or destruction to any archaeological heritage identified in the Procedure.
49. If, during the course of construction, the Proponent becomes aware of any heritage or archaeological material, all work likely to affect the site(s) must cease immediately and the relevant authorities including the NPWS, the Heritage Council and the relevant Local Aboriginal Land Council(s) shall be consulted in terms of an appropriate course of action prior to recommencement of work. Any required permits/consents shall be obtained and shall be accompanied by appropriate supporting documentation.

#### **Threatened Species**

50. Additional surveys shall be undertake for threatened bat species which were considered undersampled by the NPWS during initial surveys and the two threatened flora species: Austral Toad Flax *Thesium australe*, *Amphibromus fluitans*, *Brachyscome muelleroides*, and *Swainsona recta* and any other threatened species as deemed appropriate.

The above surveys should also include three regionally significant eucalypts *Eucalyptus sideroxylon*, *E. blakelyi* and *E. microcarpa* and mitigation measures propose to minimise the impact on any of these species.

51. A part of the EMPs referred to in Conditions 10 and 13, the Proponent shall prepared a detailed threatened Species Management Procedure(s) to the satisfaction of the NPWS and the Director-General. The Procedures for the construction EMP shall be prepared prior to commencement of construction activities and shall identify requirements for minimising habitat disturbance, appropriate remediation of degraded habitat, monitoring procedures, training of construction personnel, etc.

All reasonable measures shall be taken to ensure minimal harm and/or risk to threatened species during both construction and operation of the line.

52. Immediately prior to the commencement of construction activities, an inspection



shall be made by a suitably qualified specialist of all habitat to be disturbed.

53. If, during the course of construction any threatened flora or fauna species are encountered, the Director-General of the NPWS shall be advised immediately. No activity which places any of these species at risk shall be undertaken until advice has been received from the NPWS. All recommendations by the NPWS shall be complied with prior to any works being undertaken which are likely to affect any threatened species.

## **Fish**

54. In consultation with NSW Fisheries and the MDBC, further investigations shall be undertaken on the possible impacts on fish an appropriated construction design of watercourses shall be selected to minimise impacts on fish.
55. Habitat restoration shall be undertaken to the satisfaction of NSW Fisheries and a five year annual monitoring program implemented to determine the success of the restoration works.

## **Flooding and Water Quality**

### Flooding and Stormwater Management

56. A detailed Stormwater Management Procedure shall be prepared in consultation with the DLWC and the relevant councils. The Procedure shall provide details on catchment analysis (including localised flooding as recognised by the relevant local councils), existing drainage systems and capacity, drainage changes resulting from the proposal and implications for the system, detention requirements and environmental impacts of such. Agreement shall be reached with the relevant government agencies and council(s) on appropriate and specific measures to be implemented at various locations.
57. All stormwater flows from the proposed highway shall be detained through appropriate measures to ensure that there is no exacerbation of existing flooding to the satisfaction of DLWC. Agreement shall be reached with the relevant councils on appropriate and specific measures to be implemented at various locations.
58. Seepage, spillages, contaminated water, fire fighting or other water which is likely to contain pollutant levels above the background concentrations of natural discharge points shall be directed into separate sumps with pump out facilities. This water shall not be discharged to the stormwater system unless otherwise agreed by the EPA.

### Soil and Water Management Procedure

59. As part of the EMPs referred to in Conditions 10 and 13, a detailed Soil and Water Quality Management Procedure shall be prepared to the satisfaction of the EPA and in consultation with the DLWC, and the relevant councils. The Procedure shall provide details of pollution control measures to be undertaken during both



the construction and operation stages sufficient to address the technical requirements for obtaining relevant EPA approvals/licences.

The Soil and Water Quality Management Procedure shall include, but not be limited to: identification of baseline stream water quality monitoring; environmental limits/criteria; performance objectives; measures to handle and dispose of stormwater; effluent and contaminated water and soil; the capacity of the proposed on-site detention systems to contain all runoff; procedures for analysing the degree of contamination of potentially contaminated water; sedimentation and control measures to prevent erosion and pollution; measures of dealing with overland flow; measures for the use of water reclaimed or recycled on-site; monitoring program including monitoring of baseline stream water quality at locations potentially affected by the construction and operation of the proposal shall form part of the soil and water management procedure

The Procedure shall have regard to the criteria and principles detailed in the *Managing Urban Stormwater* series prepared by the EPA for the State Stormwater Coordinating Committee and the Department of Housing's *Soil and Water Management for Urban Development*.

#### Bells Road Interchange

60. The hydrological, flooding, salinity and water quality impacts resulting from the modified design of the Bells Road interchanges shall be assessed and appropriate mitigation measures implemented to the satisfaction of the DLWC.

#### Construction Stage Water Pollution Control Measures

61. The Soil and Water Management Procedure shall incorporate a detailed Erosion and Sediment Control Plan and Site Rehabilitation Plan which shall be prepared and submitted to the satisfaction of the DLWC and the EPA to satisfy the technical information requirements for issuing of all relevant pollution control approvals and licences. The Plan shall include details of the location and design criteria for erosion and sediment control measures and shall specifically address measures for treatment of stormwater before disposal including performance objectives as required in the EPA Pollution Control Approval. The use of vegetated treatments systems shall be maximised. The measures shall follow the RTA's *Guidelines for the Control of Erosion and Sedimentation in Roadworks* and DLWC's *Urban Erosion and Sediment Control*.
62. Control of river bank and bed sediment within the Murray River, with measures such as silt curtains, drying basins, testing and treatment procedures must be provided and implemented to the satisfaction of the EPA. Details of the type of mitigation measures to be installed, maintained and replacement strategies must also be addressed.
63. The Proponent shall ensure that all soil and erosion and sediment control works are completed and in place prior to the commencement of any works that may have the potential to generate soil erosion or sediment. Erosion and sediment



protection measures shall also be in place before the commencement of any stockpiling activities.

66. At construction depots the Proponent shall install appropriate bunding of storage areas for all liquid materials with a potential to harm the environment.

#### Operational Stage Water Pollution Control Measures

64. All stormwater and wastewater systems of the proposal shall be designed, constructed, operated and maintained to meet the requirements of the relevant authorities including the EPA, the DLWC and relevant councils.
65. In addition to trap gullies and trashracks the Proponent shall incorporate detention systems for containing spills and materials arising from accidents and install appropriate detention systems to the satisfaction of the EPA. The Proponent shall also ensure the investigation into the cost of removal of sediment, oil and grease.

### **Groundwater**

#### Groundwater Management Plan

66. A detailed Groundwater Management Plan shall be prepared to meet the requirements of the DLWC and the EPA. The Plan shall cover the complete proposal and shall provide details of groundwater control measures to be undertaken during both the construction and operation stages and include but not be limited to: impacts on nearby structures from potential settlement; impacts on existing authorised groundwater users; impacts on salinity, groundwater inflow control; handling; treatment and disposal of contaminated groundwater; monitoring; auditing; mitigation measures; and response actions.

### **Hazards, Risks and Safety**

#### Emergency Planning

67. At least 6 months prior to commissioning the proposal an Emergency Response Plan shall be prepared to the satisfaction of the NSW Fire Brigades, the NSW Police Service and the State Emergency Services. Two months prior to commissioning of the proposal there shall be a thorough testing of emergency procedures and evacuation systems to the satisfaction of the NSW Police Service and the NSW Fire Brigades. Testing thereafter shall be at least annually, or as requested by the relevant authorities.
68. Within twelve months of the date of determination or within such time as the Director-General agrees, a final hazard analysis shall be completed by the proponent, to the satisfaction of the Director-General. This study shall be accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 6: Hazard Analysis Guidelines* and in consultation with the Department. The Proponent shall comply with all reasonable requirements of the Director-General in respect of the implementation of any measures arising from the study within such time as the Director-General may agree.



### Dangerous Goods

69. An oil and chemical spill collection and treatment system shall be installed at the Murray River crossing and any other watercourse crossing as required by the NSW EPA and to the satisfaction of the DLWC, the MDBC and in consultation with the relevant council(s) and landowners. The RTA shall consult with VicRoads to integrate proposed design measures at the Murray River crossing.

### **Property Matters**

70. Structural surveys shall be undertaken for all buildings and major structures located within 50 m of construction works prior to commencement of construction works or other major vibration inducing construction activities in the vicinity of such buildings/structures. A copy of the survey shall be given to each affected property owner together with information on how to pursue a claim for damage. The Proponent shall ensure that any damages occurring as a result of the construction are fully rectified at no cost to the owner(s).
71. The Proponent shall notify the owner of any property that is to be adjusted, acquired or for which an easement or stratum is to be obtained. This notice shall contain sufficient details to identify the land of interest being adjusted/acquired and is to include dimensions, location with respect to boundaries and any other information necessary to enable the identification of the land in relation to the development. This notification shall be given prior to access for construction purposes.
72. The Proponent must consult with any property owner where temporary access is required over the property. This consultation must occur prior to any access occurring. The Proponent must comply with any reasonable requests of the owner.
73. Alternative access arrangements shall be provided to the reasonable satisfaction of the relevant council, to any property or public area which would otherwise be denied access as a result of the construction or operation of the proposal. Such alternative access shall be provided at an appropriate standard to the reasonable satisfaction of the relevant council. Any temporary access road(s) shall be removed and any affected areas reinstated to the reasonable satisfaction of the relevant council when no longer required.
74. All affected property, which is not acquired by the Proponent, (including any affected buildings, structures, lawns, trees, sheds, gardens etc.) shall be fully restored to at least the condition it was in prior to disturbance at no cost to the owner(s). Restoration shall be completed in a timely manner and, unless otherwise agreed to by the owner, within 3 months of completion of works. Construction activities undertaken within private property shall be sympathetic to the specific needs of individual property owners particularly in terms of requirements for temporary facilities such as fencing, access to footpaths/driveways etc.

75. The acquisition of any land shall be in a responsive and sensitive manner and in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991*.

### **Concrete Batching plant**

76. No concrete batching plant shall be operated without the prior approval of the Director-General (unless the provisions of Part 4 of the EP&A Act apply). In seeking any such approval, the Proponent should submit:
- a) details of the location, hours of operation, scale of production, period for which the plant will operate;
  - b) details of potential environmental impacts, particularly noise, water quality, air quality, flora and fauna, and traffic impacts;
  - c) proposed environmental impact mitigation measures;
  - d) results of consultation with relevant council(s) and the local community.

### **Fill Material for Construction**

77. If fill material is required from either or both of Brooks Quarry and Airport Hill as proposed in the EIS/EES for the purpose of construction of the Proposal, all necessary environmental assessments and consent(s) must be obtained for the extraction of the required fill material from the proposed quarry/location prior to commencement of construction.

### **Utilities and Services**

78. The Proponent shall ensure the identification of 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 authority. Any alterations to utilities and services shall be carried out to the satisfaction of the relevant authority(s), and unless otherwise agreed to, at no cost to the service/utility authority.
79. The Proponent shall be responsible for minimising any disruption to services resulting from such work and shall be responsible for advising local residents and businesses prior to disruption to services.

### **Pedestrian/Cyclists**

#### Construction Stage

80. Access shall be provided without undue inconvenience to pedestrians and cyclists at all times during the construction stage unless otherwise agreed to by the relevant local council(s).

#### Operation Stage

81. The Proponent shall ensure consultation with the RTA's Bicycle Coordinator and Bicycle NSW and any other relevant cycling group as identified by Bicycle NSW



during the detailed design of the proposal in terms of the design of specific cyclist facilities including, provision of on-road facilities, intersection treatments, linemarking, signposting and stencils, drainage grates, and kerb and gutter treatments.

## **Spoil Disposal and Waste Management**

### Spoil Disposal

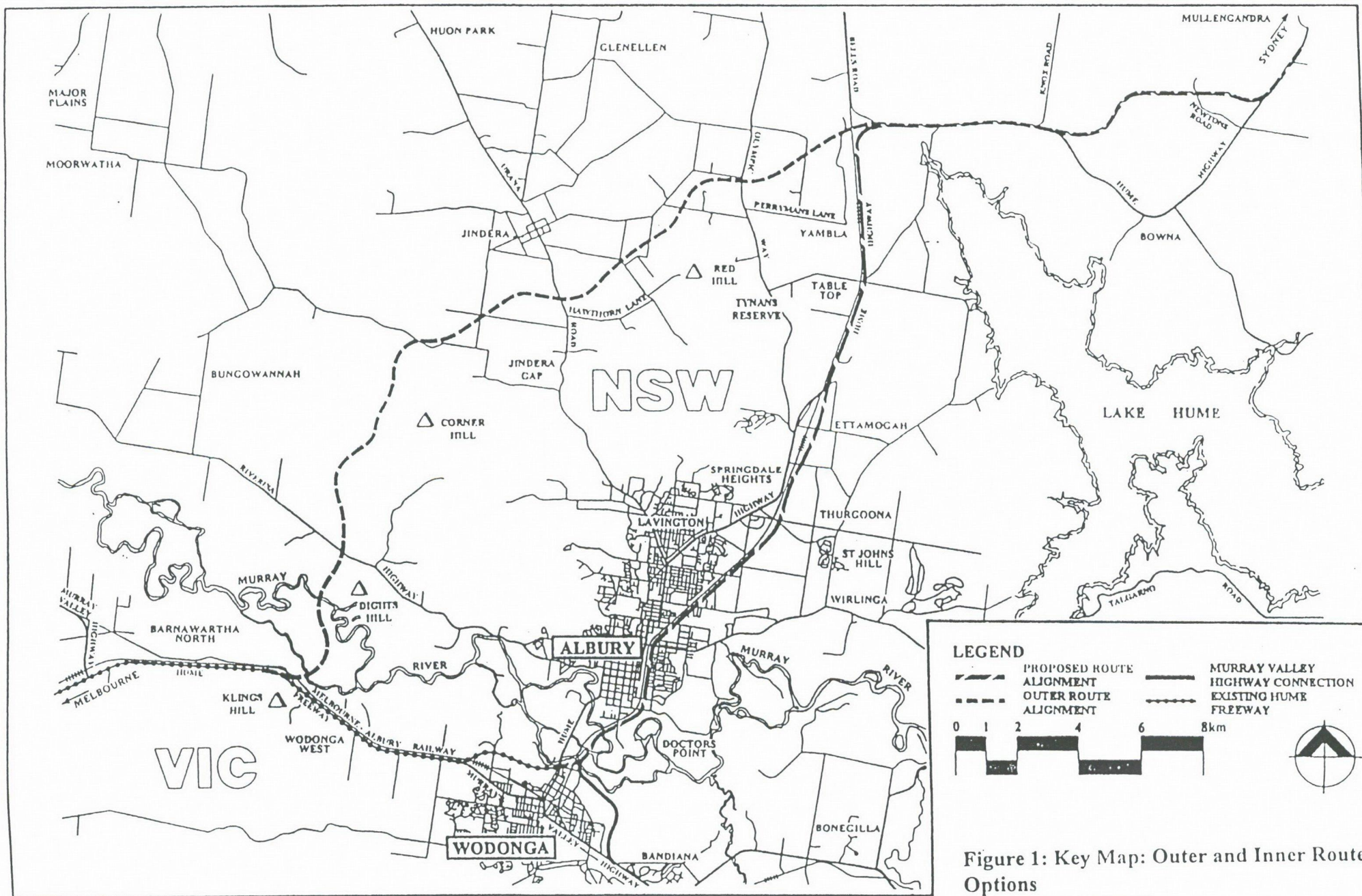
82. The Proponent shall ensure the preparation of a Spoil Management Plan. This Plan shall identify requirements for handling, stockpiling and disposal of all spoil. The Plan shall be prepared in consultation with the EPA, the DLWC and the relevant councils before the commencement of substantial construction at relevant sites.
83. Prior to commencement of construction at various relevant sites where spoil is to be generated the Proponent shall ensure that the EPA, the DLWC and any other relevant authority is provided with details of the locations where spoil will be disposed.
84. All clean and/or treated spoil shall be reused or recycled wherever it is possible and cost effective to do so. The Proponent shall ensure that spoil generated from construction activities is maximised in preference to any import of fill.
85. The Proponent shall arrange for the relevant councils to obtain detailed plans for the routes and access points to be used by construction traffic. These shall not be varied unless otherwise agreed to by the relevant council.

### Waste Management and/or Recycling

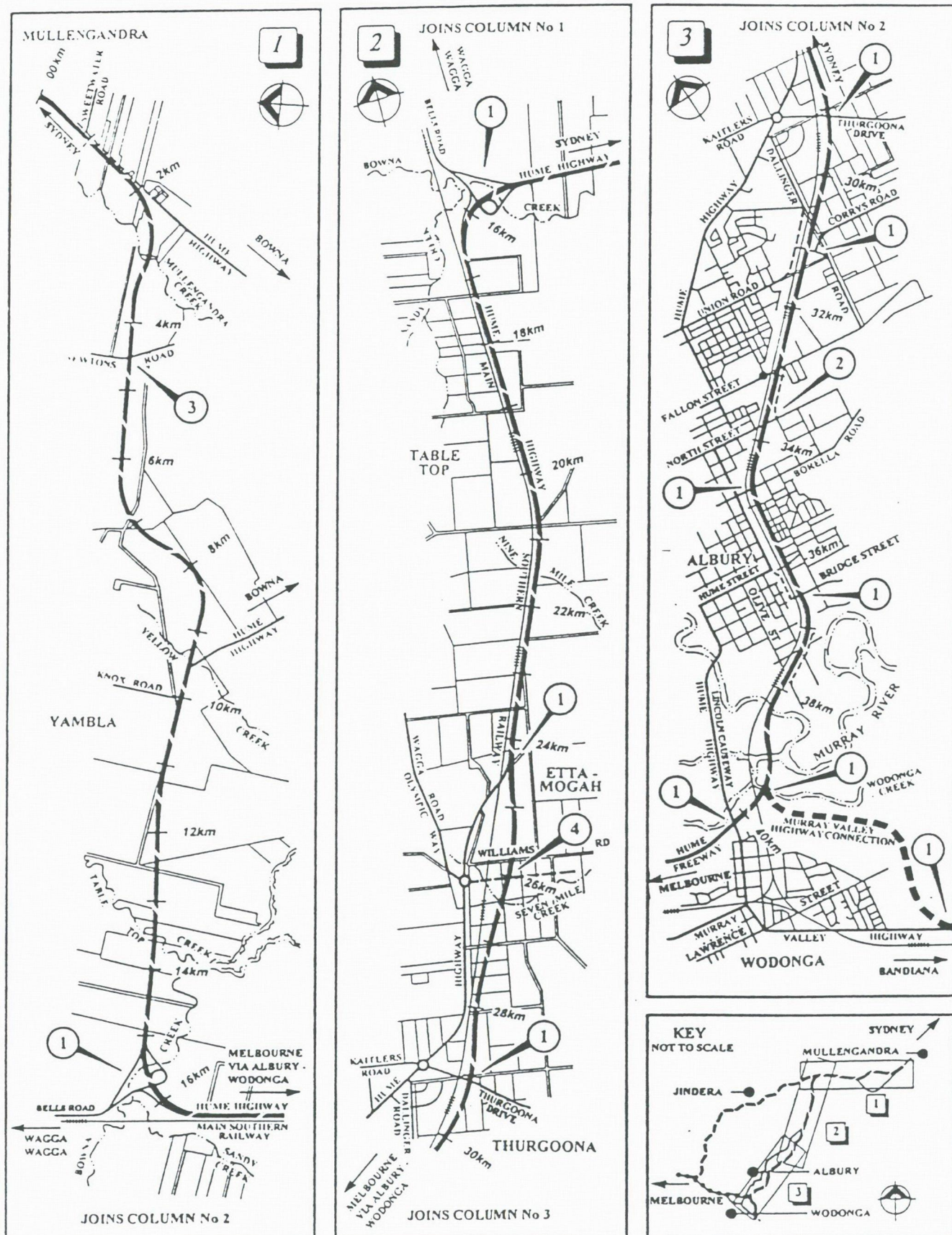
86. As part of the EMP referred to in Conditions 10 and 13, a detailed Waste Management and Reuse Procedure shall be prepared to address the management of wastes during both the construction and operation stages. The Procedure shall be prepared prior to construction and operation as appropriate and shall identify requirements for waste avoidance, reduction, reuse and recycling. It shall also detail requirements for handling, stockpiling and disposal of wastes specifically spoil, concrete, contaminated soil or water, demolition material, cleared vegetation, oils, greases, lubricants, sanitary wastes, timber, glass, metal etc. It shall also identify any site for final disposal of any material and any remedial works required at the disposal site before accepting the material. Any waste material which is unable to be reused, reprocessed or recycled shall be disposed at a landfill licensed by the EPA to receive that type of waste. The Procedure shall be framed using the waste minimisation hierarchy principles of avoid-reuse-recycle-disposal.
87. The demand for water for construction purposes shall be kept to a minimum. The project shall incorporate water use reduction initiatives including reuse of water and recycling to the maximum extent practicably possible.

## FIGURES











## 4.5 Detailed Route Descriptions

Horizontal and vertical alignments are shown in a series of maps numbered Figures 4.4 (a) to 4.4 (s) of the outer route and 4.5 (a) to 4.5 (r) of the inner route. The following describes the features of the routes by referring to chainages and locations. The "chainage" is the location described in terms of kilometre distance from the origin of the project at Sweetwater Road. Other locations are described in terms of place names and features such as creeks, rivers and localities.

Typical cross sections have been adopted for the concept design of both the inner and outer routes. The location of the cross sections is shown in Figure 4.6 (a) and the typical cross sections are shown in Figures 4.6 (b) to 4.6 (e).

### 4.5.1 Inner and Outer Routes -- Sweetwater Road to Bowna Creek

This section of the route is approximately 15 km in length and is common to both the inner and the outer routes. It comprises the northernmost section from Sweetwater Road on the existing Hume Highway near Mullengandra, to the Bells Road intersection. Here the route follows the Hume Highway from chainage 0 km 000 at its intersection with Sweetwater Road to its deviation from the highway at chainage 1 km 345. A local service road would be constructed along this length to provide access to properties and to the bypassed section of the Hume Highway which would be de-declared as a part of the National Highway System. This bypassed section would then be maintained as a part of the local road system. Construction in this section would consist of a mixture of widening to create a second carriageway and rehabilitation of the existing pavement.

From the point of deviation, the route significantly shortcuts the existing highway by crossing Mullengandra Creek and ascending up and over the high ground ridge. The route cuts across farmland and descends to rejoin the existing Highway near Knox Road at chainage 9 km 585. Newtons Road would remain with the new route passing over on a bridge flyover. New construction would be required over this section's entire length with minor adjustment required to maintain property access to the existing local road network.

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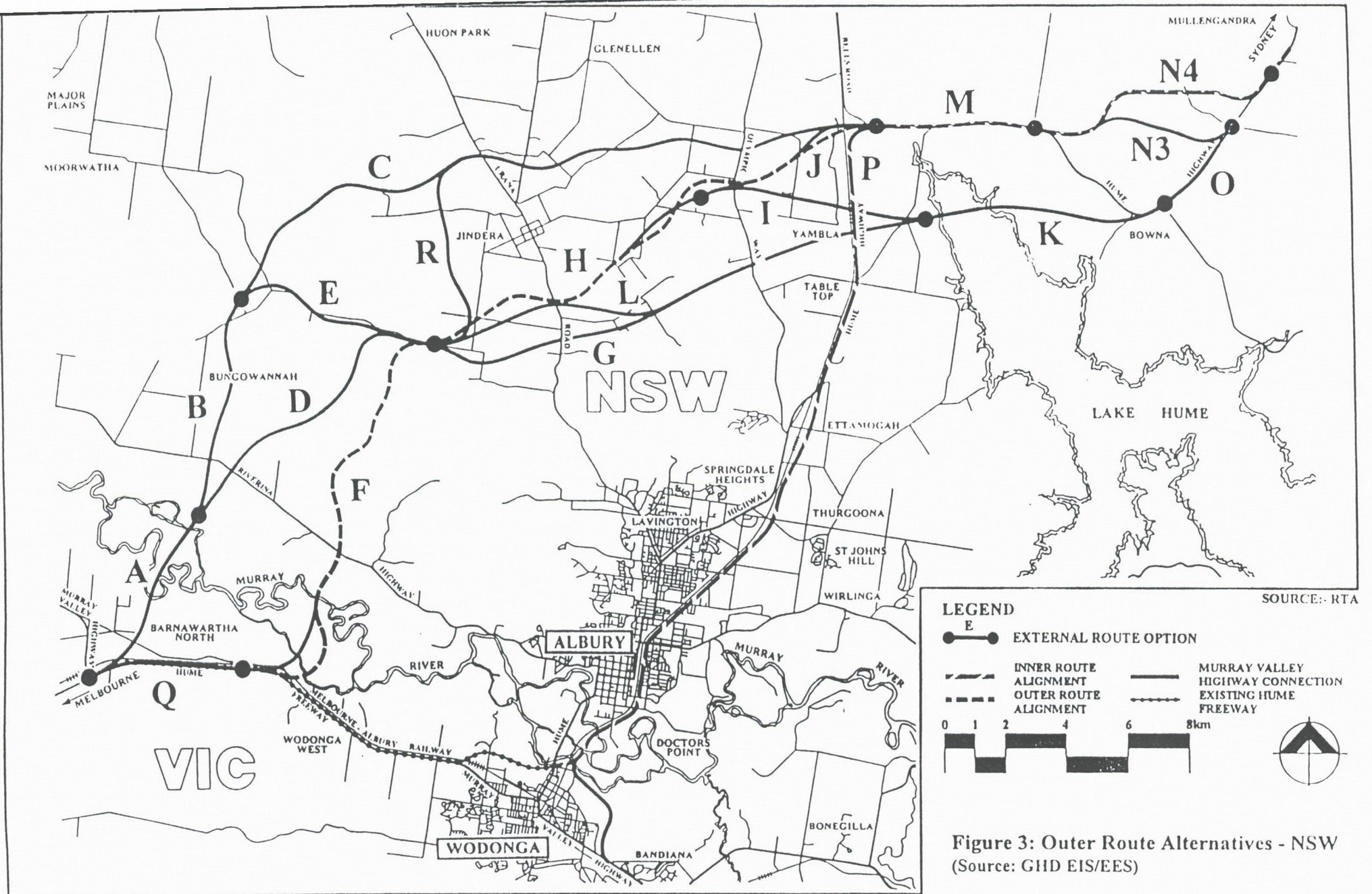


Figure 3: Outer Route Alternatives - NSW  
(Source: GHD EIS/EES)



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## (f) Geological Investigation

Geotechnical issues were progressively assessed as route possibilities were refined. Options were located to avoid areas of high relief to limit the visual and erosional impact of deep cuts and fills and unfavourable materials, e.g., granite boulders and adverse bedding planes.

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## 3.4 Route Alternatives

### 3.4.1 Outer Route Alternatives -- NSW

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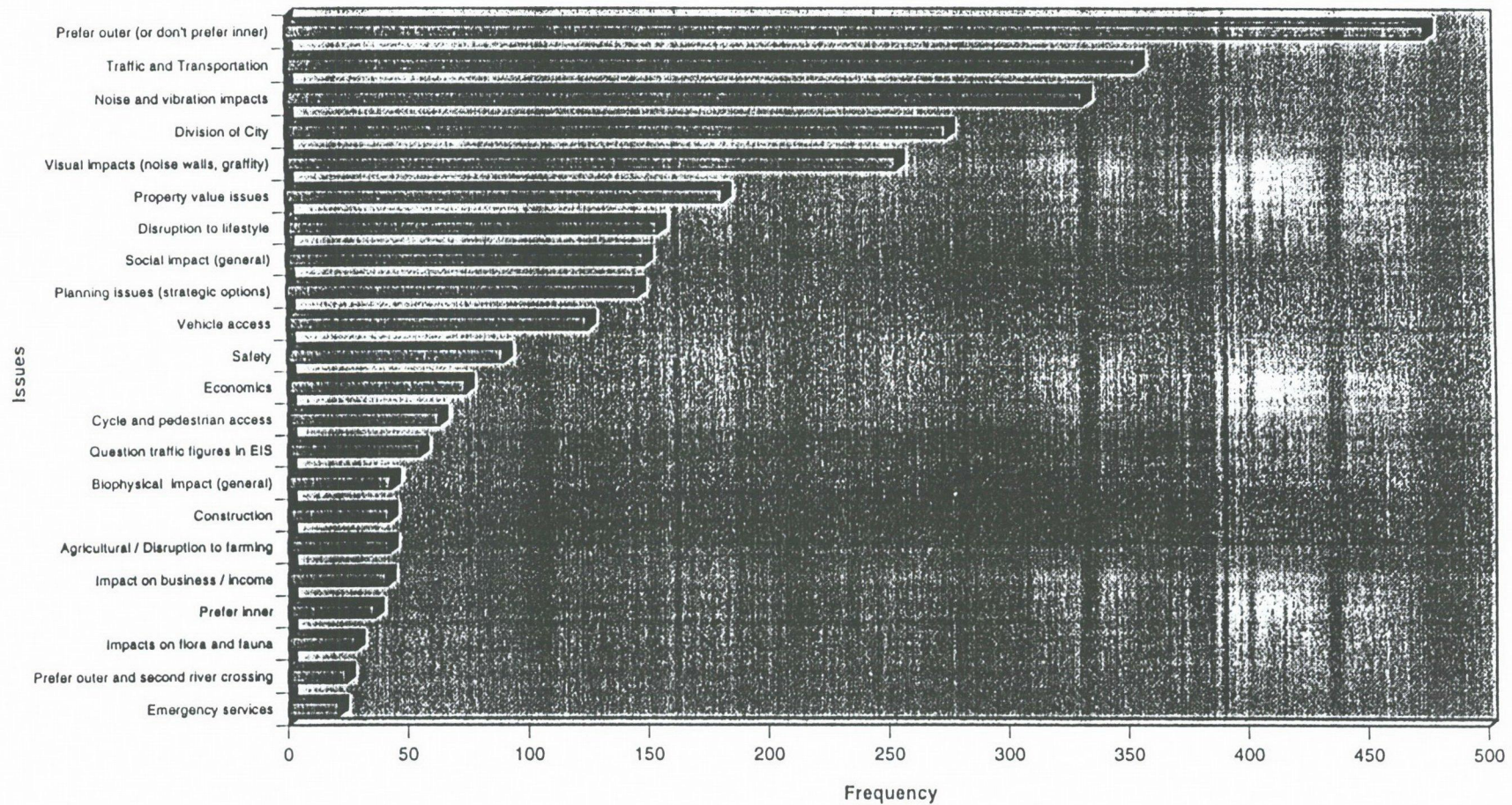
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After the initial constraints were identified, the route selection process included an extensive community consultation program which was undertaken to gain an understanding of public opinion and concerns about the route options. The next step was a general removal of all



**Figure 4** Frequency of Issues Raised in Representations by Community Groups, Businesses, Private Individuals and Government Agencies





## **APPENDICES**



# Department of Planning

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Environment and Planning  
Roads and Traffic Authority  
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Fax No. : (02) 391 2111

Contact : C Wilson

Our Reference : S92/00731

Your Reference :

Dear Sir,

## PROPOSED INTERNAL AND EXTERNAL BYPASSES FOR ALBURY WODONGA

Thank you for your letter of 16 November, 1993 indicating that you are consulting with the Director with regard to the preparation of an environmental impact statement (EIS) for the above development.

As you are aware, Director's requirements were issued for the proposed external bypass of Albury Wodonga on the 22 November, 1991. While many of the issues relating to this proposal remain relevant, previous advice should not be applied. Further, it is understood that both the internal and external routes are to be assessed in the one EIS. However, while the following requirements have been prepared with this in mind, environmental impact assessment under NSW legislation generally requires that one preferred option be identified.

An EIS is required to be prepared where the proposal is an activity referred to in Section 112(1) of the Environmental Planning and Assessment Act, 1979. The EIS shall bear a certificate required by clause 59 of the Regulation (see Attachment 1).

In addition, pursuant to clause 58 of the Regulation, the Director requires that the following matters be specifically addressed in the EIS:

- \* the provisions of Albury Local Environmental Plan 1986, Hume Local Environmental Plan No.8 and draft Murray Regional Environmental Plan No.2;
- \* full description of both proposals, including routes, earth works, road widths, on/off ramps, interchanges, underpasses, pedestrian and cycle routes, attenuation measures and landscaping areas, an indication of land footings at both crossings of the Murray River (Maps, diagrams and photomontages should be used where appropriate).



- \* details of both proposals as they relate to the local and regional road systems, including relevant traffic management aspects, anticipated effects on access to residential, commercial and residential areas adjoining the route, access to affected properties, and impacts on existing roads, public transport services, pedestrian and bicycle routes;
- \* justification for both the internal and external routes, and a consideration of alternatives including relative social and economic costs;
- \* a full description of the zonings along the proposed routes and identification of any sections of the proposal (and alternatives) which require statutory clarification;
- \* predicted traffic type and volume for both routes, resultant changes to local and regional traffic volumes;
- \* traffic and pedestrian safety measures, particularly at interchanges;
- \* identification of all land required for both routes, identification of properties likely to be affected by noise and visual impacts and a description of the property acquisition process;
- \* impact of both routes on existing landuses and community changes particularly in relation to severance;
- \* measures to preserve the water quality of the Murray River and Lake Hume, including sediment and run-off controls both during construction and normal operation;
- \* identification of potential ecological impacts of both routes on both terrestrial and aquatic flora, fauna (including avifauna) and invertebrates. Describe any necessary clearing of natural vegetation and consider impacts of this on wildlife habitats. Discuss any reduction in environmental diversity likely to result from this proposal on the Murray River, its tributaries and its floodplain;
- \* assessment as to whether a fauna impact statement (FIS) is required;
- \* impact on air quality;
- \* impact on noise levels, and measures to mitigate;
- \* visual impacts such as scale, relationship to topography, appearance, lighting effects and measures to ameliorate these, to include sight lines and oversight potential at residential areas;
- \* flooding issues; impact of both routes on the flooding and drainage regime and measures to mitigate impacts;



- \* identification of any heritage items along both routes, and an assessment of any impact on the items;
- \* identification of prime agricultural land within both corridors and the impact on the agricultural industry;
- \* construction impacts of the proposal:
  - construction methods and processes; hours of operation; location of depots, material and fuel storage, gravel and concrete batching operations, sources of fill and other construction material;
  - staging of both proposals;
  - details of cut and fill activities and volumes of material;
- \* measures to off-set likely construction impacts including:
  - noise and dust;
  - traffic movements;
  - flooding;
  - bushfire risks;
  - weed infestation;
  - contamination of surface and groundwater;
  - erosion and sedimentation;
- \* proposals for ongoing monitoring of environmental impacts of the proposal, especially in relation to the Murray river and Lake Hume both during construction and operational phases;
- \* proposals for rehabilitation, revegetation and ongoing maintenance of the road environment and management of landscaped areas;
- \* provisions for breakdowns and accidents. Likelihood of hazardous goods spillage and any emergency clean up provisions;
- \* impacts of the project on future urban and tourism growth in the region;
- \* outline of the decision making process with reference to community consultation;
- \* Results of consultation with:
  - Environment Protection Authority
  - Department of Conservation and Land Management (Soil Conservation Service)
  - Department of Water Resources
  - Department of Transport
  - National Parks and Wildlife Service
  - NSW Agriculture
  - NSW Fisheries
  - Commonwealth Environment Protection Agency
  - Albury Wodonga Region Planning Committee



- Murray Darling Basin Commission
- Albury City Council
- Wodonga City Council (Vic)
- Chiltern Council (Vic)
- Murray Catchment Management Committee

Attachment No. 2 is a guide to the type of information most likely to be relevant to the development you propose; not all of the matters raised therein may be appropriate for consideration in the EIS for your proposal; equally, the guide is not exhaustive.

Attachment No.3 is a guide to the type of information relevant to the Commonwealth's assessment expectations and has been provided by the Commonwealth Environment Protection Agency (CEPA).

When an adequate EIS has been prepared for the subject proposal, as determining authority, you should then proceed with the matter in accordance with Sections 112 and 113 of the Act, and place the document on public exhibition. The procedures for public display that are to be followed by the proponent and/or determining authority are as in clauses 60 to 64 of the Environmental Planning and Assessment Regulation, 1980.

When the EIS is completed, four (4) copies should be forwarded to the Secretary, Attention: Manager, Assessments Branch pursuant to Section 112(2) of the Act, as well as details of the exhibition period and public display locations.

The determining authority should also note that section 113 of the Environmental Planning and Assessment Act, 1979, and clause 61 of the associated Regulation, requires that the EIS be made available for inspection at the same time in the offices of the determining authority and the Department as well as any other agencies nominated by them. To ensure that simultaneous exhibition occurs, the Roads and Traffic Authority should forward the necessary documents to the Department prior to the commencement of the public display period. This will enable concurrent exhibition in the Department's head office and the relevant regional office where appropriate.

Should any submissions be made during the period of public exhibition, it is advised that such submissions should be forwarded to the Secretary in accordance with Section 113(3) of the Act.

If the determining authority has not received a reply within 21 days of sending submissions to the Secretary, it should proceed to determine the matter. The Department will only contact the determining authority after the receipt of submissions if an issue of major significance is involved.

If there are no submissions to the proposed development as a result of the exhibition, the determining authority may determine the matter at any time after the last day upon which submissions are accepted.



It would be appreciated if a copy of the determination could be forwarded to the Department for our information.

Should you require any further information regarding this matter please do not hesitate to contact us again.

Yours faithfully

*B Adams* 24/12/93

B Adams  
Manager  
Assessments and Major Hazards Branch  
As Delegate for the Director



# Annexure 4: Proposed Conditions

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# For Compliance by RTA

# For Compliance by Contractor

## General Matters

1.	<p>To carry out the respective tasks under these conditions:</p> <p>(a) the RTA, and</p> <p>(b) contractors with the RTA for any aspects of the Albury Wodonga National Highway Proposal ("Relevant Contractors");</p> <p>will each comply with, and ensure compliance by their respective subcontractors with, all legislation relating to the construction and operation of the Albury Wodonga National Highway Proposal.</p>	
2.	<p>Without limiting paragraph 1, in carrying out their respective tasks under these conditions, the RTA and Relevant Contractors will comply with, and ensure compliance by their respective subcontractors with, the following legislation:</p> <p>(a) the Clean Air Act 1961; the Clean Waters Act 1970; the Dangerous Goods Act 1973; the Environmentally Hazardous Chemicals Act 1983; the Noise Control Act 1973; the Ozone Protection Act 1987; the Protection of the Environment Act 1986; the Pollution Control Act 1970; the Radiation Control Act 1990; the Unhealthy Building Land Act 1990; and the Waste Minimisation and Management Act 1993;</p> <p>(b) the Threatened Species Conservation Act 1993;</p> <p>(c) the National Parks and Wildlife Act 1974 and the Heritage Act 1977;</p> <p>(d) the Rivers and Foreshores Improvement Act 1948 and the Fisheries Management Act 1994; and</p> <p>(e) the Occupational Health and Safety Act 1983; the Factories Shops and Industries Act 1962, and the Construction Safety Act 1912.</p>	
3.	Without limiting paragraph 1, the RTA will ensure that acquisition of land for the Albury Wodonga National Highway Proposal occurs in accordance with the Land Acquisition (Just Terms Compensation) Act 1991.	
4.	The RTA will ensure that the eligibility of land for acquisition for the Albury Wodonga National Highway Proposal is determined in accordance with the RTA's Land Acquisition Policy.	
5.	<p>To the extent that:</p> <p>(a) (i) material from either or both of:</p> <p>(1) Brooks Quarry; and</p> <p>(2) a quarry to be constructed at Airport Hill;</p> <p>is required for construction of the Albury Wodonga National Highway Proposal; and</p> <p>(b) no explicit consent is required for the extraction of the required fill material from the quarry or quarries;</p> <p>no construction of the Albury Wodonga National Highway Proposal will commence unless and until development consent has been obtained for the extraction of the required fill material from the quarry or quarries.</p>	



# Establishment of Consultative Groups and Personnel

## Community and Environment Liaison Officer

6.	The RTA will prior to commencement of construction of the Albury Wodonga National Highway Proposal, engage an appropriately qualified person to act as Community and Environment Liaison Officer for the Albury Wodonga National Highway Proposal.	
7.	<p>The Community and Environment Liaison Officer has:</p> <p>(a) the functions set out in paragraphs 12, 21, 33, 41, 56, 63, 70, 98, 104, 108, 115 and 119; and</p> <p>(b) (without limiting (a)) may:</p> <p>(1) seek views from, and liaise with, the local community concerning the design, construction and operation of the Albury Wodonga National Highway Proposal; and</p> <p>(2) make comments and recommendations concerning the design, construction and operation of the Albury Wodonga National Highway Proposal to any or all of the RTA, the Project Liaison Group and Community Liaison Groups.</p>	
8.	The RTA will ensure that appropriate facilities are available to assist the Community and Environment Liaison Officer in carrying out the Officer's functions.	
9.	The RTA will ensure that the Community and Environment Liaison Officer is adequately informed concerning the design, construction and operation of the Albury Wodonga National Highway Proposal.	
10.	<p>The RTA will (prior to the commencement of construction of the Albury Wodonga National Highway Proposal) prepare and publish, and (during construction of the Albury Wodonga National Highway Proposal) review, revise, republish and implement procedures for consultation by the Community and Environment Liaison Officer with the local community, and the availability of, and means of access to, the Community and Environment Liaison Officer by the local community, including procedures for:</p> <p>(a) ensuring that the Community and Environment Officer is available for consultation with the local community at all reasonable times, and that the local community is given appropriate information regarding the availability of, and means of access to, the Community and Environment Liaison Officer;</p> <p>(b) the making and recording of comments by the local community to the Community and Environment Liaison Officer concerning any aspect of the Albury Wodonga National Highway Proposal, and for informing the RTA of comments made.</p>	

## Project Liaison Group

11.	The RTA will, prior to commencement of construction of the Albury Wodonga National Highway Proposal, form a Project Liaison Group for the Albury Wodonga National Highway Proposal.	
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12.	<p>12.150 The Project Liaison Group will be comprised of:</p> <ul style="list-style-type: none"> <li>(a) a representative of the RTA;</li> <li>(b) the Community and Environmental Liaison Officers (when appointed);</li> <li>(c) representatives of such of the following as agree to participate in the Project Liaison Group: <ul style="list-style-type: none"> <li>(1) the EPA;</li> <li>(2) the NPWS;</li> <li>(3) the Department of Land and Water Conservation; and</li> <li>(4) relevant local councils.</li> </ul> </li> </ul>	
13.	The RTA will ensure that appropriate facilities and information are available to assist the Project Liaison Group in carrying out its functions.	
14.	The RTA will convene meetings of the Project Liaison Group from time to time as appropriate in order to keep it adequately informed concerning the design, construction and operation of the Albury Wodonga National Highway Proposal.	
15.	The RTA will chair meetings of the Project Liaison Group.	
16.	The Project Liaison Group may make such comments or recommendations to the RTA concerning the design, construction or operation of the Albury Wodonga National Highway Proposal as the Project Liaison Group agrees.	
17.	The RTA will consider all comments and recommendations made to it by the Project Liaison Group and may adopt any recommendation made to it by the Project Liaison Group.	
18.		Relevant Contractors will comply with and ensure compliance by all subcontractors to them ("Subcontractors") with any recommendation from the Project Liaison Group which has been adopted by the RTA subject to any conditions of agreement.

## Community Liaison Groups

### General Matters

19.	The RTA will, prior to the commencement of construction of any particular part of the Albury Wodonga National Highway Proposal, form a Community Liaison Group for that part.	
20.	The RTA will, prior to the commencement of construction of any particular part of the Albury Wodonga National Highway Proposal, form a Community Liaison Group for that part.	
21.	<p>The Community Liaison Group will be comprised of:</p> <ul style="list-style-type: none"> <li>(a) a representative of the RTA;</li> <li>(b) the Community and Environmental Liaison Officers (when appointed);</li> <li>(c) two local community representatives appointed pursuant to paragraph 22.</li> </ul>	
22.	<p>The RTA will, prior to the formation of a Community Liaison Group for any part of the Albury Wodonga National Highway Proposal, call for nominations in writing from the local community relating to that part of the Albury Wodonga National Highway Proposal. The RTA will give public notice calling for the nominations within a period specified in the notice. If more than two nominations are received within the specified time, the RTA will:</p> <ul style="list-style-type: none"> <li>(a) consider the nominations; and</li> <li>(b) appoint to the Community Liaison Group two nominees as representatives of the local community.</li> </ul>	



23.	<p>A Community Liaison Group may from time to time invite any person or persons including:</p> <ul style="list-style-type: none"> <li>(a) members of local aboriginal land councils;</li> <li>(b) local land owners;</li> <li>(c) residents; and</li> <li>(d) emergency services;</li> </ul> <p>to address the Group on any matter concerning the design, construction and operation of the Albury Wodonga National Highway Proposal.</p>	
24.	The RTA will ensure that appropriate facilities are available to assist the Community Liaison Group in carrying out its functions.	
25.	The RTA will ensure that the Community Liaison Group is adequately informed concerning the design, construction and operation of the Albury Wodonga National Highway Proposal.	
26.	The RTA will convene meetings of Community Liaison Groups from time to time as appropriate in order to keep it adequately informed concerning the design, construction and operation of the Albury Wodonga National Highway Proposal.	
27.	The RTA will chair meetings of Community Liaison Groups, and procedures at meetings of Community Liaison Groups will be as determined by the RTA from time to time.	
28.	A Community Liaison Group may (in relation to that part of the Albury Wodonga National Highway Proposal to which the Community Liaison Group relates) make such comments or recommendations to the RTA concerning the design, construction and operation of the Albury Wodonga National Highway Proposal as the Group agrees.	
29.	The RTA will consider all comments and recommendations made to it by a Community Liaison Group and may adopt any recommendations made to it by a Community Liaison Group.	
30.		Relevant Contractors will comply with, and ensure compliance by all Sub-contractors with, any recommendations made by a Community Liaison Group which has been adopted by the RTA subject to any conditions of adoption.

### Farm Liaison

31.	<p>Notwithstanding anything to the contrary in paragraphs 19 to 30, in relation to the construction of any particular part of the Albury Wodonga National Highway Proposal, the RTA will consult with each owner of farm land adjacent to, or traversed by, that part of the Albury Wodonga National Highway Proposal concerning:</p> <ul style="list-style-type: none"> <li>(a) (in general) the elements of that part of the Albury Wodonga National Highway Proposal which could or should be designed in consultation with the owner; and</li> <li>(b) (without limiting (a)) the design, construction or operation of: <ul style="list-style-type: none"> <li>(1) access roads;</li> <li>(2) drainage and creek works;</li> <li>(3) fencing works;</li> <li>(4) revegetation works; and</li> <li>(5) stock movements;</li> </ul> </li> </ul> <p>or any part of, that part of the Albury Wodonga National Highway Proposal.</p>	
32.	The owner of the farm land may make such comments and recommendations to the RTA concerning the design, construction or operation of that part of the Albury Wodonga National Highway Proposal as the owner wishes.	
33.	The owner of the farm land may consult with the Community and Environment Liaison Officer concerning the design, construction or operation of that part of the Albury Wodonga National Highway Proposal.	
34.	The RTA will consider all comments and recommendations made to it by the farm owner, and may adopt any such recommendations.	



40.	The RTA will consult with the EPA concerning the preparation, review and revision of the Construction Program.	
41.	The RTA may consult with the Community and Environment Liaison Officer concerning the preparation, review and revision of the Construction Program.	
42.		In accordance with the Construction Program, Relevant Contractors will construct the Albury Wodonga National Highway Proposal.

## Construction Program

43.	<p>The RTA will (prior to commencement of construction of the Albury Wodonga National Highway Proposal) prepare and publish, and (during construction of the Albury Wodonga National Highway Proposal) review, revise and republish a construction program containing details of the following ("the Construction Program"):</p> <p>(a) the stages in which construction of the Albury Wodonga National Highway Proposal is proposed to be undertaken; and</p> <p>(b) for each stage:</p> <p>(1) the proposed order of works;</p> <p>(2) the times within which each activity in the order of works is proposed to be undertaken, and the time by which each activity in the order of works is proposed to be completed;</p> <p>(3) the areas of land of which possession will be required in order to undertake and complete each activity, and the times within which such possession will be required;</p> <p>(4) the plant and machinery proposed to be used during construction of the stage; and</p> <p>(5) the access points proposed for vehicles for construction of the stage, and the routes proposed to be taken by those vehicles over existing roads, and the times proposed for use by those vehicles of those access points and roads.</p>	
44.	The RTA will consult with the EPA concerning the preparation, review and revision of the Construction Program.	
45.	The RTA may consult with the Community and Environment Liaison Officer concerning the preparation, review and revision of the Construction Program.	
46.		In accordance with the Construction Program, Relevant Contractors will construct the Albury Wodonga National Highway Proposal.

## Noise, Water and Air Pollution Control during Construction and Demolition

### Construction and Demolition Environment Management Plan

47	The RTA will (prior to the commencement of construction of the Albury Wodonga National Highway Proposal) prepare, and (during construction of the Albury Wodonga National Highway Proposal) review and revise an environmental management plan for demolition and construction of the Albury Wodonga National Highway Proposal ("the Construction and Demolition Environment Management Plan").	
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48	<p>The Construction and Demolition Environmental Management Plan will embody:</p> <ul style="list-style-type: none"> <li>(a) the measures mentioned in paragraph 57;</li> <li>(b) the measures mentioned in paragraph 66;</li> <li>(c) the procedures mentioned in paragraph 71; and</li> <li>(d) the measures mentioned in paragraph 72; and</li> <li>(e) the "preconstruction" and "construction" safeguards and mitigation measures identified in Table 33.1 of the environmental impact statement and environmental effects statement for the Albury Wodonga National Highway Proposal (to the extent any other measures and procedures mentioned in (a) to (d) above do not include these safeguards and mitigation measures).</li> </ul>	
49		Relevant Contractors will comply with, and ensure compliance by Subcontractors with, the Construction and Demolition Environmental Management Plan.

## Noise Pollution Control

### General Matters

50		<p>Relevant Contractors will:</p> <ul style="list-style-type: none"> <li>(a) ensure that: <ul style="list-style-type: none"> <li>(1) at all relevant times a pollution control approval is in force so as to do, in relation to the Albury Wodonga National Highway Proposal, any things specified in section 27(1)(a)(iii) of the Noise Control Act 1973;</li> <li>(2) (without limiting (1)) at all relevant times a pollution control approval is in force under section 27(1)(a)(iii) of the Noise Control Act 1973 for construction of structures mentioned in paragraph 74; and</li> </ul> </li> <li>(b) comply with, and ensure compliance by Subcontractors with, the approval.</li> </ul>
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### Noise Mitigation Measures during Construction

51.		The Relevant Contractor will prepare and submit, with any application for approval mentioned in paragraph 50 in relation to construction of any particular part of the Albury Wodonga National Highway Proposal, a statement proposing measures for the EPA's approval for noise mitigation during the construction for that part.
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<p>The Relevant Committee will ensure that the measures proposed in paragraph 51 of the EPA's approval:</p>	<p>(a) Measures required:</p> <p>(1) The use, during construction and demolition, of the best practicable noise pollution control technology.</p> <p>(2) Noise control equipment to be fitted and operational on machinery used in construction and demolition works;</p> <p>(3) Noise compliance with the requirements of all major equipment used in construction and demolition works;</p> <p>(4) Noise monitoring to be undertaken during construction and demolition at selected and appropriate times.</p>	<p>(b) Measures:</p> <p>(1) (subject to (2) and (3)) restricting the hours during which construction or demolition is carried out to between 7.00am and 6.00pm on Mondays to Fridays and 7.00am to 1.00pm on Saturdays (if practicable at weekends and public holidays) and to prohibit construction and demolition on Sundays and public holidays;</p> <p>(2) allowing construction and demolition outside the hours specified in (1) only;</p> <p>(A) with the prior approval of the EPA and the RTA; or</p> <p>(B) where construction or demolition outside those hours is necessary for public safety reasons or for other safety reasons;</p> <p>(3) requiring, in the case of construction or demolition operations in (b)(2), prior notice to be submitted to the relevant authority and</p> <p>(4) requiring the use of best practicable means to ensure that noise from construction and demolition does not exceed the following levels in the following circumstances:</p> <p>(A) where the peak level of the noise does not exceed 65 dBA, the L10 level does not exceed 65 dBA and the L5 level does not exceed 65 dBA;</p> <p>(B) where the peak level of the noise does not exceed 65 dBA, the L10 level does not exceed 65 dBA and the L5 level does not exceed 65 dBA.</p>	<p>(c) Measures:</p> <p>(1) restricting demolition and construction traffic to specific:</p> <p>(A) access points to and from, and routes over, existing roads; and</p> <p>(B) times; and</p> <p>(2) specifying the type or types of demolition and construction traffic which may have that access at those times.</p>	<p>(d) Measures:</p> <p>(1) restricting demolition and construction traffic to specific:</p> <p>(A) access points to and from, and routes over, existing roads; and</p> <p>(B) times; and</p> <p>(2) specifying the type or types of demolition and construction traffic which may have that access at those times.</p>	<p>(e) Measures:</p> <p>(1) restricting demolition and construction traffic to specific:</p> <p>(A) access points to and from, and routes over, existing roads; and</p> <p>(B) times; and</p> <p>(2) specifying the type or types of demolition and construction traffic which may have that access at those times.</p>
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52		<p>The Relevant Contractor will ensure that the measures mentioned in paragraph 51 propose the following measures for EPA approval:</p> <ul style="list-style-type: none"> <li>(a) Measures requiring, wherever practicable, <ul style="list-style-type: none"> <li>(1) the installation, in any area with high predicted demolition or construction noise of temporary or permanent noise mitigation structures (including mounds and, wherever possible and practicable, the plantings) before construction in that area is commenced;</li> <li>(2) the use of quiet piling techniques (such as vibratory piling) in the demolition or construction of that part of the Albury Wodonga National Highway Proposal; and</li> <li>(3) the removal of all noise by mechanical means only (and not by blasting)</li> </ul> </li> <li>(b) (Where blasting occurs), measures to ensure that all necessary approvals for the blasting from local councils and other relevant authorities are obtained and complied with.</li> <li>(c) Measures prohibiting, wherever practicable, the use of vibratory compactors closer than 15m to residential buildings and rock breakers are not used closer than 25m to residential buildings.</li> <li>(d) Measures to ensure that a "pre-construction" ("displacement") report is carried out in respect of each building or structure likely to be affected by construction, and contains a statement by a suitably qualified person recording the structural condition of the building or structure prior to commencement of construction.</li> <li>(e) Other measures (consistent with paragraph 52) reflecting the recommendations in section 1.2.4 of the report of Richard Hoggie Associates Pty Limited dated 26 April 1996 which forms annexure 23 to the first submission of the RTA to the Albury Wodonga National Highway Panel Inquiry.</li> </ul>
54		The Relevant Contractor will (during construction of the Albury Wodonga National Highway Proposal) review and revise the measures mentioned in paragraphs 52 and 53.
55		The Relevant Contractor will consult with the EPA concerning the preparation, review and revision of the measures mentioned in paragraphs 52 and 53.
56		The Relevant Contractor may consult with the Community and Environment Liaison Officer concerning the preparation, review and revision of the measures mentioned in paragraphs 52 and 53.
57		The Relevant Contractor will comply with, and ensure compliance by Subcontractors with, the measures mentioned in paragraphs 52 and 53 as approved by the EPA from time to time.
<h1>Water Pollution Control</h1>		
<h2>General Matters</h2>		
58		<p>The Relevant Contractor will:</p> <ul style="list-style-type: none"> <li>(a) ensure that, at all relevant times, a pollution control licence is in force in respect of any pollution of waters that occurs as a result of demolition for, or the construction of, the Albury Wodonga National Highway Proposal;</li> <li>(b) ensure that at all relevant times, a pollution control approval is in force to do, in relation to the Albury Wodonga National Highway Proposal, any things specified in sections 19(1)(a)(i) and (ii) of the Clean Waters Act 1970; and</li> <li>(c) comply with, and ensure compliance by Subcontractors with, the licence and approval.</li> </ul>

59.		<p>The Relevant Contractor will:</p> <p>(a) ensure that, at all relevant times:</p> <p>(1) a permit is in force to do, in relation to the Albury Wodonga National Highway Proposal, any things specified in section 221(1) of the Rivers and Portshores Improvement Act 1948;</p> <p>(2) (notwithstanding section 201(2) of the Fisheries Management Act 1994) a permit is in force to do any things specified in section 201(1) of that Act in relation to the Albury Wodonga National Highway Proposal;</p> <p>(3) a permit is in force to do, in relation to the Albury Wodonga National Highway Proposal, any things specified in section 203 of the Fisheries Management Act 1994; and</p> <p>(b) comply with, and ensure compliance by subcontractors with, those permits.</p>
<i>Water Pollution Mitigation Measures during Construction</i>		
60.		<p>The Relevant Contractor will prepare and submit with any application for a licence mentioned in paragraph 58(a) in relation to demolition for, or the construction of, any particular part of the Albury Wodonga National Highway Proposal, a statement proposing measures for the EPA's approval for water pollution mitigation during construction of that part.</p>
61.		<p>The Relevant Contractor will ensure that the statement mentioned in paragraph 60 contains measures for the EPA's approval addressing the following:</p> <p>(a) Control of pollution to water during demolition and construction from:</p> <p>(1) soil erosion; and</p> <p>(2) runoff (including stormwater runoff) and sediments from cleared areas, spoil areas and construction areas;</p> <p>(b) dissipation of energy in runoff during demolition and construction so as to reduce its potential for erosion;</p> <p>(c) revegetation of cleared areas, spoil areas and other areas used during demolition and construction;</p> <p>(d) control of discharges to water during demolition and construction at sites likely to be affected by flooding;</p> <p>(e) monitoring of changes in the groundwater table during demolition and construction due to modifications in the terrain, loss of vegetation and increase in soil erosion; and</p> <p>(f) monitoring of any acid sulphate soils which may be encountered during demolition or construction.</p>
62.		<p>The Relevant Contractor will ensure that, in developing the measures mentioned in paragraph 60, the Relevant Contractor undertakes to the EPA's satisfaction:</p> <p>(a) (prior to the commencement of demolition or construction of any particular part of the Albury Wodonga National Highway Proposal) baseline stream water quality monitoring at locations likely to be affected by the construction of that part of the Albury Wodonga National Highway Proposal;</p> <p>(b) (during demolition or construction) periodic stream water quality monitoring at those locations.</p>
63.		<p>The Relevant Contractor will (during demolition and construction) review and revise the measures mentioned in paragraph 60.</p>
64.		<p>The Relevant Contractor will consult with the EPA concerning the preparation, review and revision of the measures mentioned in paragraph 60.</p>
65.		<p>The Relevant Contractor may consult with the Community and Environment Liaison Officer concerning the preparation, review and revision of the measures mentioned in paragraph 60.</p>



66.		The Relevant Contractor will comply with, and ensure compliance by Subcontractors with, the measures mentioned in paragraph 60 as approved by the EPA from time to time.
<h2>Air Pollution Control</h2>		
67.	<p>The RTA will:</p> <ul style="list-style-type: none"> <li>(a) (prior to the commencement of construction of the Albury Wodonga National Highway Proposal) prepare, and (during construction of the Albury Wodonga National Highway Proposal) review and revise, procedures for air pollution control during demolition and construction in consultation with the EPA; and</li> <li>(b) (without limiting (a)), (prior to the commencement of construction of the Albury Wodonga National Highway Proposal) develop, and (during construction of the Albury Wodonga National Highway Proposal) review and revise dust suppression procedures during demolition and construction of the Albury Wodonga National Highway Proposal.</li> </ul>	
68.	<p>The RTA will ensure that the procedures mentioned in paragraph 67 contain provisions which require that:</p> <ul style="list-style-type: none"> <li>(a) all haul roads and unsealed access roads, and all areas of excavation, construction or other disturbance, are watered regularly or otherwise as appropriate to suppress dust;</li> <li>(b) wheel-washes are provided for, and used by, all vehicles leaving any construction zone;</li> <li>(c) all vehicles loaded with soil or spoil have their loads covered by tarpaulins or otherwise as appropriate to suppress dust; and</li> <li>(d) all excavated or otherwise disturbed areas are revegetated as soon as possible after excavation or disturbance.</li> </ul>	
69.	The RTA will consult with the EPA concerning the preparation, review and revision of the procedures mentioned in paragraphs 67 and 68.	
70.	The RTA may consult with the Community and Environment Liaison Officer concerning the preparation, review and revision of the procedures mentioned in paragraphs 67 and 68.	
71.		The Relevant Contractor will comply with, and ensure compliance by Subcontractors with, the procedures mentioned in paragraph 67 as approved by the EPA from time to time.
<h2>Construction and Demolition Traffic Management</h2>		
72.	<p>The RTA will ensure that the Construction and Demolition Environment Management Plan contains the following measures for the management of traffic during demolition:</p> <ul style="list-style-type: none"> <li>(a) speed restrictions on affected roads;</li> <li>(b) precautionary signage;</li> <li>(c) illuminated warning devices;</li> <li>(d) roadwork barriers and barriers; and</li> <li>(e) other measures aimed at minimising delays to, and ensuring safety for, traffic, pedestrians and cyclists during construction;</li> </ul> <p>and measures to the RTA's satisfaction for giving advance notice to the local community concerning traffic during construction.</p>	
73.	The RTA will ensure that 24-hour access via Borella Road to Albury Airport, Albury Base Hospital is maintained during construction.	

11.		<p>The Relevant Contractor will ensure that, in developing concepts for submission to the Project Liaison Group pursuant to paragraph 76(a), consideration is given to:</p> <ul style="list-style-type: none"> <li>(a) the effectiveness of alternative permeable types in reducing operational noise; and</li> <li>(b) the effectiveness and practicability of localized alterations to the location of elements of the Albury Wodonga National Highway Proposal in conjunction with operational noise at: <ul style="list-style-type: none"> <li>(1) Diggerside Tennis Club;</li> <li>(2) East Albury Tennis Club; and</li> <li>(3) Scots School.</li> </ul> </li> </ul>
12.	Notwithstanding paragraphs 75 to 81, the Noise Pollution Control Structures must be constructed so as at least to comply with the RTA's traffic noise policy.	

## Construction of Operational Water Pollution Control Structures

13.		Subject to paragraphs 84 to 91, the Relevant Contractor will construct structures for mitigation of operational water pollution from the Albury Wodonga National Highway Proposal ("the Water Pollution Control Structures").
14.		The Relevant Contractor will prepare and submit, with any application for an approval mentioned in paragraph 84(b), in relation to construction of operational water pollution control structures, concepts for the design of those structures developed in accordance with paragraphs 85 to 91.
15.		<p>The Relevant Contractor will ensure that:</p> <ul style="list-style-type: none"> <li>(a) the concepts mentioned in paragraph 84 have been submitted to the Project Liaison Group for consideration, comment and recommendation;</li> <li>(b) those concepts, as amended (if at all) following the adoption by the RTA of any recommendations of the Project Liaison Group have been submitted to the relevant Community Liaison Group for consideration, comment and recommendation; and</li> <li>(c) a reasonable opportunity has been given to the Community Liaison Group to consider, comment on and make recommendations concerning those concepts (as amended).</li> </ul>
16.		<p>The Relevant Contractor will ensure that, in developing concepts for submission to the Project Liaison Group pursuant to paragraph 85(a), consideration is given to:</p> <ul style="list-style-type: none"> <li>(a) architectural, visual, landscape and graphic design aspects of the design of the operational water pollution control structures as well as to technical and structural aspects; and</li> <li>(b) the available range of operational water pollution control structures (including, for example, grass channels, buffer strips and wet basins); and</li> <li>(c) practicable combinations of structures within that range.</li> </ul>
17.		The Relevant Contractor will include in the tender, as submitted to the Project Liaison Group pursuant to paragraph 85(a) practicable combinations of operational water pollution control structures in the range of structures mentioned in paragraph 85(a).



88.		The Relevant Contractor will ensure that, in developing concepts for submission to the Project Liaison Group pursuant to paragraph 8X(e), the Relevant Contractor undertakes flood level and hydraulic analyses to the EPA's satisfaction.
89.		<p>The Relevant Contractor will include in the concept submitted to the Project Liaison Group pursuant to paragraph 8X(e)</p> <p>(a) structures designed to reduce erosion and sediment from runoff from cleared areas, roads and pavements surfaces;</p> <p>(b) structures designed:</p> <p>(1) to reduce direct and indirect discharge of gross pollutants and drainage from roadways (including grease and solvents) to natural waterways during operation of the Albury Wodonga National Highway Proposal;</p> <p>(2) to concentrate the discharge into discrete discharge points to natural watercourses; and</p> <p>(3) to ensure that all gross pollutants from roadways pass through a gross pollutant trap; and</p> <p>(c) structures designed to dissipate energy in runoff from culverts.</p>
90.		The Relevant Contractor will include in the concept submitted to the Project Liaison Group pursuant to paragraph 8X(e) appropriate provision for emergency grease traps, and access to, the Albury Wodonga National Highway Proposal in relation to structures and leaks spills which may occur during the operation of the Albury Wodonga National Highway Proposal.
91.		The Relevant Contractor will ensure that, in developing concepts for submission to the Project Liaison Group pursuant to paragraph 8X(e), consideration has been given to architectural, visual, landscape, built and sound aspects of the design of the operational noise pollution control structures as well as to technical and structural aspects.
92.		<p>The Relevant Contractor will ensure that the Noise Pollution Control Structures:</p> <p>(a) are monitored during construction of the Albury Wodonga National Highway Proposal for performance and (where necessary) altered or amplified, in consultation with the EPA;</p> <p>(b) are constructed, in relation to any particular part of the Albury Wodonga National Highway Proposal, substantially following clearance for construction of that part;</p> <p>(c) are checked for structural damage during construction of the Albury Wodonga National Highway Proposal and (where necessary) repaired in consultation with the EPA; and</p> <p>(d) are maintained during construction of the Albury Wodonga National Highway Proposal in consultation with the EPA.</p>

## Noise, Water and Air Pollution Control during Operation

### Operational Environment Management Plan

93.	The RTA will (prior to the completion of construction of the Albury Wodonga National Highway Proposal) prepare, and (during operation of the Albury Wodonga National Highway Proposal) review and revise, an environmental management plan ("the Operation Environment Management Plan").	
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94.	<p>The RTA will ensure that the Operation Environment Management Plan embodies:</p> <ul style="list-style-type: none"> <li>(a) the measures mentioned in paragraph 103 below; and</li> <li>(b) the procedures mentioned in paragraph 109 below; and</li> <li>(c) and the "post-construction" safeguards and mitigation measures identified in Table 33.1 of the environmental impact statement and environmental effects statement for the Albury Wodonga National Highway Proposal (to the extent, if any, that the measures and procedures mentioned in (a) and (b) above do not include those safeguards and mitigation measures).</li> </ul>	
95.	The RTA will comply with, and will ensure compliance by subcontractors to the RTA ("RTA Subcontractors") with, the Operation Environment Management Plan.	

## Noise Pollution Control

96.	<p>On completion of any particular part of the Albury Wodonga National Highway Proposal, the RTA will appoint a technical adviser qualified in matters of acoustic engineering to report, in relation to the Noise Pollution Control Structures (as defined in paragraph 74) constructed for that part, in writing to the Project Liaison Group on:</p> <ul style="list-style-type: none"> <li>(a) the effectiveness of those structures during operation of that part of the Albury Wodonga National Highway Proposal; and</li> <li>(b) any economically feasible and practical measures that can be applied to meet the criterion mentioned in paragraph 77.</li> </ul>	
97.	The RTA will consult with the EPA concerning the assessment by the acoustic engineer of the effectiveness of the structures mentioned in paragraph 96.	
98.	The RTA may consult with the Community and Environment Liaison Officer concerning the assessment by the acoustic engineer of the effectiveness of the structures mentioned in paragraph 96.	

## Water Pollution Control

### General Matters

99.	<p>The RTA will:</p> <ul style="list-style-type: none"> <li>(a) ensure that, at all relevant times, a pollution control licence is in force in respect of any pollution of waters that occurs as a result of the operation of the Albury Wodonga National Highway Proposal;</li> <li>(b) comply with, and ensure compliance by Subcontractors with, the licence.</li> </ul>	
100.	<p>The RTA will ensure that the Water Pollution Control Structures (mentioned in paragraph 83):</p> <ul style="list-style-type: none"> <li>(a) are monitored during operation of the Albury Wodonga National Highway Proposal for performance, and (where necessary) altered or amplified, in consultation with the EPA;</li> <li>(b) are checked for structural damage during operation of the Albury Wodonga National Highway Proposal and (where necessary) repaired in consultation with the EPA; and</li> <li>(c) are maintained during operation of the Albury Wodonga National Highway Proposal in consultation with the EPA.</li> </ul>	



## Water Pollution Mitigation Measures during Operation

101.	The RTA will prepare and submit, with any application for a license mentioned in paragraph 99, a statement proposing measures for the EPA's approval for water pollution mitigation during operation of the Albury Wodonga National Highway Proposal.	
102.	<p>The RTA will ensure that the measures mentioned in paragraph 101 includes the following measures for the EPA's approval:</p> <p>(a) Measures addressing the following matters:</p> <ol style="list-style-type: none"> <li>(1) control of pollution to water during operation of the Albury Wodonga National Highway Proposal from:               <ol style="list-style-type: none"> <li>(A) soil erosion; and</li> <li>(B) runoff (including storm-water runoff) and sediment from pavements;</li> </ol> </li> <li>(2) dissipation of energy in runoff so as to reduce its potential for erosion;</li> <li>(3) control of discharges to water at sites likely to be affected by flooding; and</li> <li>(4) monitoring of changes in the ground-water table and salinity due to modifications in the terrain, loss of vegetation and increase in soil erosion.</li> </ol> <p>(b) Measures in relation to spills mentioned in paragraph 90 (including measures for informing the EPA immediately of the occurrence of any such spills).</p>	
103.	The RTA will consult with the EPA concerning the preparation, review and revision of the procedures mentioned in paragraph 101.	
104.	The RTA may consult with the Community and Environment Liaison Officer concerning the preparation, review and revision of the measures mentioned in paragraph 101.	
105.	The RTA will comply with the measures mentioned in paragraph 101 as approved by the EPA from time to time.	

## Air Pollution Control

106.	The RTA will (prior to the completion of construction of any particular part of the Albury Wodonga National Highway Proposal) prepare, and (during operation of that part of the Albury Wodonga National Highway Proposal) review and revise, procedures consistent with the RTA's Inertial Air Monitoring Plan to monitor emissions from the Albury Wodonga National Highway Proposal of CO, NO <sub>x</sub> , hydrocarbons, particulate matter, lead, sulphur compounds and benzene during operation of the Albury Wodonga National Highway Proposal.	
107.	The RTA will consult with the EPA concerning the preparation, implementation and review of the procedures mentioned in paragraph 106.	
108.	The RTA may consult with the Community and Environment Liaison Officer concerning the preparation, implementation and review of the procedures mentioned in paragraph 106.	
109.	The RTA will comply with the procedures mentioned in paragraph 106 as approved by the EPA from time to time.	

## Other Environmental Matters

### Vegetation and Wildlife Management Plan

110

The RTA will (prior to commencement of construction of any part of the Albury Wodonga National Highway Proposal) prepare, and (after completion of that part) review and revise procedures for vegetation and wildlife management in relation to that part of the Albury Wodonga National Highway Proposal ("the Vegetation and Wildlife Management Plan").



[illegible]

112	<p>The RTA will ensure that the measures included in the Vegetation and Wildlife Management Plan reflect the following principles:</p> <ul style="list-style-type: none"> <li>(a) Vegetation identification surveys are carried out prior to clearance for construction, to establish the locations of reserve features such as existing mature trees and good quality vegetation;</li> <li>(b) Surveyed boundaries of the areas to be cleared for construction are included in the final design (to ensure fencing of bushland areas remaining after clearance, and to prohibit access by the RTA and Subcontractors to those areas for construction purposes);</li> <li>(c) Low to medium shrubs and ground cover are planted inside the noise barriers where possible and within median strips between the two carriageways of the Albury Wodonga National Highway Proposal;</li> <li>(d) The corridor established along the Albury Wodonga National Highway Proposal as a result of plantings inside and outside the road boundaries: <ul style="list-style-type: none"> <li>(1) (in rural areas) is designed to provide (as far as practicable) a link with existing bushland, or to recreate (as far as practicable) remnants of bushland, and thereby to provide (as far as practicable) an enhanced bushland corridor; and</li> <li>(2) (in urban areas) is designed to form (as far as practicable) a linear "green corridor";</li> </ul> </li> <li>(e) CUL-de-sses created by the Albury Wodonga National Highway Proposal are designed: <ul style="list-style-type: none"> <li>(1) (as far as practicable) so as to complement the corridor mentioned in (d); and</li> <li>(2) (in any event) so as to enhance the amenity of the cul-de-ss;</li> </ul> </li> <li>(f) A seed bank of local native species is established prior to, and maintained during, construction in order to reseed the Albury Wodonga National Highway Proposal with local species and to replace exotic species.</li> </ul>	
113	The RTA will ensure that the Vegetation and Wildlife Management Plan includes measures to ensure monitoring of the implementation, and reporting on the success of the implementation, of its provisions.	
114	The RTA will consult with the NPWS, the Department of Land and Water Conservation, and relevant local Landcare groups concerning the preparation, review and revision of the Vegetation and Wildlife Management Plan.	
115	The RTA may consult with the Community and Environment Liaison Officer concerning the preparation, review and revision of the Vegetation and Wildlife Management Plan.	
116	The RTA will comply with, and ensure compliance by RTA Subcontractors with, the Vegetation and Wildlife Management Plan as approved by the RTA from time to time.	
<h2>Soil Contamination</h2>		
117	<p>The RTA will:</p> <ul style="list-style-type: none"> <li>(a) (prior to the commencement of construction of any particular part of the Albury Wodonga National Highway Proposal) undertake to the EPA's satisfaction an investigation to identify any contaminated soil;</li> <li>(b) (prior to the commencement of construction of that part of the Albury Wodonga National Highway Proposal) prepare, and (during construction of that part of the Albury Wodonga National Highway Proposal) review and revise, to the EPA's satisfaction a management program for any contaminated soil discovered as a result of the investigation; and</li> <li>(c) dispose of, or otherwise deal with, to the EPA's satisfaction, any contaminated soil discovered as a result of the investigation.</li> </ul>	
118	The RTA will consult with the EPA concerning the preparation, implementation and review of the management program mentioned in paragraph 117.	



119.	The RTA may consult with the Community and Environment Liaison Officer concerning the preparation, implementation and review of the management program mentioned in paragraph 117.	
120	The RTA will comply with, and will ensure compliance by RTA Subcontractors with, the management program mentioned in paragraph 117 as approved from time to time by the EPA.	

## Heritage Matters

### General Matters

121		<p>Relevant Contractors will:</p> <p>(a) ensure that, at all relevant times, all authorisations and consents required by the National Parks and Wildlife Act 1974 or the Heritage Act 1977 are in force in relation to the demolition and construction of the Albury Wodonga National Highway Proposal; and</p> <p>(b) comply with, and ensure compliance by Subcontractors with, those authorisations and consents.</p>
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### Aboriginal Heritage

122	<p>Prior to commencement of construction of any part of the Albury Wodonga National Highway Proposal, the RTA will appoint an archaeologist qualified in matters of aboriginal archaeology:</p> <p>(a) to produce a report to verify conclusions in the Albury Wodonga EIS/EES as to the location and affectation of sites of significance for aboriginal heritage; and</p> <p>(b) to produce, in consultation with the NPWS and the local Aboriginal Land Councils, a plan of management for sites of significance identified in the Albury Wodonga EIS/EES or that report.</p>	
123		Relevant Contractors will comply with, and ensure compliance by Subcontractors with, any plan of management produced pursuant to paragraph 122.

### Non-Aboriginal Heritage

124	<p>The RTA will appoint, prior to commencement of construction of any part of the Albury Wodonga National Highway Proposal, a suitably qualified person:</p> <p>(a) to produce a report to verify conclusions in the Albury Wodonga EIS/EES as to the location and affectation of sites of significance for European heritage; and</p> <p>(b) to produce a plan of management for sites of significance identified in that report.</p>	
125		Relevant Contractors will comply with, and ensure compliance by Subcontractors with, any plan of management produced pursuant to paragraph 124.



## Threatened Species

126.	Prior to commencement of construction of any part of the Albury Wodonga National Highway Proposal, the RTA will appoint a consultant qualified in matters relating to threatened species to produce a report to verify conclusions in the Albury Wodonga BIA/EEIS as to threatened species.
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## Design Issues

### Width of Road Reservation

127.	<p>The RTA will ensure that, within the urban areas of Albury:</p> <p>(a) the overall width of the Albury Wodonga National Highway Proposal when constructed does not exceed 90m (including carriageways, median strips, margins and berms); and</p> <p>(b) (as far as practicable) the aggregate width of the carriageways and median strips does not exceed 43m.</p>
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## Flood Management

128	<p>The RTA will ensure that the Albury Wodonga National Highway Proposal is designed to the following flood and hydrology standards:</p> <p>(a) Culverts are provided to convey flows from all watercourses beneath the Albury Wodonga National Highway Proposal.</p> <p>(b) In the area of Albury railway station, culverts are designed to a capacity at least equal to the capacity of culverts installed or maintained by the State Rail Authority.</p> <p>(c) Where necessary and appropriate, cross-culverts are provided on ridges so as to ensure that there are no significant adverse impacts on dam catchments.</p> <p>(d) Any new bridge is constructed so as to minimise impact on existing creek channels.</p> <p>(e) Transverse drainage lines are designed to carry 1:100 year flow.</p> <p>(f) The surface of the Albury Wodonga National Highway Proposal is above the 100 year Average Recurrence Interval flood level plus a freeboard of 500 millimetres.</p> <p>(g) Flood mitigation measures are implemented at nearby properties and are designed to address the 100 year Average Recurrence Interval flood level.</p> <p>(h) Longitudinal drainage is designed generally to address the 5 year Average Recurrence Interval flood, and to ensure that in such a storm, gutter flows do not extend onto the trafficked lanes.</p>
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## Fog Management



129.	The RTA will ensure that appropriate 'fog warning' measures are incorporated into the design of the Albury Wodonga National Highway Proposal.	
<b>Farm Access</b>		
130	The RTA will ensure that the farm access elements of the Albury Wodonga National Highway Proposal are designed in consultation with all relevant farm owners so as to ensure that access equivalent to the current access for farm machinery enjoyed by those farm owners continues.	
<b>Bicycle Access</b>		
131	The RTA will consult with Bicycle New South Wales during the detail design stage concerning access to, and use of, the Albury Wodonga National Highway Proposal by bicycles.	
132	The RTA will ensure that any gates placed in the gutters for the Albury Wodonga National Highway Proposal are suitable for bicycles and are satisfactory to the RTA in this regard.	
<b>Utilities and Other Services</b>		
133	The RTA will liaise with all relevant authorities concerning any necessary relocation, preservation or alteration of utilities and services as a result of the construction of the Albury Wodonga National Highway Proposal, including emergency services.	
<b>Local Traffic Management</b>		
134.	The RTA will consult with relevant local councils concerning practicable and desirable traffic management measures to be implemented in conjunction with the Albury Wodonga National Highway Proposal.	

## Following Completion

135.	<p>The RTA will consult with the Department of Urban Affairs and Planning, the EPA, the NPWS, Department of Land and Water Conservation, local Landcare groups and the relevant local councils and will take steps to bring about:</p> <ul style="list-style-type: none"> <li>(a) reasoning of those areas of the existing road reservation which, having regard to the location of the Albury Wodonga National Highway Proposal, are not or will not be required for road purposes; and</li> <li>(b) other related reasonings.</li> </ul> <p>The RTA's intention is that the reasoning will:</p> <ul style="list-style-type: none"> <li>(a) identify land which is appropriate to be made available for purposes of the enhancement, preservation or re-establishment of: <ul style="list-style-type: none"> <li>(1) bushland; and</li> <li>(2) wetlands;</li> </ul> </li> <li>(b) return the land mentioned in (a) for those purposes;</li> <li>(c) put into effect appropriate management regimes for the land mentioned in (a);</li> <li>(d) identify land which is appropriate to be made available for purposes other than those mentioned in (a), and identify those other purposes;</li> <li>(e) (where land is identified as being appropriate to be made available for medium density housing) contain development standards appropriate to ensure that any medium density housing is designed so as to: <ul style="list-style-type: none"> <li>(1) to prevent an effective traffic noise barrier to the Albury Wodonga National Highway Proposal; and</li> <li>(2) to reduce as far as possible the effects in the medium density housing of noise from the Albury Wodonga National Highway Proposal.</li> </ul> </li> </ul>	
136.	The RTA will meet the reasonable costs of effecting reasoning in accordance with paragraph 135.	



# 8 PART TESTS FOR ALBURY BYPASS

Prepared for:

RTA

by:

SMEC Australia Pty Ltd  
ACN 069699467



31742.001  
December 1997

## 8 PART TESTS

### FLORA

a) *"in the case of a threatened species, whether the life cycle of the species is likely to be disrupted such that a viable local population of the species is likely to be placed at risk of extinction"*

#### Austral Toad Flax *Thesium australe*

The Austral Toad Flax is a parasitic herb that occurs in grasslands, grassy heaths and eucalypt woodlands in which native Kangaroo Grass occurs. The species is in serious risk of becoming extinct in the wild if present habitat depletion continues as a consequence of agricultural and urban development. It is listed as Vulnerable in the NSW TSC Act and as vulnerable nationally.

This species is known to occur in the Albury region, having been recorded in Cobberas-Tingaringay National Park to the south, Namadgi and Kosciuszko National Parks and Bullen Range Nature Reserve. The disturbed nature of the route and the species' preference for more coastal habitats suggests that this species will not be affected by the proposed Albury bypass.

Indirect impacts on the above species may occur. These include the impact of increased visitation and usage of roadside areas. This impact is unlikely to be significant, as the national highway route already exists and parking bays along the route will direct people to specific areas and thereby limit the area of potential impacts.

Another indirect impact is the potential for erosion and sedimentation along the route during the construction works. However, considering the level of disturbance already present along the route, the proposed revegetation scheme and the implementation of standard erosion control works, there will be no further impact on threatened species.

The life-cycles of the threatened species listed above, therefore, will not be disrupted by the proposed Albury bypass and nor will a viable local population of these species be placed at risk of extinction.

b) *"in the case of an endangered population, whether the life cycle of the species that constitutes the endangered population is likely to be disrupted such that the viability of the population is likely to be significantly compromised"*

No endangered populations will be impacted upon by the proposed works along the inner route of the Albury bypass.



c) *"in relation to the regional distribution of the habitat of a threatened species, population or ecological community, whether a significant area of known habitat is to be modified or removed"*

The habitat of the threatened plants will not be significantly altered.

d) *"whether an area of known habitat is likely to become isolated from currently interconnecting or proximate areas of habitat for a threatened species, population or ecological community"*

No threatened plants were recorded during the plot based survey. Nonetheless, there will be a species specific survey for *Amphibromus fluitans* and Austral Toadflax along the inner route of the Albury bypass prior to the beginning of the detailed design of the route. If either of these species are located the route will be realigned or mitigation measures will be designed to alleviate any significant detrimental effect on them.

e) *"whether critical habitat will be effected"*

At the time of writing this report, no critical habitat had been listed in the TSC Act.

f) *"whether a threatened species, population or ecological community, or their habitats, are adequately represented in conservation reserves (or other similar protected areas) in the region"*

Austral Toadflax occurs in the Cobberas-Tingaringy National Park to the south of Albury, Namadgi and Kosciuszko National Parks and Bullen Range Nature Reserve to the north.

g) *"whether the action proposed is of a class of action that is recognised as a threatening process"*

The construction of a road/national highway is not listed in the TSC Act as a threatening process.

h) *"whether any threatened species or ecological community is at the limit of its known distribution"*

Austral Toadflax occurs throughout much of Australia including New South Wales, Victoria, the ACT, Queensland and Tasmania.

Therefore, this species is not at the limit of its known distribution.

a) *"in the case of a threatened species, whether the life cycle of the species is likely to be disrupted such that a viable local population of the species is likely to be placed at risk of extinction"*

*Amphibromus fluitans*

*Amphibromus fluitans* is a stoloniferous or rhizomatous perennial that is listed as vulnerable in the NSW TSC Act and in the ESP Act. It is a semi-aquatic species that grows to 80 centimetres high. It was not recorded during the plot based survey.

The disturbed nature of the route and the species' preference for wetland habitats suggests that this species will not be affected by the proposed Albury bypass.

Indirect impacts on the above species may occur. These include the impact of increased visitation and usage of roadside areas. This impact is unlikely to be significant, as the national highway route already exists and parking bays along the route will direct people to specific areas and thereby limit the area of potential impacts.

Another indirect impact is the potential for erosion and sedimentation along the route during the construction works. However, considering the level of disturbance already present along the route, the proposed revegetation scheme and the implementation of standard erosion control works, there will be no further impact on threatened species.

The life-cycles of the threatened species listed above, therefore, will not be disrupted by the proposed Albury bypass and nor will a viable local population of these species be placed at risk of extinction.

b) *"in the case of an endangered population, whether the life cycle of the species that constitutes the endangered population is likely to be disrupted such that the viability of the population is likely to be significantly compromised"*

No endangered populations will be impacted upon by the proposed works along the inner route of the Albury bypass.

c) *"in relation to the regional distribution of the habitat of a threatened species, population or ecological community, whether a significant area of known habitat is to be modified or removed"*

The habitat of the threatened plants will not be significantly altered.

d) *"whether an area of known habitat is likely to become isolated from currently interconnecting or proximate areas of habitat for a threatened species, population or ecological community"*



No threatened plants were recorded during the plot based survey. Nonetheless, there will be a species specific survey for *Amphibromus fluitans* and the Austral Toadflax along the inner route of the Albury bypass prior to the beginning of the detailed design of the route. If either of these species are located the route will be realigned or mitigation measures will be designed to alleviate any significant detrimental effect on them

e) *"whether critical habitat will be effected"*

At the time of writing this report, no critical habitat had been listed in the TSC Act.

f) *"whether a threatened species, population or ecological community, or their habitats, are adequately represented in conservation reserves (or other similar protected areas) in the region"*

*Amphibromus fluitans* is not known from any conservation reserves as the Biodiversity group of Environment Australia have no information on this species (Meredith, L. pers. comm. 1997)

g) *"whether the action proposed is of a class of action that is recognised as a threatening process"*

The construction of a road/national highway is not listed in the TSC Act as a threatening process.

h) *"whether any threatened species or ecological community is at the limit of its known distribution"*

*Amphibromus fluitans*: across Australia in wetland habitats.

Therefore, this species is not at the limit of its known distribution.

a) "in the case of a threatened species, whether the life cycle of the species is likely to be disrupted such that a viable local population of the species is likely to be placed at risk of extinction"

*Brachyscome muelleroides*

*Brachyscome muelleroides* is listed as Vulnerable on Schedule 2 of the *Threatened Species Conservation Act 1995*. It occurs in the New South Wales and Victorian Riverina regions. Its Rare or Threatened Australian Plant (ROTAP) code is 3VCa. This means that it has a geographic range greater than 100 kilometres. It is known to be rare south from Wagga Wagga (Harden 1992). It has a population size in excess of 1,000 plants conserved in the Barmah State Park and Ulupna Special Purposes Reserve in Victoria. It is not known to occur in any conservation reserves in New South Wales.

*Brachyscome muelleroides* is a ascending annual herb which grows to a height of 14 centimetres. It grows in damp areas on the margins of claypans.

The life-cycles of the *Brachyscome muelleroides* will not be disrupted by the proposed Albury bypass and nor will a viable local population of these species be placed at risk of extinction.

b) "in the case of an endangered population, whether the life cycle of the species that constitutes the endangered population is likely to be disrupted such that the viability of the population is likely to be significantly compromised"

No endangered populations will be impacted upon by the proposed works along the inner route of the Albury bypass.

c) "in relation to the regional distribution of the habitat of a threatened species, population or ecological community, whether a significant area of known habitat is to be modified or removed"

The preferred habitat for *Brachyscome muelleroides* is damp areas along the edges of claypans. No claypans will be crossed or affected by the inner route of the Albury bypass.

d) "whether an area of known habitat is likely to become isolated from currently interconnecting or proximate areas of habitat for a threatened species, population or ecological community"

No threatened plants were recorded during the plot based survey (Working Paper 5). The habitat of this species will not be affected because it is unlikely to occur along the path of the route.



e) *"whether critical habitat will be effected"*

At the time of writing this report, no critical habitat had been listed in the Threatened Species Conservation Act.

f) *"whether a threatened species, population or ecological community, or their habitats, are adequately represented in conservation reserves (or other similar protected areas) in the region"*

*Brachyscome muelleroides* is located in the Barmah State Park and the Ulupna Island Special Purposes Reserve in Victoria. It is not known to occur in any New South Wales conservation reserves.

g) *"whether the action proposed is of a class of action that is recognised as a threatening process"*

The construction of a road/national highway is not listed in the Threatened Species Conservation Act as a threatening process.

h) *"whether any threatened species or ecological community is at the limit of its known distribution"*

The Murray Riverina region of Victoria and New South Wales is the distribution of *Brachyscome muelleroides*. The Albury-Wodonga area is not at the limits of this region.



a) *"in the case of a threatened species, whether the life cycle of the species is likely to be disrupted such that a viable local population of the species is likely to be placed at risk of extinction"*

*Swainsona recta*

*Swainsona recta* is listed on the Threatened Species Conservation Act as endangered in New South Wales. It is also listed on the *Commonwealth Endangered Species Protection Act* as nationally endangered. It is known to occur in New South Wales, Victoria and the Australian Capital Territory. Briggs and Leigh (1995) record the species as 3ECi which means it has a range greater than 100 kilometres but less than 1,000 individuals are found in conservation reserves. It is thought to be extinct in the New South Wales Riverina however known populations occur on the South-West Slopes of New South Wales and along the Darling Riverina.

*Swainsona recta* is an erect and ascending perennial that grows to 20 centimetres high. The species is known to grow in grassland and open woodland, often on stony hillsides. The degree of disturbance in the Albury-Wodonga region, particularly the replacement of native grassland with introduced, improved pastures, is the most significant cause of the regional extinction of *Swainsona recta*.

The life-cycle of *Swainsona recta* will not be disrupted by the proposed Albury bypass and nor will a viable local population of these species be placed at risk of extinction.

b) *"in the case of an endangered population, whether the life cycle of the species that constitutes the endangered population is likely to be disrupted such that the viability of the population is likely to be significantly compromised"*

No endangered populations will be affected by the proposed works along the inner route of the Albury bypass.

c) *"in relation to the regional distribution of the habitat of a threatened species, population or ecological community, whether a significant area of known habitat is to be modified or removed"*

The preferred habitat of *Swainsona recta* is grassland and open woodland often on stony hillsides. The degree of disturbance in the Albury-Wodonga region, particularly the replacement of native grassland with introduced, improved pastures, is the most significant cause of the regional extinction of *Swainsona recta*. The Albury bypass passes through such disturbed grasslands by way of agricultural properties. These areas are not the known habitat for this species. Areas of remnant woodland with native grasslands that may support this species have been avoided to minimise impacts on native flora and fauna.





Harden, G. (1992). Flora of New South Wales. (UNSW Press, Kensington).



a) "in the case of a threatened species, whether the life cycle of the species is likely to be disrupted such that a viable local population of the species is likely to be placed at risk of extinction"

The inner route of the proposed Albury bypass will only result in minor habitat alterations due to the already disturbed nature of the route and the realignment to avoid areas of remnant vegetation such as Sages Reserve. A brief description of the habitat requirements and potential impacts of the bypass on the Bush Stone-curlew follows.

**Bush Stone-curlew *Burhinus magnirostris***  
(Endangered: Schedule 1, TSC Act 1995)

This endangered, ground-dwelling bird is listed on Schedule 1 of the TSC Act. The species is now rare in southern settled areas of Australia where flocks of hundreds once occurred (Schodde and Tidemann 1993). They are nocturnal, feeding on a varying diet including a wide range of insects and other invertebrates (Johnson and Baker-Gabb 1994) as well as fruit and small vertebrates. Foraging occurs up to 20 kilometres from the roosting site (Schodde and Tidemann 1993) but generally occurs within two kilometres of the day shelter (Johnson and Baker-Gabb 1994). Open pastures, irrigation paddocks and wetlands are used for feeding, along with their roosting sites (Johnson and Baker-Gabb 1994).

The Bush Stone-curlew is silent and inactive by day, when it shelters in open, lightly timbered habitats with little or no understorey and a low grass layer (Johnson and Baker-Gabb 1994). This low grass layer generally consists of native grasses (in particular *Danthonia* spp.), because introduced grasses grow denser and higher to inhibit the view of the roosting bird while on the ground. Its grey-brown mottled plumage blends well with the colouration of its leaf-litter roosting habitat. The lightly timbered habitats utilised by Bush Stone-curlews consists mainly of remnant patches of Grey Box (*Eucalyptus microcarpa*), Yellow Box (*E. melliodora*) and River Red Gum, but often includes Black Box (*E. largiflorens*), Red Stringybark (*E. macrorhyncha*), Red Box (*E. polyanthemus*) and Red Ironbark (*E. sideroxylon*) (Webster and Baker-Gabb 1994). River floodplains are among the last strongholds of the Bush Stone-curlew in southern Australia (Johnson and Baker-Gabb 1994).

Breeding can occur throughout the year but generally from August to March with a peak from November to January (Johnson and Baker-Gabb 1994). Eggs are laid directly onto the ground and nests are generally within 13 metres of a tree and within 4 metres of fallen branches and other tree debris. Roosting sites were located, on average, within 3 metres of a tree and within 2 metres of fallen tree debris (Johnson and Baker-Gabb 1994). Fallen tree debris is essential for the species survival, as when disturbed the Bush Stone-curlew will rarely fly away, preferring to remain unmoving in the hope that its camouflage works or to walk or 'slink' away to cover (Johnson and Baker-Gabb 1994). Faeces accumulations within 4 metres of the roosting sites can give away the presence of sheltering Bush Stone-curlews (Johnson and Baker-Gabb 1994).



Three to five timbered areas ranging from 0.5 to 3 hectares or more for every 100 hectares of rural land is estimated to support a pair of Bush Stone-curlews, although larger territories may be required (Johnson and Baker-Gabb 1994). Ideally, these areas should be fenced to control stock access and to promote development of native ground cover and tree regeneration. The size of their breeding territories is estimated at 10 to 25 hectares. Following breeding Bush Stone-curlews gather in loose flocks of up to 60 birds.

The rarity and continued decline of the Bush Stone-curlew has been attributed to the continued clearance of its open woodland habitat for agriculture, the removal of tree debris and leaf-litter from remnant habitats, the degradation of this habitat by pastoralism and to a lesser extent predation by the introduced Fox (*Vulpes vulpes*) and feral Cat (*Felis catus*) (Garnett 1993, Johnson and Baker-Gabb 1994). All of these factors are likely to have been important in the decline of this species in the Albury region.

The life-cycle of the Bush Stone-curlew is likely to be disrupted if:

- the frequency of small scale fires is altered such that ground cover alters in height;
- the clearance of woodlands containing the eucalypt species listed above;
- removal of tree debris and leaf litter from the ground alongside the route;
- introduced, ground-covering and shrubby, weed species take over from sparser covering native plants;
- introduced predators are introduced or become more abundant alongside the route; and
- disturbed sites are totally cleared of vegetation and not revegetated.

The preferred habitat of the Bush Stone-curlew does occur along the route of the Albury bypass. The RTA has agreed to a significant realignment of the route to avoid areas of remnant bushland, such as Sages Reserve. There is unlikely to be any alteration to the fire regime in the region as the bypass will run along areas already largely accessed by significant road corridors. The weed monitoring program associated with the revegetation scheme would ensure that weeds do not establish alongside the road.

While the species was recorded along the outer route during the fauna survey, the disturbed nature of the inner route suggests that it is not preferred habitat for the Bush Stone-curlew. Consequently, there is unlikely to be any significant impacts on the Bush Stone-curlew as a result of the inner route of the proposed Albury bypass.

Indirect impacts on the above species may occur. These include the impact of increased visitation and usage of roadside areas. This impact is unlikely to be significant, as the national highway route already exists and parking bays along the route will direct people to specific areas and thereby limit the area of potential impacts.



The life-cycles of the threatened species discussed above, therefore, will not be disrupted by the proposed Albury bypass and nor will a viable local population of these species be placed at risk of extinction.

No endangered populations will be impacted upon by the proposed works along the inner route of the Albury bypass.

As discussed above, the vast majority of the ironbark-box woodland of south-eastern Australia has been cleared. Therefore, any remaining areas of this vegetation community are of increased importance as habitat for threatened species. All three threatened species of bird, discussed above, are dependent to varying degrees on ironbark-box woodland as habitat. The larger areas of this habitat type, such as Sages Reserve, have been avoided by realigning the route. With the conservation of Sages Reserve, there is unlikely to be any significant loss of known habitat as a result of the inner route of the Albury bypass.

The existing Hume Highway already acts as a barrier to terrestrial fauna movement. In this regard it is likely to isolate any terrestrial fauna that seek potential habitat on the other side of the highway.

e) "whether critical habitat will be effected"





a) "in the case of a threatened species, whether the life cycle of the species is likely to be disrupted such that a viable local population of the species is likely to be placed at risk of extinction"

The inner route of the proposed Albury bypass will only result in minor habitat alterations due to the already disturbed nature of the route and the realignment to avoid areas of remnant vegetation such as Sages Reserve. A brief description of the habitat requirements and potential impacts of the bypass on the Regent Honeyeater follows

**Regent Honeyeater *Xanthomyza phrygia***  
(Endangered: Schedule 1, TSC Act 1995)

The Regent Honeyeater is listed in Schedule 1 of the TSC Act as endangered and as nationally endangered on the Commonwealth *Endangered Species Protection Act 1992*. The species is widely dispersed, however, it has declined to a population of less than 1,000 individuals.

The Regent Honeyeater formerly bred in the coastal parts of south-eastern Australia and adjacent inland scarps of the Great Dividing Range, with post-breeding dispersal to the north to Dalby in Queensland and west to Mt. Lofty in South Australia (Garnett 1993). Today, sightings centre on a few sites in north-eastern Victoria, along the western slopes of the Great Dividing Range in NSW and the central coast of NSW. There are no longer sightings of the species in South Australia or western Victoria (Menkhorst 1996).

The total population is estimated to be between 500 and 1,500 (Menkhorst 1996). Flocks of 30 are still occasionally recorded and recently (June 1997) a flock of 150 took up residence in flowering Box eucalypts in the Capertee Valley, in the NSW Blue Mountains.

This honeyeater inhabits temperate woodlands and open forests in south-eastern Australia where it feeds on nectar and arthropods. Favoured sources of nectar are Red Ironbark (*Eucalyptus sideroxylon*), White Box (*E. albens*), Yellow Box (*E. melliodora*) and Yellow Gum (*E. leucoxylon*), as well as mistletoe infestations on River Oak and lerps (Garnett 1993). In the past the Regent Honeyeater may have been adept at exploiting peak flows of nectar through aggressive dominance or because it was better at finding good nectar sources (Garnett 1993).

The habitat of the Regent Honeyeater has been greatly reduced and fragmented by clearance for agriculture, and further degraded by rural tree decline and removal of mature eucalypts from forests (Garnett 1993). The species continues to underutilise apparently suitable habitats, possibly due to the fragmentation of the habitat which has favoured more aggressive honeyeaters such as Noisy Miner (*Manorina melanocephala*), Red Wattlebird (*Anthochaera carunculata*) and Noisy Friarbird (*Philemon coroniculatus*). In addition to this habitat reduction, the quality of this habitat has also been greatly reduced.



The life-cycle of the Regent Honeyeater is likely to be disrupted if:

- significant areas of its favoured food sources are cleared;
- clumps of its preferred foraging habitat are altered in shape to increase the edge effect (surface area to volume ratio), which will allow predation and competition to advantage other species;
- the age of the vegetation communities are altered such that the period between flowering increases;
- the existing fire regime is altered such that the frequency of fires alters the floristic structure of the vegetation; and
- there are increases in the number of feral predators.

Of the favoured nectar sources of the Regent Honeyeater, each of the four eucalypts are found along the inner route. White Box is found along the entire route, Yellow Box along the majority of the route while Red Ironbark and Yellow Gum are found at isolated areas. The Regent Honeyeater requires these species to flower to provide foraging opportunities. As the species is out-competed by more aggressive honeyeaters in small fragments, it is likely that only larger clumps of woodland containing important forage eucalypts would be of importance to the Regent Honeyeater. By realigning the common route to avoid Sages Reserve, the most significant area of woodland that is likely to be of importance to the Regent Honeyeater, the RTA is avoiding any significant impacts on the species. The fencing of this reserve and the revegetation program will improve the habitat for this species in the longer term. Finally, as the inner route will largely follow the existing highway corridor, there is unlikely to be any alteration to the fire regime of the area. Consequently, there is unlikely to be any significant impacts on the Regent Honeyeater as a result of the inner route of the proposed Albury bypass.

Indirect impacts on the above species may occur. These include the impact of increased visitation and usage of roadside areas. This impact is unlikely to be significant, as the national highway route already exists and parking bays along the route will direct people to specific areas and thereby limit the area of potential impacts.

Another indirect impact is the potential for erosion and sedimentation along the route during the construction works. However, considering the level of disturbance already present along the route, the proposed revegetation scheme and the implementation of standard erosion control works, there will be no further impact on threatened species.

The life-cycles of the threatened species listed above, therefore, will not be disrupted by the proposed Albury bypass and nor will a viable local population of these species be placed at risk of extinction.



b) *"in the case of an endangered population, whether the life cycle of the species that constitutes the endangered population is likely to be disrupted such that the viability of the population is likely to be significantly compromised"*

No endangered populations will be impacted upon by the proposed works along the inner route of the Albury bypass.

c) *"in relation to the regional distribution of the habitat of a threatened species, population or ecological community, whether a significant area of known habitat is to be modified or removed"*

As discussed above, the vast majority of the ironbark-box woodland of south-eastern Australia has been cleared. Therefore, any remaining areas of this vegetation community are of increased importance as habitat for threatened species. All three threatened species of bird, discussed above, are dependent to varying degrees on ironbark-box woodland as habitat. The larger areas of this habitat type, such as Sages Reserve, have been avoided by realigning the route. With the conservation of Sages Reserve, there is unlikely to be any significant loss of known habitat as a result of the inner route of the Albury bypass.

d) *"whether an area of known habitat is likely to become isolated from currently interconnecting or proximate areas of habitat for a threatened species, population or ecological community"*

The existing Hume Highway already acts as a barrier to terrestrial fauna movement. In this regard it is likely to isolate any terrestrial fauna that seek potential habitat on the other side of the highway.

As the threatened fauna that potentially may occur in the vicinity of the bypass are birds, there is unlikely to be a significant impact through isolation of interconnecting habitat. The revegetation scheme along the roadside will act as a corridor of sub-optimal habitat in the longer term.

e) *"whether critical habitat will be effected"*

At the time of writing this report, no critical habitat had been listed in the TSC Act.

f) *"whether a threatened species, population or ecological community, or their habitats, are adequately represented in conservation reserves (or other similar protected areas) in the region"*

*Regent Honeyeater:* occurs in the Cocopara National Park and Nature Reserve and Namadgi National Park to the north and Morton National Park and Nadgee Nature Reserve to the east. Local parks in the region are also likely to support the Regent Honeyeater, assuming remnant ironbark-box woodland still occurs there.

g) *"whether the action proposed is of a class of action that is recognised as a threatening process"*

The construction of a road/national highway is not listed in the TSC Act as a threatening process.

h) *"whether any threatened species or ecological community is at the limit of its known distribution"*

*Regent Honeyeater*: originally in the coastal parts of south-eastern Australia and adjacent inland scarps of the Great Dividing Range. Now it is restricted to north-eastern Victoria, the western slopes of the NSW Great Dividing Range and the NSW Central Coast region. It is not at its extralimital distribution.

Therefore, this species is not at the limit of its known distribution.



a) "in the case of a threatened species, whether the life cycle of the species is likely to be disrupted such that a viable local population of the species is likely to be placed at risk of extinction"

The inner route of the proposed Albury bypass will only result in minor habitat alterations due to the already disturbed nature of the route and the realignment to avoid areas of remnant vegetation such as Sages Reserve. A brief description of the habitat requirements and potential impacts of the bypass on the Swift Parrot follows.

**Swift Parrot *Lathamus discolor***

(Vulnerable: Schedule 2, TSC Act 1975)

The Swift Parrot is listed as vulnerable both in the NSW legislation and on the Commonwealth *Endangered Species Protection Act 1992* (ESP Act). It is also listed on the CITES Appendix 1, with a breeding population that is less than 2,000 individuals and that has declined at greater than 1% per year for the last ten years. The rate of decline between a 1987/88 census and another in 1995/96 was 30%.

The Swift Parrot is a forest dependent bird that is the only member of the genus *Lathamus*. The species formerly bred in Tasmania (east of a line between Launceston and the Lune River) and in the Bass Strait islands, prior to dispersing throughout Tasmania and onto the east coast of the mainland in autumn. In recent times, this area has become greatly reduced through vegetation clearance for agriculture and forestry to such an extent that only 50% of this habitat remains (Brereton 1996).

The Swift Parrot inhabits eucalypt forests. It breeds in hollows in mature and senescent trees from October to January. It feeds on nectar from Tasmanian Blue Gum (*Eucalyptus globulus*) and Swamp Gum (*E. ovata*) during this breeding period, and on Red Ironbark (*E. sideroxylon*), Yellow Gum (*E. leucoxylon*), White Box (*E. albens*) and Swamp Gum during winter. The breeding season corresponds with the flowering of the Tasmanian Blue Gum and the breeding success corresponds to the flowering intensity of this species and Swamp Gum.

The species has declined due to clearance of feeding and breeding tree species, particularly those with a reliable and copious supply of nectar, for agriculture, woodchips, sawlogs and firewood, and for trapping for the bird trade. Of the 7% of Tasmania that the Swift Parrot occurs in during the breeding season, only 6% occurs in conservation reserves, 14% occurs on crown land available for disturbance such as forestry and 80% occurs on private land (Robinson and Traill 1996). In New South Wales, only 5% of ironbark and woodland communities are reserved (Robinson and Traill 1996).

The life-cycle of the Swift Parrot is likely to be disrupted if:

- foraging or breeding habitat is cleared;



- clumps of its preferred foraging habitat are altered in shape to increase the edge effect (surface area to volume ratio), which will allow predation and competition to advantage other species;
- the age of the vegetation communities are altered such that the period between flowering increases;
- the existing fire regime is altered such that the frequency of fires alters the floristic structure of the vegetation;
- there is an increase in illegal trapping of the species for the commercial bird trade; and
- there are increases in the number of feral predators.

Of the favoured nectar sources of the Swift Parrot, three are found along the inner route. Both Red Ironbark and Yellow Gum are found in various areas along the route, while White Box is the most common eucalypt along the route. The Swift Parrot requires these species to flower to provide foraging opportunities. By realigning the common route to avoid large clumps of such vegetation such as Sages Reserve the RTA is avoiding any significant impacts on the species. The detailed design of the route will also attempt to avoid other, smaller clumps of vegetation. The fencing of Sages Reserve and the revegetation program will improve the habitat for the Swift Parrot in the longer term. Finally, as the inner route will largely follow the existing highway corridor, there is unlikely to be any alteration to the fire regime of the area. Consequently, there is unlikely to be any significant impacts on the Swift Parrot as a result of the inner route of the proposed Albury bypass.

Indirect impacts on the above species may occur. These include the impact of increased visitation and usage of roadside areas. This impact is unlikely to be significant, as the national highway route already exists and parking bays along the route will direct people to specific areas and thereby limit the area of potential impacts.

Another indirect impact is the potential for erosion and sedimentation along the route during the construction works. However, considering the level of disturbance already present along the route, the proposed revegetation scheme and the implementation of standard erosion control works, there will be no further impact on threatened species.

The life-cycles of the threatened species listed above, therefore, will not be disrupted by the proposed Albury bypass and nor will a viable local population of these species be placed at risk of extinction.

b) *"in the case of an endangered population, whether the life cycle of the species that constitutes the endangered population is likely to be disrupted such that the viability of the population is likely to be significantly compromised"*



No endangered populations will be impacted upon by the proposed works along the inner route of the Albury bypass.

c) *"in relation to the regional distribution of the habitat of a threatened species, population or ecological community, whether a significant area of known habitat is to be modified or removed"*

As discussed above, the vast majority of the ironbark-box woodland of south-eastern Australia has been cleared. Therefore, any remaining areas of this vegetation community are of increased importance as habitat for threatened species. All three threatened species of bird, discussed above, are dependent to varying degrees on ironbark-box woodland as habitat. The larger areas of this habitat type, such as Sages Reserve, have been avoided by realigning the route. With the conservation of Sages Reserve, there is unlikely to be any significant loss of known habitat as a result of the inner route of the Albury bypass.

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Swift Parrot: occurs in the Cocopara National Park and Nature Reserve and Namadgi National Park to the north and Morton National Park and Nadgee Nature Reserve to the east. Local parks in the region are also likely to support the Swift Parrot at various times, assuming remnant ironbark-box woodland still occurs there

g) *"whether the action proposed is of a class of action that is recognised as a threatening process"*

The construction of a road/national highway is not listed in the TSC Act as a threatening process.

*h) "whether any threatened species or ecological community is at the limit of its known distribution"*

*Swift Parrot* breeds in Tasmania, east of a line between Launceston in the north and Lune River in the south. It then disperses in the autumn to the mainland from South Australia and up the east coast to southern Queensland.

Therefore, this species is not at the limit of its known distribution.

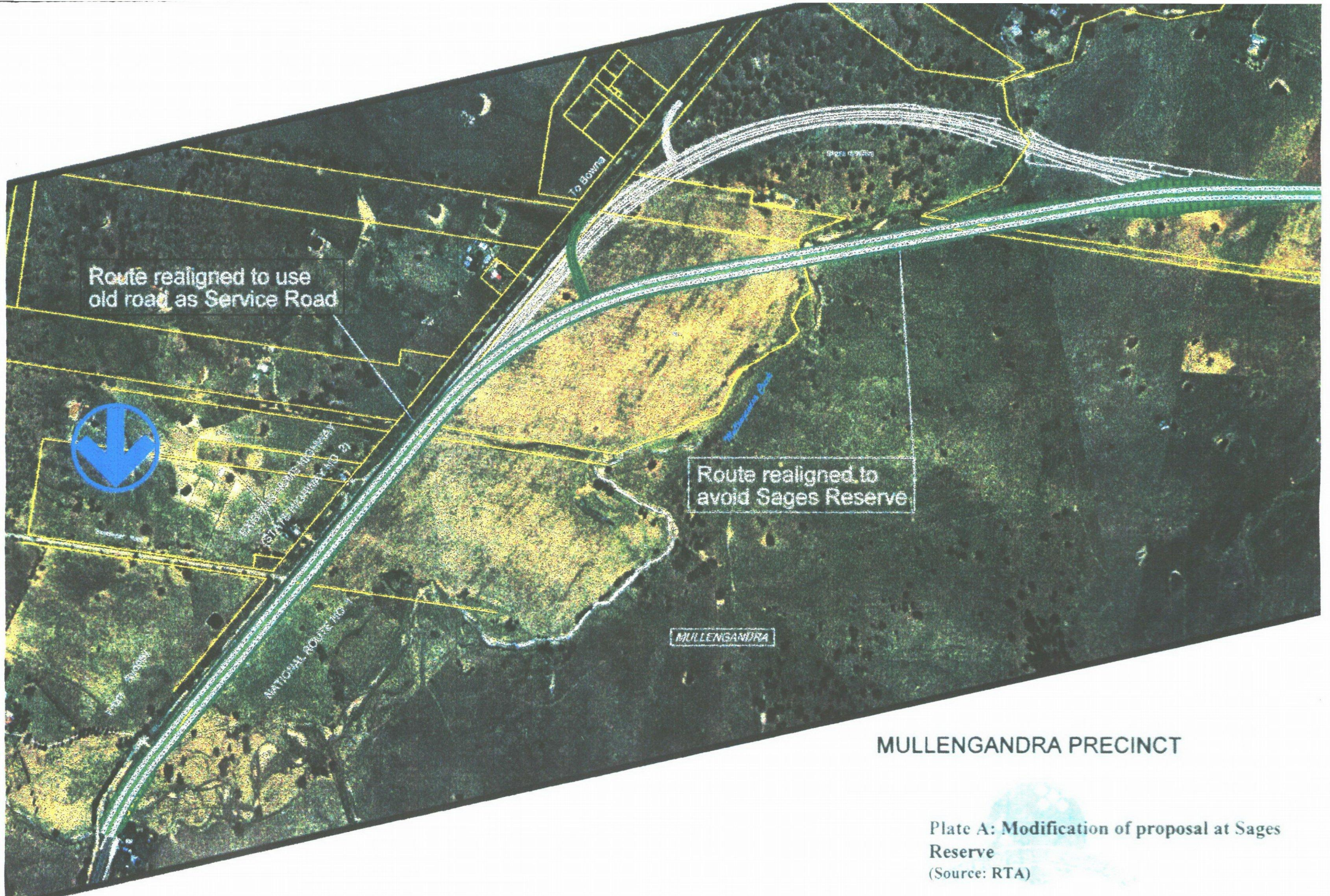


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**PLATES**

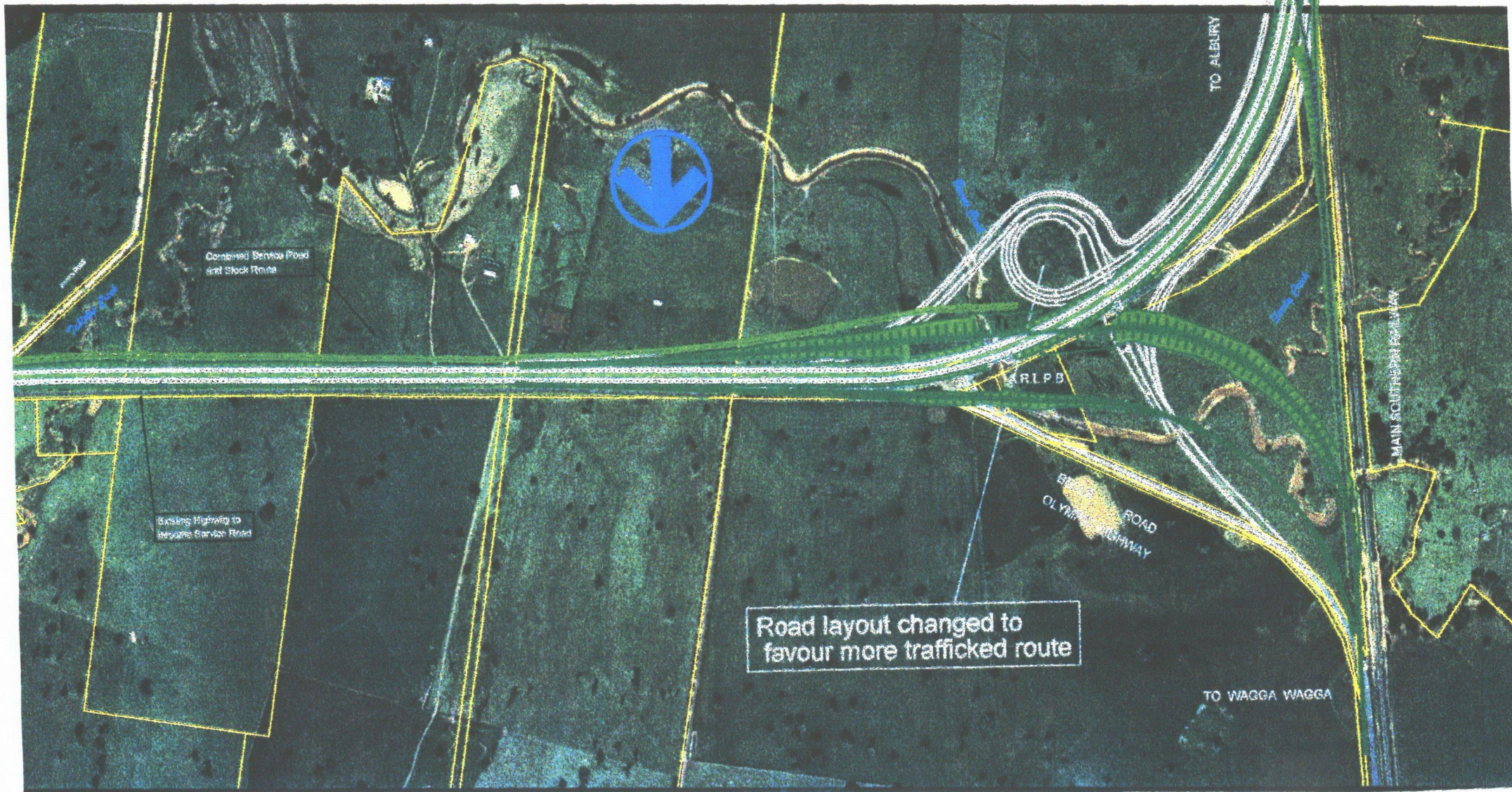




## MULLENGANDRA PRECINCT

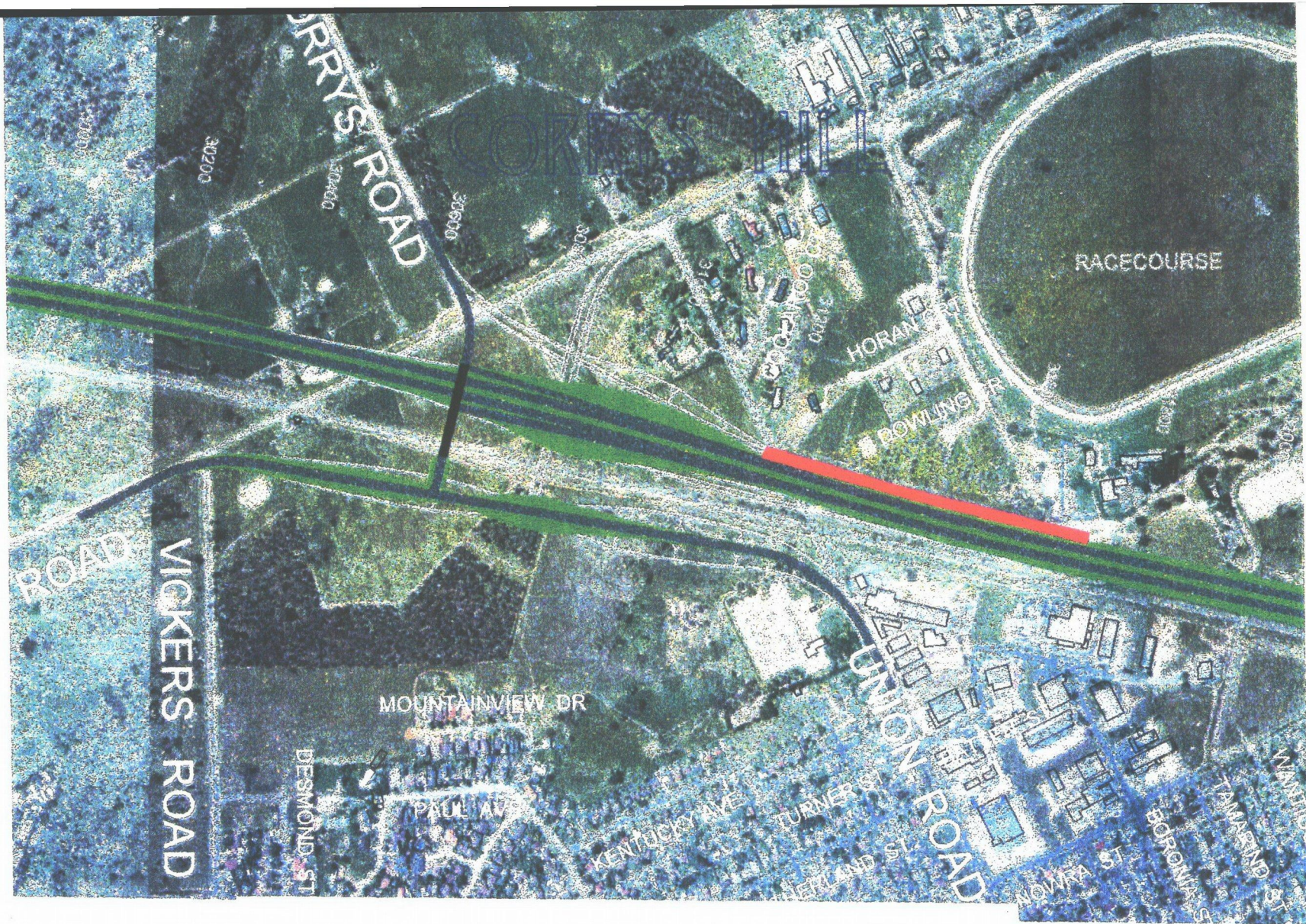
Plate A: Modification of proposal at Sages Reserve  
(Source: RTA)





**Plate B: Modification at Bells Road Interchange**  
(Source: RTA)





## CORRY'S HILL

Plate C: Modification of interchange design at  
Corry's Road  
(Source: RTA)





Plate D: Fallon Street kept open by an overpass  
(Source: RTA)

## FALLON STREET





## EAST ALBURY

Plate E: Modification of interchange design at  
Borella Road  
(Source: RTA)





**Plate F: Modification of route alignment along  
East Albury between Borella and Bridge  
Streets to create wider urban park**  
(Source: RTA)





Plate G: Addition of access road between Atkins and Bridge Streets. Addition of limited clearance underpass at Olive Street.



## TABLES



	Key Issues	Clth	State						Regional					Local	
		Environment Protection Agency	Department of Land and Water Conservation	National Parks and Wildlife Service	NSW Fisheries	Transgrid	NSW Agriculture	National Trust of Australia	Albury-Wodonga Development Corporation	Country Fire Authority	Murray Regional Development Board	Rural Land Protection Board	City of Wodonga	The Council of the Shire of Culcairn	Murray Shire Council
Traffic & Transport	No alternatives options for inner route investigated	x													
	Pollutant loadings for future traffic volumes	x													
	Impact on local roads								x						
	Staging and access								x						x
-	Operational and construction traffic management							-		x				x	
	Mixing local and national traffic														x
	Proposed Paper Mill to be included in traffic studies														x
	Tynan Road and Perryman's Lane intersections to remain open														x
	Local service roads											x			
Social Impact	Landuse/Property impact		x				x								
	Location of inner planned over 30 yrs								x						
Agriculture	Disruption to farming						x								
	Compensation for affected properties						x								
	Concerned about proposed rural subdivision						x								
	Travelling stock routes (Sages reserve)											x			
Noise	Noise barriers	x												x	x
Air Quality		x												x	
Vibration														x	
Heritage	Heritage protection	x						x							
	Aboriginal heritage/archaeology			x											
Bio-physical	Rivercrossing	x	x	x				x							
Environmental	Flora and fauna	x		x				x							

Table 1: Summary of Issues Raised in Representations



[illegible]