

Environment Effects Act 1978

Planning and Environment Act 1987

Kilmore Wallan Bypass EES Inquiry and Advisory Committee Report

17 November 2014



Environment Effects Act 1978

Inquiry Report pursuant to Section 9 of the Act

Planning and Environment Act 1987

Advisory Committee Report pursuant to Section 151 of the Act

Draft Amendment C97 to the Mitchell Planning Scheme

Kilmore Wallan Bypass EES Inquiry and Advisory Committee

17 November 2014



Lester Townsend, Chair



Helen Martin, Member



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List of Abbreviations

AH Act	<i>Aboriginal Heritage Act 2006</i>
CCG	Community Consultation Group
CEMP	Construction Environment Management Plan
CHMP	Cultural Heritage Management Plan
CLP Act	<i>Catchment and Land Protection Act 1994</i>
CMA	Catchment Management Authority
DEPI	Department of Environment and Primary Industries
DPCD	Department of Planning and Community Development (now part of DTPLI)
DPI	former Department of Primary Industries
DSDBI	Department of State Development, Business and Innovation
DSE	Department of Sustainability and Environment
DTPLI	Department of Transport, Planning and Local Infrastructure
EE Act	<i>Environment Effects Act 1978</i>
EES	Environment Effects Statement
EMF	Environmental Management Framework
EMP	Environment Management Plan
EP Act	<i>Environment Protection Act 1970</i>
EPA	Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EVC	Ecological Vegetation Class
FFG Act	<i>Flora and Fauna Guarantee Act 1988</i>
GAA	Growth Areas Authority
GBCMA	Goulburn Broken Catchment Management Authority
GVW	Goulburn Valley Regional Water Corporation
GWMP	Green Wedge Management Plan
HO	Heritage Overlay in the planning scheme

HPFVs	High Productivity Freight Vehicles
KARNS	Kilmore Arterial Road Network Study
LPPF	Local Planning Policy Framework
MSS	Municipal Strategic Statement
NES	National Environmental significance
OAAV	Office of Aboriginal Affairs Victoria
OBEM	Objective Based Evaluation Matrix
PE Act	<i>Planning and Environment Act 1987</i>
PONL	Project Objective Noise Level
PPWCMA	Port Phillip and Westernport Catchment Management Authority
RM Act	<i>Road Management Act 2004</i>
SEPP	State Environment Protection Policy
SIA	Social Impact Assessment
SPPF	State Planning Policy Framework
TI Act	<i>Transport Integration Act 2010</i>
TRG	Technical Reference Group
UGB	Urban Growth Boundary
VEAC	Victorian Environmental Assessment Council
VHR	Victorian Heritage Register
vpd	Vehicles per Day
VPP	Victoria Planning Provisions
VTNRP	VicRoads Traffic Noise Reduction Policy
WMF	Kilmore Wastewater Management Facility

Executive Summary

The Kilmore Wallan Bypass Environmental Effects Statement (EES) is the result of a 16 year process to identify a Northern Highway bypass route for Kilmore and Wallan. After a review of a wide range of possibilities the EES assessed three options in detail. The task of the Inquiry is to recommend one of the options as a preferred route. The Inquiry recommends the Western option. This report explains why.

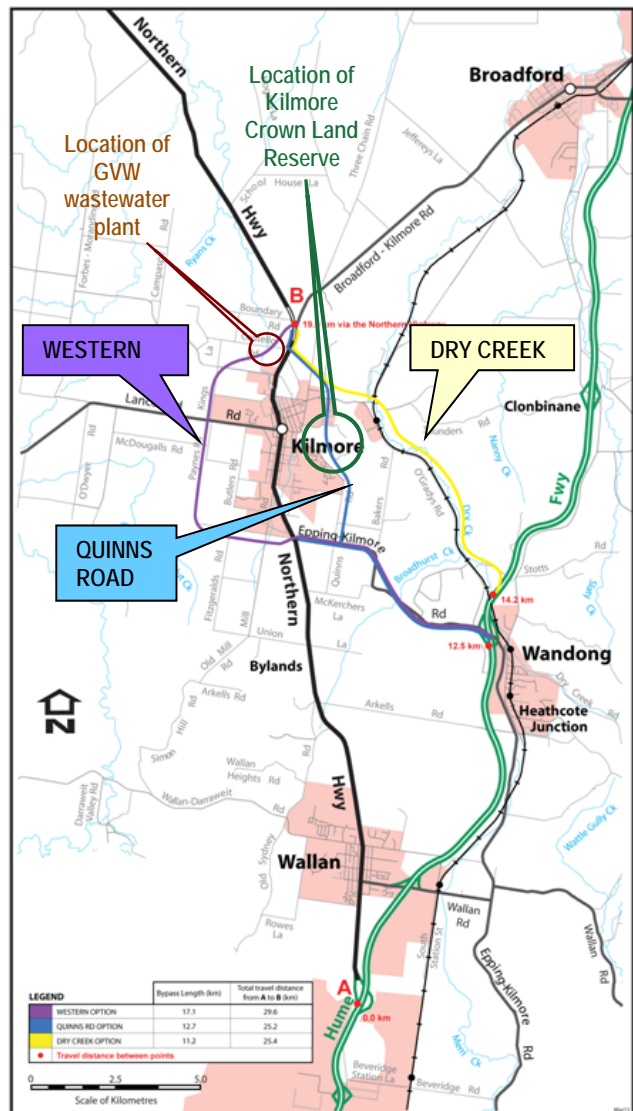
(i) The options

The project proposes a bypass of Kilmore via a new alignment between the Northern Highway/Kilmore-Broadford Road intersection and the Hume Freeway south-east of Kilmore. A bypass of Wallan will be achieved by using the existing Hume Freeway to remove Northern Highway through traffic and requires no physical works. The principal purpose of the bypass is to reduce traffic, including trucks through the town centres, and to improve road safety and functionality in the town centres. VicRoads is the proponent of the project.

The project will comprise a single two lane highway bypass of Kilmore and will reserve and acquire sufficient land for possible future widening to a four lane road, with two lanes in each direction.

The three proposed alignment options for the bypass were chosen by VicRoads following consideration of a wider range of potential alignments.

Figure E-1: Bypass options



(ii) The Inquiry

Inquiry Hearings were held in Kilmore over ten days between 27 August and 12 September. The Inquiry benefitted from a number of detailed submissions and was assisted by VicRoads providing information requested by the Inquiry.

The Inquiry thanks all parties who appeared before it, as well as submitters to the EES.

(iii) The preferred route

VicRoads did not have preferred option. Certainly a number of submitters thought VicRoads preferred the Quinns Road option but VicRoads did not say this at the Hearing. The EES did not settle on a preferred route, and the Inquiry has concluded that a fair reading of the material prepared in the EES shows that the Western option should be preferred.

This is not simply balancing transport objectives against social, economic and environmental impacts; the Inquiry has formed the view that the Western option will ultimately provide a superior transport investment to Quinns Road or Dry Creek.

The options were assessed using an Objective Based Evaluation Matrix (OBEM) approach where the environmental impacts of options are rated on how well they meet identified objectives. These ratings follow a common form to allow comparison between different disciplines and different types of impacts.

The Inquiry has identified concerns with the EES. In the main, these are not concerns with the technical analysis that the EES has carried out, though criticisms are made in some areas. The three main concerns that the Inquiry had were:

- the identification of impacts was incomplete
- analysis of impacts was not always consistent with project objectives
- the results of technical work were not presented in a transparent or useful way.

A number of impacts on the Kilmore Crown Land Reserve (including Monument Hill) were not assessed as part of the OBEM approach. Including these impacts makes the Quinns Road option less attractive.

The assessment of the benefits of the options relied too heavily on transport modelling and short term traffic changes, and did not pay enough attention to the overall design of the network. Including these impacts makes the Western option more attractive.

The Dry Creek option does not have the potential to deliver the same transport network improvements as the Quinns Road or Western options. The environmental impacts of the Dry Creek option are less severe than the Quinns Road option, but more severe than the Western option. Dry Creek is the least preferred option.

The detailed design of the bypass in the vicinity of the Kilmore Wastewater Management Facility could be refined to reduce potential impacts on the facility. The Inquiry believes that a technical solution may be possible to allow the facility to remain on its current site, but if this is not the case, the costs of compensation for relocation will need to be added into the project costs.

(iv) Environmental Management Plan

VicRoads has proposed a comprehensive approach to environmental management and approvals based on its existing practices and the Inquiry believes that these are suitable for the project.

(v) Planning scheme amendment

The EES proposes managing planning approval by way of an incorporated document that would exempt the bypass from all planning scheme requirements subject to certain conditions. This would require a planning scheme amendment. The Inquiry supports a Ministerial Amendment under section 20(4) of the *Planning and Environment Act 1987*.

Specifically the Inquiry advises that:

The Inquiry is satisfied that the circumstances for Ministerial intervention and the nature of the recommended amendment satisfy the relevant criteria in the Ministerial Powers of Intervention in Planning and Heritage Matters Practice Note on the basis of the following Practice Note criteria:

- **Criterion 1 – The matter is one of genuine regional significance as it raises a major issue of regional public interest.**
- **Criterion 2 – The matter will give effect to an outcome where the issues have been reasonably considered and the views of affected parties are known.**
- **Criterion 4 – The matter will raise issues where the public interest would be served by immediate action.**
- **Criterion 5 – The matter requires co-ordination to facilitate decision making by more than one agency.**

(vi) Recommendation

Based on the reasons set out in this Report, the Inquiry recommends that:

The Kilmore Wallan Bypass be constructed along the Western alignment subject to the following conditions:

- 1. The Minister for Planning, under Section 20(4) of the *Planning and Environment Act 1987*, prepare and approve an amendment to the Mitchell Planning Scheme generally in accordance with the draft amendment published as part of the Environmental Effects Statement.**
- 2. VicRoads and Goulburn Valley Water work together to refine the detailed design of the bypass in the vicinity of the Kilmore Wastewater Management Facility generally along the alignment proposed in the Environmental Effects Statement. The design work should explore reconfiguration or relocation of the plant with the view of achieving an efficient ‘whole of government’ resolution of the infrastructure needs of Kilmore.**
- 3. VicRoads identify any opportunities to make minor adjustment to the bypass to reduce the numbers of trees and particularly the small patches of remnant native vegetation that are affected by the construction of the bypass.**
- 4. VicRoads’ Environmental Management System be adopted as the framework for environmental management for the project.**

5. **Environment Management Plans for the Project:**
 - a) include a salvage and translocation program and post-translocation monitoring plan for *Environment Protection and Biodiversity Conservation Act 1999* listed species that may be impacted, approved by the Department of the Environment before construction begins.
 - b) include a salvage and translocation program and post-translocation monitoring plan for *Flora and Fauna Guarantee Act 1988* listed species that may be impacted, approved by the Department of Environment and Primary Industries before construction begins.
6. **VicRoads prepare an Offset Management Strategy to satisfy requirements under:**
 - a) the *Environment Protection and Biodiversity Conservation Act 1999* Environmental Offsets Policy (Department of Environment, 2012).
 - b) the *Permitted clearing of native vegetation, Biodiversity Assessment Guidelines* (DEPI 2013).
7. **VicRoads prepare a Cultural Heritage Management Plan in accordance with the requirements of the *Aboriginal Heritage Act 2006* after the Minister for Planning's Assessment of the environmental effects of the project has been issued.**

The Inquiry also recommends that:

8. **The road reservation requirements for the Conway-Johns Street inner link project be preserved by the application of a Public Acquisition Overlay as soon as possible.**

Part 1: Introduction

1 The Kilmore Wallan Bypass Project

1.1 Kilmore, Wallan and the Northern Highway

The Northern Highway links the Hume Highway north of Beveridge with Echuca on the New South Wales border. It is used extensively by freight and commercial vehicles providing access to markets, air and sea terminals in Victoria and interstate, and to the Murray Valley and southern New South Wales farming areas. The Northern Highway is also used by Kilmore and nearby residents commuting to Melbourne.

Significantly, the southern section of the Northern highway passes through the centre of the townships of Wallan and Kilmore forming their 'main street' and is used by the Kilmore and Wallan communities to access their local commercial centres.

Kilmore is approximately 60 kilometres north of central Melbourne and Wallan approximately 45 kilometres north of central Melbourne. Both towns are in the Shire of Mitchell, and both towns, along with neighbouring towns, are expected to experience significant population growth over the next few decades.

The increasing population in Kilmore, Wallan and the town of Broadford further to the north is creating increased traffic, particularly along the southern sections of the Northern Highway. The steady growth in traffic volumes along this section of the Northern Highway, especially freight and commercial traffic, has resulted in traffic congestion and loss of amenity in the Kilmore town centre (Sydney Street) and the Wallan town centre (High Street). Continued traffic increases are likely to compromise the function of these town centres.

In order to separate the through traffic (and especially the truck traffic) from the local traffic and restore the primacy of the Northern Highway, many alternative proposals to realign the Northern Highway to provide a bypass of these town main streets have been investigated.

This report sets out the findings of the Kilmore Wallan Bypass EES Inquiry and Advisory Committee's (Inquiry's) investigation of the referred options for the Kilmore Wallan Bypass.

1.2 VicRoads' Design Principles

The Kilmore Wallan Bypass is to be a new road (two lane carriageway highway) between the Hume Freeway and the intersection of the Northern Highway and Broadford-Kilmore Road just north of Kilmore. When future traffic volumes warrant it and subject to funding, the bypass will be upgraded to a dual carriageway, four lane divided road.

The bypass has been designed based on the AustRoads *Guide to Road Design* series and VicRoads Supplements (VicRoads, 2010).

The bypass has been designed to 110 kilometres per hour (km/h) and would have a posted (signed) speed limit of 100km/h.

Intersections and access

The connection to the Hume Freeway would be by way of a grade separated interchange providing for turning movements for High Productivity Freight Vehicles (HPFVs).

The bypass would connect to arterial highways such as the Northern Highway, the Kilmore-Lancefield Road and the Broadford-Kilmore Road using large diameter roundabouts, to cater for large articulated freight vehicles.

Access to local roads from the bypass would include turning provision for a standard B double truck configuration. It is not anticipated that vehicles over 30m in length (HPFVs), would need to access the local road network from the bypass.

Direct property access would be permitted in controlled circumstances generally associated with rural activity on relatively large lots. Should the permitted use of properties with direct access change, such as through rezoning, or further intensive development occur then the access arrangements to the bypass would be reviewed.

1.3 Selecting the route options

A number of alternative solutions have been considered over the past decade in order to improve safety and functionality of the Kilmore and Wallan town centres and improve freight and transport efficiency between Victoria and New South Wales. These potential solutions include:

- alternative routes
- upgrading the existing road network
- developing an internal bypass road around Kilmore's town centre.

Over the past 16 years, in consultation with the local community, various studies have explored potential options for ameliorating the traffic issues including:

- *B75 Corridor Strategy Northern Highway 1998*
- *Wallan to Kilmore Study 2000*
- *Kilmore Arterial Road Network Study (KARNS) 2002*
- *Northern Highway Duplication Study 2005*
- *Kilmore Wallan Bypass Options Examination 2008*
- *Linking Kilmore 2009.*

The EES states:

The key consideration in determining which bypass options would be investigated was the ability of the options to attract traffic, particularly larger trucks, away from the town centres of Kilmore and Wallan. It should be noted that whilst the options would need to be attractive to bypassable traffic, the options would also need to attract local traffic movements in order to provide significant traffic reduction in the town centres and, to achieve an overall benefit to the local communities.

The options considered within the Kilmore Wallan Bypass options examination were derived from:

- options considered in previous studies
- options developed in consultation with Mitchell Shire Council

- options suggested by the community.

At a public workshop held on 30 January 2007, VicRoads explained the examination process and sought local community input into identification of potential bypass options. For the purposes of the workshop and the examination, 'bypass' included options external to the towns and options within the urban area that would enable traffic to bypass the town centres.

Options that were considered to have similar traffic and economic performance were grouped together into eleven representative alignments. These representative bypass options formed the basis of the examination investigations. Some options could be combined with other options to create a bypass of both Wallan and Kilmore.

Traffic modelling and transport economic evaluation were undertaken to investigate the feasibility of the options. The development of the feasible consolidated options also took into account known environmental, heritage and land use constraints in the study area, and potential future development areas as advised by the Mitchell Shire Council.

State Government commitment to a bypass

Following the commitment of the State Government to the construction of a Kilmore-Wallan bypass, the findings of the previous studies were used as the basis to determine which of the options had the best potential to deliver a bypass that would achieve significant truck and traffic volume reductions in Kilmore and Wallan.

Of the eleven options considered by the Kilmore Wallan Bypass Options Examination, three options were identified in early 2011 as the basis for detailed planning studies beginning in early 2011:

- Sunday Creek Road
- O'Gradys Road, Dry Creek
- Quinns Road.

On 30 November and 1 December 2011, a public display was held to inform the community about the study progress. Around 600 people attended the display and were invited to provide feedback.

The Inquiry was provided with a copy of a petition (document 78) to the Victorian Legislative Assembly with 1645 signatures requested that three of the options being considered at that time – Sunday Creek Road, O'Gradys Road/Dry Creek, and Quinns Road – should be withdrawn because they all passed through the township of Kilmore and would have an enormous impact on residents, sporting and recreation areas, and heritage and conservation precincts.

A western option

Following consideration of the feedback, on 12 December 2011 the Minister for Roads directed that VicRoads include a suitable option to the west of the Kilmore township as part of the detailed planning investigations.

The detailed planning investigations were undertaken throughout 2012 including a range of specialist studies of the five options, shown in Figure 1-1:

- Sunday Creek Road
- Dry Creek

- O'Gradys Road
- Quinns Road
- Western.

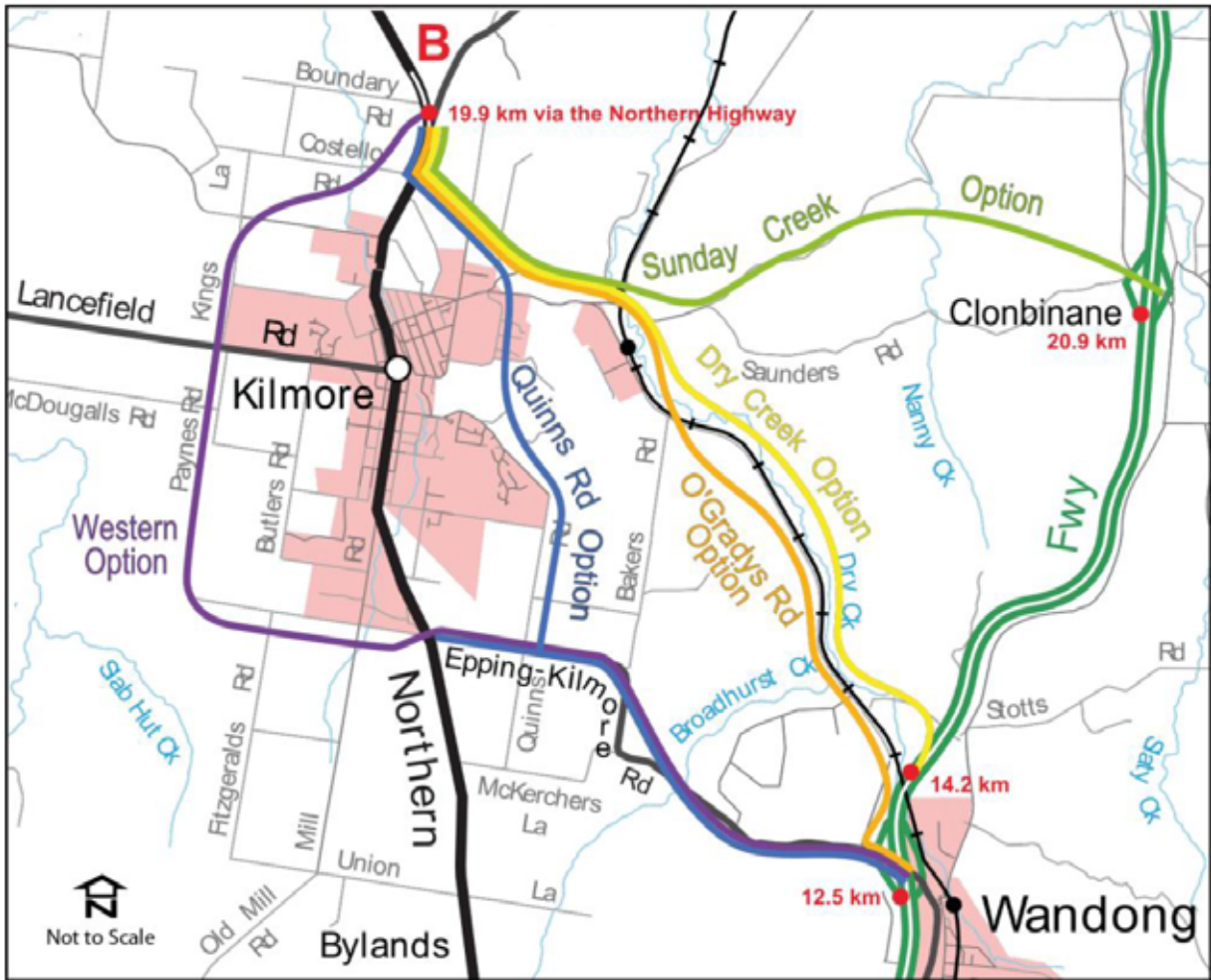
Further changes were made to the options in response to the results of the specialist studies, further refinement of the concept design and design standards, as well as community and stakeholder feedback, including review by the Community Consultation Group (CCG) and the Steering Committee.

The following investigations were undertaken for the five options:

- Traffic Surveys
- Traffic modelling and economics
- Cultural Heritage
- Flora and Fauna
- Geotechnical
- Landscape and Visual
- Landuse and Regional Economy
- Noise
- Social.

At the request of the Minister for Roads, the traffic modelling study also considered a Northern option, as suggested by the Wallan-Kilmore Bypass Group. The option was not assessed by the other detailed planning investigations or considered further as it was shown to be ineffective in reducing traffic in Sydney Street, Kilmore.

Figure 1-1: Preliminary concept alignments following refinement



Source: EES

2 The EES and Inquiry

2.1 The EES referral

On 21 January 2013, the Minister for Roads announced that the three options that would be taken forward in the EES planning approval process would be the Dry Creek, Quinns Road and Western Options. The Minister also advised that the Northern (Sunday Creek) option, as proposed by the Wallan-Kilmore Bypass Group, would not be considered further in the EES.

The Quinns Road, Dry Creek and Western options were referred under the *Environment Effects Act 1978* (EE Act) to the Minister for Planning and on 15 April 2013, the Minister for Planning determined that an EES was required for the Project.

Draft Scoping Requirements (setting out matters to be investigated and documented in the EES) were exhibited between 22 July and 12 August 2013. After considering public submissions on the Draft Scoping Requirements, the Minister for Planning issued final Scoping Requirements on 4 October 2013.

The procedures and requirements applying to the preparation of the EES for the project are set out in the Minister's decision in accordance with section 8B(5) of the EE Act. These requirements include the following key matters on which the EES is to focus:

1. *Assessment of the potential environmental effects of those project route alternatives that would:
 - (a) substantially meet priority transport objectives, in terms of improving road safety and functionality and removing through traffic from Kilmore and Wallan; and
 - (b) have the potential to deliver an appropriate balance of social, environmental and economic outcomes. A justification of the elimination of any alternatives as well as comparative assessment of the transport and environmental performance of relevant alternatives is to be provided.*
2. *Effects on biodiversity including native vegetation, listed flora and fauna and ecological communities.*
3. *Impacts on waterways including Dry Creek and Broadhurst Creek.*
4. *Visual and landscape effects including on Monument Hill and ridgelines to the east of Kilmore.*
5. *Displacement and severance of residential land uses and community assets including Monument Hill and Kilmore Racecourse.*
6. *Noise increases for residents and community assets including Monument Hill and the equestrian precinct including Kilmore Racecourse.*

Public exhibition of the EES and draft Amendments to the Mitchell Planning Scheme took place between 10 June and 21 July 2014.

A total of 130 submissions was received in response to the public exhibition. The submissions are public documents and submissions and supporting material were made available for public inspections. A list of the submitters is provided at Appendix B.

2.2 The EES options

Following the extensive study and investigation undertaken by VicRoads and its various consultants as part of the EES, VicRoads was not able to make a recommendation as to which of the three alternative options assessed should be the preferred option.

The EES states:

In summary, the Quinns Road option was considered the best performing option (short and long term) in reducing traffic in Kilmore and Wallan – recognising that it also had comparably higher social/environmental impacts. Dry Creek was the next best performing option for traffic with balanced social/environmental impacts, however is the highest cost option. The Western option performs well comprising reduced levels of social/environmental impacts relative to Quinns road and Dry Creek but would not realise any significant traffic benefits until the longer term development to the west side of Kilmore occurs.

2.3 Appointing the Inquiry

Section 9 of the *Environment Effects Act 1978* provides that:

The Minister may, with the approval of the Governor in Council, appoint one or more persons to hold an inquiry (whether in public or in private as he sees fit) into the environmental effects of any works or proposed works to which this Act applies.

The Inquiry was appointed on 28 March 2014 and consisted of Lester Townsend (Chair), Helen Martin and Henry Turnbull.

To assist in the assessment of the bypass options, the Minister for Planning, on 15 July 2014, also appointed the members of the Inquiry as an Advisory Committee under section 151 of the *Planning and Environment Act 1987* (PE Act) to consider draft Amendment C97 to the Mitchell Planning Scheme.

The Minister for Planning provided Terms of Reference dated 15 July 2014 to provide the framework for the Inquiry's work. The Terms of Reference are included at Appendix A.

Paragraph 3 of the Terms of Reference states that in overview, the Inquiry is to:

- *Consider and report on the potential effects of the three alignment options for the project investigated in the EES, taking into account the procedures and requirements of the Minister for the preparation of the EES under section 8B(5) of the EE Act and the controlling provisions under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) (Commonwealth).*
- *Recommend the most suitable alignment option for the project that will substantially meet project objectives and deliver an appropriate balance*

of environmental, economic and social outcomes, having regard to the evaluation objectives in the EES Scoping Requirements, the Inquiry's conclusions on the effects of the project and public submissions.

- *Advise on the draft planning scheme amendment for the relevant alignment and design of the project prepared by VicRoads.*

With regard to Outcomes, paragraph 26 notes that the Inquiry must produce a written report for the Minister for Planning that presents (amongst other things):

- findings on the likelihood and significance of environmental effects (impacts) of the different alignment options
- conclusions on the feasibility of the project achieving acceptable environmental outcomes
- recommendations on any modifications of the project
- statement of appropriate approval conditions under Victorian and Commonwealth law
- recommendations on the framework for environmental management for the project
- relevant information and analysis in support of the Inquiry's conclusions and recommendations.

2.4 The Inquiry process

A Directions Hearing was held on 7 August 2014 in Kilmore. Following the Directions Hearing, the Inquiry undertook an unaccompanied inspection of the proposed bypass routes and their surrounds.

The Inquiry Hearings were held at the Golden Reign Room, Trackside, Kilmore Racecourse, between 27 August and 12 September 2014. Those appearing at the Inquiry are listed at Appendix B.

The Inquiry undertook an accompanied site inspection on 28 August 2014 visiting numerous sites along the proposed routes. The Inquiry also made a number of unaccompanied site inspections during the course of the Hearing.

The structure of this report

This report has four parts:

- Part 1 is an Introduction and covers the background to the Kilmore Wallan Bypass Project, the EES and Inquiry process and legislative and policy framework.
- Part 2 sets out the Inquiry's assessment approach.
- Part 3 examines the environmental impacts in detail under the themes of:
 - Project rationale
 - Natural environment impacts
 - Social and economic impacts
 - Heritage and visual impacts
 - Displacement and amenity.
- Part 4 presents the Inquiry's integrated assessment.

3 Legislative and policy framework

3.1 Relevant Approvals

As stated in the EES at Chapter 3, The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* applies to the project.

A number of approvals are needed and these can only be considered after the Minister for Planning's assessment of the EES has been released. These include approvals, consents and licenses under the following:

- Victorian *Planning and Environment Act 1987*
- Victorian *Aboriginal Heritage Act 2006*
- Victorian *Flora and Fauna Guarantee Act 1988*
- Victorian *Water Act 1989*
- Victorian *Heritage Act 1995*
- Victorian *Wildlife Act 1975*
- Victorian *Road Management Act 2004*.

3.1.1 Commonwealth Decision

On 16 April 2013, the Project was determined by the then Commonwealth Minister for Sustainability, Environment, Water, Population and Communities, to be a controlled action. As a controlled action, it requires assessment and approval under the EPBC Act, due to the potential implications on matters of national environmental significance (NES). The controlling provisions under that Act relate to listed threatened species and communities (sections 18 and 18A).

The EES process is being applied as the accredited assessment process under the Commonwealth-Victorian Bilateral Agreement for Environmental Impact Assessment, to provide for assessment of matters of NES required under the EPBC Act. The Victorian Minister for Planning's Assessment under the EE Act will be provided to the Commonwealth to inform the EPBC Act approval decision, in accordance with Schedule 1 Part B of the Agreement.

The Inquiry report should address impacts on matters of NES to inform the Victorian Minister for Planning's Assessment, as set out in paragraph 26 of the Terms of Reference.

3.1.2 The draft planning scheme amendments

VicRoads has prepared draft planning scheme amendments (Amendment C97 to the Mitchell Planning Scheme) for each of the proposed options. The Inquiry is to provide advice on the draft planning scheme amendments. The draft amendments would amend the planning scheme to:

- include land required for the project in a Public Acquisition Overlay
- exempt the project from requiring a planning permit, subject to conditions set out in an 'Incorporated Document' that would become a project specific planning control in the Mitchell Planning Scheme.

3.1.3 Other approvals

Under Victorian law, the project requires a number of other approvals and consents, as outlined in the EES, including:

- Amendments to the Mitchell Shire Planning Scheme under the *Planning and Environment Act 1987*. Draft Planning Scheme Amendments to the Mitchell Planning Scheme are included in the EES.
- An approved Cultural Heritage Management Plan(s) under the *Aboriginal Heritage Act 2006*.
- A permit for the removal of listed flora from public land under the *Flora and Fauna Guarantee Act 1988*.
- Consents to undertake works near waterways under the *Water Act 1989*.
- Consents required under the Heritage Act 1995 (Vic) for any disturbance of historical archaeology sites and/or permits to carry out works to a heritage place.
- Permits required to remove trees containing habitat or any other fauna habitat areas or fauna salvage and translocation under the *Wildlife Act 1975*.
- Road opening permits to undertake road works under the *Road Management Act 2004*.

Many of these approvals, if required, can only occur after the Minister for Planning has made an assessment of the EES and approved a planning scheme amendment.

Part 2: Assessment approach

This part of the report discusses the Objective Based Evaluation Matrix approach and the Inquiry's approach to assessing the bypass options. It also documents the issues and objectives of the project.

4 Integrated assessment

4.1 Introduction

The scoping requirements set out the draft evaluation objective of:

Integrated and Sustainable Development - Overall, to demonstrate that the project would achieve a balance of economic, social and environmental outcomes that contribute to ecologically sustainable development and provide a net community benefit over the short and long-term.

The purposes of the Inquiry include, in overview:

Recommend the most suitable alignment option for the project that will substantially meet project objectives and deliver an appropriate balance of environmental, economic and social outcomes, having regard to the evaluation objectives in the EES Scoping Requirements, the Inquiry's conclusions on the effects of the project and public submissions.

While a number of submitters thought VicRoads' favoured the Quinns Road option, VicRoads did not have a preferred option. The EES did not settle on a preferred route and VicRoads did not submit that one route was to be preferred over another.

If the Inquiry is to recommend a specific route it will clearly have to take a different approach to VicRoads. This implies a change in the Objective Based Evaluation Method (OBEM) methodology as it was used by VicRoads, a change or refinement to the impact assessments made in the technical appendices, or undertaking additional assessment that the EES did not.

4.2 Why isn't there a preferred option?

The preparation of the EES and assessment of options did not lead VicRoads to a position where it could recommend an option, but this was not because of a lack of technical information or environmental assessment.

VicRoads submitted that:

... all relevant environmental effects have been properly identified, analysed and addressed in the EES. The debate before this Inquiry is most productively focused on how these effects should be weighed in the balance to achieve the greatest overall benefit to the community. Given the duration of time, the breadth of options considered and the extent of expert analysis, it is not

appropriate to refuse to select any of the alignments; the most preferred alignment ought be chosen so the benefits to the Kilmore and Wallan communities and to the State of Victoria can be realised.

VicRoads submitted that according to the EES, the Quinns Road option performs best in terms of reducing traffic in the main streets of Kilmore and Wallan in both the short and long term. However, this option also results in higher amenity and land acquisition impacts, along with higher social and environmental impacts within the Kilmore Crown Land Reserve, when compared with the other two options.

In terms of reducing main street traffic, the Dry Creek option is identified in the EES as the next best performing. Whilst its social impacts are 'more balanced', it would have significant environmental impacts such as on Aboriginal cultural heritage and visual impact from the bridging that is needed.

The Western option performs well in relation to minimising amenity and social impacts but was thought not to achieve the same traffic benefits as the other two options.

Recommending an option requires balancing competing objectives to reach a conclusion. The EES did not do this, not because it lacked technical assessment, but because it lacked a clear way of synthesising the results of that assessment.

4.3 The OBEM approach

VicRoads submitted that the assessment approach adopted in the EES is consistent with its approach in previous road projects which required the preparation of an Environment Effects Statement.

VicRoads submitted:

To guide consultants in undertaking a systematic comparison of the options across economic, environmental and social issues, VicRoads developed an Objective Based Evaluation Matrix (OBEM) which provides a rating scale for the identification of potential impacts and their significance.

In Victoria the objectives based assessment model was developed and first used in 1999 by the advisory committee considering the relocation of the Hume Freeway between Craigieburn and the Metropolitan Ring Road. Since that time, it has been applied by a number of other panels. The Craigieburn Bypass Advisory Committee made a recommendation that:

General use should be made in the environmental impact assessment of projects with multiple options of the model developed in association with the Craigieburn Bypass.¹

The objectives based assessment model is essentially a qualitative approach designed to allow impacts across a range of objectives to be considered in an integrated way.

¹ Craigieburn Bypass Report p176

VicRoads submitted:

Each consultant who contributed to the EES adopted the EES Evaluation Objective relevant to their area of expertise and developed sub-objectives and evaluation criteria to measure the relative performance of each option. These sub-objectives were based on the Project Objectives together with the relevant legislation and policies.

In summary, assessing projects using an OBEM approach takes the following steps:

- Step 1 Identify the relevant objectives against which the options should be assessed and define a rating scale. This is shown in Figure 4-1.
- Step 2 Identify all relevant impacts raised by the options and by submissions.
- Step 3 In respect of each impact, identify the relevant objectives or group of objectives against which the performance of the options will be assessed.
- Step 4 Assess the degree to which each option meets each objective and classify the result on the rating scale.
- Step 5 Collate the ratings in a matrix. It may be presumed that the preferred option at this stage is the one that offers the best performance balance (that is, the one that scores well across the widest range of objectives).
- Step 6 Test the ranking of options in the matrix by applying transparent value judgements in respect of the most outstanding or salient impacts and objectives, and/or matters that the matrix may not have fully captured.

Figure 4-1: Ratings used in the EES

Potential project benefits	Rating colour code	Potential project disbenefits
Significant benefit to the State Superior benefit to the region Policy consistency with superior positive impact	Very well +3	
Moderate benefit to the State Significant benefit to the region Superior benefit to the locality Policy consistency with significant positive impact	Well +2	
Moderate benefit to the region Significant benefit to the locality Policy consistency with moderate positive impact	Moderately well +1	
Minimal benefit at any level	Negligible 0	Minimal disbenefit at any level
	Moderately poor -1	Moderate disbenefit to the region Significant disbenefit to the locality Policy inconsistency with moderate negative impact
	Poor -2	Moderate disbenefit to the State Significant disbenefit to the region Severe disbenefit to the locality Policy inconsistency with significant negative impact
	Very poor -3	Significant disbenefit to the State Severe disbenefit to the region Policy inconsistency with severe negative impact

4.4 Issues with the OBEM approach

VicRoads submitted that:

It was apparent from the Inquiry's questions to witnesses that there was a frustration in understanding the methodology each consultant used to apply the OBEM. It is well understood at this point that the OBEM matrix is used by VicRoads as a means of comparing different impacts across different disciplines. The additional complexity in the current Project is the requirement to compare three alignments.

The use of the OBEM in the EES raised a number of conceptual issues, and was let down by poor execution in parts:

- Some reports ranked options rather than rating them.
- An overly technical approach was used rather than a qualitative judgement.
- Not all technical reports rated the options against objectives.
- There was no way anything could rate a 'very well' or a 'very poor'.
- There was double counting of some issues.
- Some objectives were not project benefits.
- There were inconsistencies in reaching summary ratings.

The Inquiry also explicitly considered the weight that needs to be given to each issue or impact. This is discussed in more detail in Chapter 11.

(i) Some reports ranked options rather than rating them

The OBEM approach assesses options against the relevant objectives. It does not compare options against other options. This is an important difference in the OBEM approach.

The OBEM approach was developed to move away from the 'Summary Assessment Tables' often used in EESs in the past to show a range of impacts from 'Least Impact' to 'Most Impact'. These are a comparison between options rather than a summary of the performance assessment of each option, and can be misleading. For example, if all options were assessed as having either 'moderate' or 'high' impact, those with 'moderate impact' would be shown in a summary table as 'Least impact' because no options were assessed as having 'low' impact. This could lead to a false conclusion that impact of the option is minimal and need not be considered too seriously. By contrast, the objectives-based assessment model reflects performance against objectives, not against other options. Unfortunately not all technical reports (or subsequent expert evidence) understood this important feature of the OBEM approach.

The Land Use and Regional Economic Assessment presented an overall summary in the OBEM format, but did this in a table that used a different methodology in the body of the table. This approach used relative rankings:

... the information presented in ... [the previous] sections will now be used to apply assessment criteria to each potential alignment in order to assess their relative merit. Because both quantitative and qualitative data are presented, a 'tick' system was developed to determine relative merit. To illustrate, if an alignment was assessed as performing well against a particular criterion, it would be assigned three ticks (✓✓✓). If another alignment were assessed as not performing as well, it may be assigned two ticks (✓✓), or a single tick (✓). The more ticks allocated the greater potential relative merit of the proposed by pass option.

The Flora and Fauna report (Technical Appendix B) used a mixture of absolute assessment and relative ranking in the same table (Table 20). This makes no conceptual sense whatsoever, a fact that seemed to be lost on whoever prepared the table. It certainly is not how the OBEM is envisaged to work.

VicRoads submitted that:

... from the comprehensive ecological investigations undertaken by Ecology and Heritage Partners, the relative impact of each of the three options is very clear; the Inquiry may not agree with Mr Organ's approach to the OBEM assessment but there can be no doubt of the appropriateness of his ranking of the options.

This is not the issue: the OBEM is not about ranking, it is about assessment against objectives.

Ranking options can provide insufficient information to make a choice about competing options. Consider a project with two options being assessed only against traffic and social impacts with the relative ranking shown in Figure 4-2. The relative ranking approach does

not provide enough information to judge which option is preferred. The same relative ranking could be generated by either of the OBEM scenarios shown. Using the OBEM would allow a preferred option to be identified (or demonstrate that the options were more or less the same).

The Inquiry is concerned that this fundamental aspect of the OBEM has been misunderstood by a number of the consultants and experts.

Figure 4-2: Why the OBEM approach is superior to ranking

In this example Scenario 1 or Scenario 2 generate identical rankings; only by using ratings against objectives can a preferred route option be identified.

	Ranking approach No option preferred		OBEM scenario 1 Option A is preferred		OBEM scenario 2 Option B is preferred	
	Traffic	Social	Traffic	Social	Traffic	Social
Option A	Best	Worst	Well	Poor	Well	Poor
Option B	Worst	Best	Negligible	Poor	Well	Negligible

Source: Developed by the Inquiry

(ii) An overly technical approach was used rather than a qualitative judgement

The OBEM is explicitly a tool for making and synthesising qualitative judgements rating how well a project or option meets identified objectives; the ratings used in the OBEM are meant to be qualitative evaluations. This was not clear in the EES or submissions.

VicRoads submitted:

In VicRoads’ attempts to provide a meaningful, quantitative and transparent tool for the Inquiry to use in its assessments, the clear and readily discernable impacts of the alignments may have become lost in translation.

Many consultants have faced something of a ‘square peg in a round hole’ scenario in finding a way to meaningfully translate their findings into the OBEM matrix, particularly for disciplines dealing with subjective as opposed to quantitative findings. It is fair to say that some consultants were more successful at doing so than others.

We agree that in places the technical work has been lost in translation. Partly this is because some consultants treated the OBEM approach as essentially quantitative and developed complex formulas (or applied ‘consequence tables’) that took them beyond their expert qualitative assessment of the rating of impacts informed by their field work.

For example, the consequence table for native vegetation removal has broad groups of consequences so different outcomes were rated the same. This led the consultant to adopt a formula-based ranking, when instead, a qualitative rating should have been presented.

(iii) Not all technical reports rated the options against objectives

VicRoads submitted:

Chapters 8-15 of the EES include results from the OBEM assessment for each environmental issue, across all three alignment options.

The EES presented an overall OBEM for each chapter, but a number of these were not justified in the relevant technical report. Not all technical reports concluded with an assessment in the OBEM format, including some of the most critical issues:

- the impact on the heritage values of Monument Hill which were dealt with in a separate technical report to other heritage issues did not rate the impact of the Quinns Road option using the OBEM approach
- the impact on the equine precinct was not rated using the OBEM approach
- transport system performance was only rated in the social and land use and economic technical work on the OBEM approach.

Eight of the technical appendices did not conclude with a summary rating in the OBEM scale, though in one case the rating scale was presented; it just wasn't used. The technical appendices not using the OBEM approach were:

- A Transport Modelling and Economic Analysis
- E Cultural Heritage Report Kilmore Outdoor Recreation Public Heritage Precinct
- G Impact Assessment Aboriginal Cultural Heritage
- M Air Quality Assessment
- N Desktop review of WMF Odour Impacts
- O Contamination Assessment
- P Geotechnical Study
- Q Precincts Summary report: Equine, Monument Hill and Sporting Precincts.

This is a significant failing in the application of the OBEM to the assessment of the options. If there is value in an OBEM approach, and the Inquiry agrees there is, then all relevant factors need to be assessed.

(iv) There was no way anything could rate a 'very well' or a 'very poor'

Council submitted that because of the way the OBEM was set up, it would be impossible for any option to realistically score a 'very well' or 'very poor' on any criterion.

It was indeed the case that no option scored a 'very well' or 'very poor' on any objective, and the Inquiry agrees with Council that this is a result of the way the scale has been constructed. Some technical reports provided ratings of 'poor–moderately poor' to introduce a finer degree of distinction than the adopted rating system provided.

Other experts commented directly on the difficulty of using the scale.

In his expert witness statement on social impacts, Mr Weston explained that the equal ranking of 'moderately poor' for each option was a result of using the rating scale provided and his assessment that each option would produce a 'significant disbenefit to the locality'. However, while the same rating was assigned to each option, in Mr Weston's view the performance range covered by each category on the rating scale is broad, and there are important differences between the options in terms of the range and magnitude of their associated social impacts.

The Inquiry has not found the rating scale to be overly constraining, but it does require the identification of all the relevant impacts in order to distinguish between options.

(v) There was double counting of some issues

It is clear that the impact an option has on an area (such as Monument Hill) can consist of overlapping social and environmental impacts and should rightly be counted under each of these issues. The concern the Inquiry has is where essentially the same impact is assessed twice.

A number of the appendices provided a different rating for the same issue. For example, the Social Impact report provided a separate OBEM rating for:

- Transport network performance
- Noise and dust
- Landscape and visual.

Figure 4-3 shows the ratings for noise under the different technical reports. It is not clear to the Inquiry how the same technical information on noise can be given two different ratings in separate assessments.

Figure 4-3: The different rating for noise in different technical appendices

			Dry Creek	Quinns Road	Western
Noise	App I	Summary	Moderately well	Negligible	Negligible
Social	App K	Noise social	Moderately poor	Poor	Moderately poor

Source: EES Technical Appendices

The Land Use and Regional Economy technical report appears to have relied heavily on the transport modelling results to reach its conclusions rather than assessing the effect of the options on the economy based on how the different options would act to hinder or support economic growth in sectors that are relevant to Kilmore and Wallan.

(vi) Some objectives were not project benefits

The OBEM presented by VicRoads defines positive results where a benefit is delivered.

In its consideration of noise the EES assessed whether noise mitigation measures achieved the project objective noise levels (PONL). The noise modelling rated the options against a sub-objective of 'exceedance of PONL' ascribing a rating of 'moderately well' that implies the project delivers a benefit in this regard, when in fact properties would be exposed to greater noise levels than at present.

The Inquiry accepts the results of the noise modelling, but struggles to see how exceeding the PONL (or even not exceeding it, which the Inquiry assumes is what is meant) is a benefit. Surely a noise benefit of a project would occur if noise levels were reduced for some receivers.

(vii) There were inconsistencies in reaching summary ratings

While a number can be assigned the qualitative rating (-3 to +3) care must be taken in how these numbers are manipulated.

The numbers used in an OBEM approach are representations of qualitative evaluations. They do not stand for any 'actual' values (such as dollars, kilometres or numbers of

dwelling). It cannot be assumed that the ratings can be added together to get an overall result.

4.5 How the Inquiry will proceed

The objectives based assessment model has been used by planning panels for a number of years when assessing major road proposals. In each case the panel has found the process has simplified a complex and difficult decision making task.

It is important to acknowledge that the objectives based assessment model is a process in which all the steps are important. It is misleading to focus just on the evaluation matrix as this is only one of a number of inter-related steps.

The Inquiry agrees that the objectives based assessment model is well suited to the assessment of complex proposals involving multiple options, such as the current case.

Fatal flaws

It is common in EES assessment process to explicitly consider whether any of the options have a 'fatal flaw'.

Introducing the concept of a 'fatal flaw' in the assessment of impacts appears to introduce the type of weighting of objectives that the objectives based assessment model seeks to avoid, except as a transparent final step in the assessment process (when appropriate).

Any value judgements about the weighting to be given to individual objectives or impacts should be left to the final step when it can be done transparently and with proper justification. It is not appropriate to introduce the concept of a 'fatal flaw' into the process of the objectives based assessment model prior to this step, but it does need to be considered in the integrated assessment.

An integrated assessment

Good decision making cannot be reduced to a formula. Whilst the final step in making a decision may involve judgement, the ability to make such a judgement depends on how well ordered and comprehensive the information is that underpins it. This is where the objectives based assessment model offers a process to guide the ordering, evaluation and analysis of information, and the making of findings on which the final exercise of judgement will depend.

Some submitters expressed concern that VicRoads' determination of 'objectives based evaluation' ratings seems overly simple and the averaging-out makes specific sites of significance 'invisible'. The Inquiry agrees that producing summary ratings for each chapter in the EES can be misleading and makes a holistic assessment more difficult as specific information is lost. An example of this occurs in the Landscape and Visual Assessment report, as shown in Figure 4-4

Figure 4-4: Using a summary rating disguises differences

	Dry Creek	Quinns Road	Western
Significant views	Poor	Moderately poor	Poor
Landscape characteristics	Moderately poor	Poor	Moderately poor
Open space	Negligible*	Moderately poor	Negligible*
Summary	Moderately poor	Poor	Moderately poor

* Described as 'neutral' in the Technical Appendix

Source: Inquiry's summary of Table 37 in Technical Appendix J.

There is benefit in avoiding 'summary' ratings for particular issues and relying on the sub-objective ratings in the assessment, as this carries the maximum amount of information forward into the integrated assessment process.

Figure 4-5 shows how the Inquiry determined to assess the material provided in the EES to better inform its decision making process.

Figure 4-5: Inquiry's objective based assessment process

Step		
1		Identify objectives against which the options should be assessed, drawing on the EES and material presented, in submissions and at the Hearing. This stage involves checking that each relevant issue raised has a corresponding objective against which to be assessed.
2		Identify all relevant issues or impacts of the options and group them under the broad headings of: <ul style="list-style-type: none"> • project rationale • amenity and severance impacts – impacts that fall primarily on individuals • social and economic impacts • place impacts – precincts, visual and heritage • natural environment impacts.
3		Assess the degree to which each option meets each objective and classify the result on the agreed rating scale of 'very well' to 'very poor' as presented in the EES.
4		Collate the ratings into an evaluation matrix. Analyse the outcomes by: <ul style="list-style-type: none"> • preparing a table showing how many times each option received each rating (sometimes called a 'quantum scores matrix') • identify the salient differences in performance between options.
5		Assess whether any option has a fatal flaw in respect of any impact.
6		Use the OBEM as the basis of an integrated and essentially qualitative appraisal of the options exploring the results by applying different weightings to the various impacts. Present the results of different weightings in graphical form

5 Issues and objectives

Paragraph 3 of the Terms of Reference states that in overview, the Inquiry is to:

Recommend the most suitable alignment option for the project that will substantially meet project objectives and deliver an appropriate balance of environmental, economic and social outcomes, having regard to the evaluation objectives in the EES Scoping Requirements, the Inquiry's conclusions on the effects of the project and public submissions.

(Inquiry's emphasis.)

5.1 Assessment objectives

VicRoads developed 'project objectives' for the initial assessment of the proposed alignment options, which have been carried through and refined throughout the planning process.

The 'evaluation objectives' were set out in the EES Scoping Requirements and were developed to guide the assessment of the potential effects of the bypass.

Objectives and requirements of other relevant legislation, guidelines and policy are also relevant to the Inquiry's assessment.

5.1.1 Bypass project objectives

The Project rationale as defined by VicRoads in the EES is to:

- *Improve the amenity and attractiveness of commercial precincts in and around the Northern Highway by significantly reducing truck and traffic volumes*
- *Improve the efficiency of the arterial and local road network*
- *Improve safety in the bypassed townships*
- *Facilitate local employment opportunities.*

The project objectives were identified in the EES executive summary as follows:

- *To relieve congestion and remove heavy vehicles from driving through the main streets of Kilmore and Wallan, VicRoads*
- *To improve the road safety and enhance the functionality of the road network in town centres*
- *To improve transport connectivity, freight movement and efficiency for bypassable traffic*
- *To achieve acceptable consistency with current and proposed land uses and support the long term planning and development of the Kilmore-Wallan area*
- *To minimise displacement and severance of communities, community facilities and agricultural land to the extent practicable*
- *To improve town amenity by removing bypassable traffic, minimising noise and visual impacts of the new road and minimising impacts on key community facilities during construction and operation of the bypass*
- *To avoid or minimise impacts on areas and features of ecological significance to the extent practicable*

- *To avoid or minimise impacts on areas and features of heritage significance to the extent practicable*
- *To avoid or minimise impacts on water quality, hydrology and floodplain to the extent practicable*
- *To provide a balanced outcome giving consideration to environmental, economic and social factors.*

5.1.2 Evaluation objectives

The evaluation objectives from the scoping requirements are:

- 1 *Transport Network Performance - To improve road safety, traffic performance and general amenity, particularly in the townships of Kilmore and Wallan, by developing a Northern Highway bypass which will be effective in attracting through traffic, especially heavy vehicles, and provide better connections to the existing local transport network.*
- 2 *Noise and Dust - To minimise noise and dust effects on the amenity of residents and open space areas.*
- 3 *Social Effects - To minimise adverse social effects, including displacement of residents and disruption of access to community facilities.*
- 4 *Land Use and Economic - To minimise adverse effects on existing and planned land uses and to contribute to positive economic outcomes in the area.*
- 5 *Landscape and Visual Values - To minimise adverse effects on landscape and visual amenity values.*
- 6 *Biodiversity - To avoid or minimise effects on native vegetation and listed flora and fauna species and ecological communities, including those listed under the Environment Protection and Biodiversity Conservation Act 1999, and address opportunities for offsetting potential losses consistent with relevant policy.*
- 7 *Catchment Values - To maintain the functions and values of surface water environments and groundwater.*
- 8 *Cultural Heritage - To avoid or minimise adverse effects on Aboriginal and non-Aboriginal cultural heritage values.*
- 9 *Environmental Management Framework - To provide a transparent framework with clear accountabilities for managing environmental effects and hazards associated with construction and operation of the project, in order to achieve acceptable environmental outcomes.*
- 10 *Integrated and Sustainable Development - Overall, to demonstrate that the project would achieve a balance of economic, social and environmental outcomes that contribute to ecologically sustainable development and provide a net community benefit over the short and long-term.*

5.2 Issues raised in submissions

Community submissions

In response to exhibition of the EES, the Inquiry received 130 submissions, including two late submissions, from the Wandong Heathcote Junction Community Group Inc and the Wandong History Group.

Submissions are summarised in Figure 5-1 below.

Figure 5-1: Submission Support Summary

Option	Supported	Opposed
Dry Creek	12	3
Quinns Road	3	53
Western	26	24

The submissions fell into four main categories as shown in Figure 5-2 below.

Figure 5-2: Submission Topic Summary

Topic	Submissions
Monument Hill	62
Environment	40
Equine issues	35
Noise	24

Other submissions related to issues such as the impact on Wandong, and a handful of submissions related to the impact on the Willowmavin school.

One of the submitters, Mr Caelli, presented a thorough analysis of the issues presented in the 130 submissions received.² It shows that the following issues were raised:

- Monument Hill (raised in 63 submissions)
- Environmental impacts (raised in 42 submissions)
- Horses (raised in 36 submissions)
- Noise (raised in 27 submissions)
- Traffic removed (raised in 24 submissions)
- Severance of town (raised in 17 submissions)
- Personal property impact (raised in 16 submissions)
- Number of properties affected (raised in 13 submissions)
- Traffic modelling wrong (raised in 10 submissions)
- Golf/cricket impacts (raised in 9 submissions)
- Fuel cost (raised in 7 submissions)

² Mr Caelli explained he did this by reviewing the submissions. He is confident that the spreadsheet is a good overview of the submissions, but does not guarantee that it is 100% accurate. Its purpose was a 'ball park' review not total accuracy.

- Farm disruption (raised in 7 submissions)
- Western Kilmore growth (raised in 7 submissions)
- Willowmavin Road intersection (raised in 6 submissions)
- Wandong disruption (raised in 4 submissions)
- Carbon emissions (raised in 3 submissions)
- Traffic issues on Willowmavin school (raised in 3 submissions)
- Impact on country atmosphere (raised in 3 submissions)
- Fire (raised in 3 submissions)
- Highway access (raised in 3 submissions).

This shows the strong flavour of the submissions, which was also reflected in the presentations from submitters who appeared before the Inquiry. Although the majority of the presentations were opposed to the Quinns Road option, some submissions such as David Hosking (submission 18) cautioned against mistaking vocal opposition for broader community views:

We are concerned that the opinions of a very small vocal minority will be viewed by VicRoads as representative of the majority of Kilmore residents. This group has conducted a concerted campaign over many months to influence local opinion and VicRoads decision makers. Their campaign has been aggressive in forcing their views and vitriolic in their criticism of anyone who expresses disagreement. In addition, the local newspaper has supported this campaign by printing their letters on an almost weekly basis for the stated objective of feeding controversy and increasing circulation. Rest assured, these people do not represent the views of the majority and are widely viewed as merely representing their own self interests.

The Inquiry considers that it is not credible to characterise all the opposition to the Quinns Road option as being based on submitters 'own self-interest' (not that this is a problem in any case).

Authority submissions

In its submission to the Inquiry, VicRoads stated that it considers its role as that of assisting the Inquiry to understand the following:

- *The rationale of the Project and how the Project will meet its objectives in the short, medium and long term*
- *The rationale behind the selection of the three options (Quinns Road, Western and Dry Creek)*
- *The relative positive and negative impacts of the three alignments*
- *The opportunities to mitigate negative impacts*
- *The consequences of a 'no project scenario'.*

Goulburn Valley Region Water Corporation (GVW) sought changes to the Western option in the vicinity of the Kilmore Wastewater Management Facility (WMF).

The Shire of Mitchell submitted that it was unable to support any of the proposed options because all options required 'unacceptable compromise'.

5.3 Identifying impacts

Part of what the Inquiry is required to do is to recommend an option that delivers an appropriate balance of environmental, economic and social outcomes having regard to the impacts of the project and public submissions. To assist in balancing the various impacts of the options and exploring their differences the Inquiry thinks there is benefit in presenting the ratings under broad themes.

Planning issues can broadly be categorised as falling into one of five environments:

- natural environment
- built environment – land use, built form and transport impacts
- economic environment
- social environment – social impacts that fall on the community
- personal environment – social impacts that fall primarily on individuals such as amenity and severance impacts.

For the Kilmore Wallan Bypass, economic and social impacts have a number of complex overlaps, making it convenient to consider them holistically.

The long-term transport network issues and their relation to the overall development of Kilmore is the driving consideration for the assessment of the project and it is more transparent to consider the project rationale separately from the other issues. The Inquiry has grouped its assessment under the following broad types of impacts:

- Project rationale
- Natural environment
- Heritage and visual
- Social and economic
- Displacement and amenity.

Figure 5-3 shows the impacts identified by the Inquiry from the EES and submissions grouped under these themes. A summary of the project objectives for these impacts is provided at Figure 5-4.

The Inquiry will use these impacts and objectives to guide its assessment of the environmental impacts in Part 3 of this report and to conduct an integrated assessment in Part 4.

Figure 5-3: Impacts considered

Project rational	
Transport network	Alternative Wallan to Kilmore Kilmore main street alternative Kilmore-Epping Road improvement Kilmore-Lancefield Road connection Wallan main street alternative Hume Freeway to Northern Highway connection
Strategic development	General growth Waste water plant
Natural environment	
Flora and fauna	Native vegetation EPBC FFG Fauna populations and movement corridors
Hydrology	Surface water Ground water
Geotechnical	Soils Geotechnical issues
Contamination	Former land fill
Social and economic	
Social	Severance/accessibility of Kilmore Creation of pleasant town environment Severance/accessibility of Wandong
Economic	Equine industry precinct Agriculture Industrial activity Tourism Quarrying Travel cost savings
Heritage and visual	
Visual	Significant views Landscape character Open space
Historic Heritage	Heritage Monument Hill heritage
Aboriginal Heritage	Impacts on identified sites Potential impacts on unidentified sites.
Amenity	
Displacement	Properties affected
Noise	Noise impact on open space Noise level change on dwellings
Odour	Kilmore Wastewater Management Facility
Air quality	Air quality on route

Figure 5-4: Summary of project impact objectives

Project rational	Source	Summary of impact objectives
Transport network	EES evaluation obj. Project obj.	Improving road safety, transport connectivity and functionality Removing through traffic from Kilmore and Wallan
Strategic development	Project obj.	Achieving acceptable consistency with current land uses Support the long term planning and development of the Kilmore-Wallan area
Natural environment		Summary of impact objectives
Flora and fauna	EES evaluation obj. Project obj.	Avoiding or minimising impacts on areas and features of ecological significance
Hydrology	EES evaluation obj. Project obj.	Avoiding or minimising impacts on water quality, hydrology and floodplain
Geotechnical		Avoiding soil stability and erosion issues
Contamination		Avoiding disturbance of contaminated soils
Heritage and visual		Summary of impact objectives
Visual	EES evaluation obj. Project obj.	Minimising adverse effects on landscape and visual amenity values
Historic Heritage	EES evaluation obj. Project obj.	Avoiding or minimising adverse effects on non-Aboriginal cultural heritage values
Aboriginal Heritage	EES evaluation obj. Project obj.	Avoiding or minimising adverse effects on Aboriginal cultural heritage values
Social and economic		Summary of impact objectives
Social	EES evaluation obj. Project obj.	Minimising displacement and severance of communities Minimise displacement and severance of facilities including Monument Hill and Kilmore Racecourse Improving town amenity Minimising impacts on key community facilities
Economic	EES evaluation obj. Project obj.	Contributing to positive economic outcomes in the area
Amenity		Summary of impact objectives
Severance	EES evaluation obj. Project obj.	Minimising displacement of residents Minimise severance of agricultural land
Noise	EES evaluation obj. Project obj.	Minimising noise increases for residents and community assets including Monument Hill, the equestrian precinct and Kilmore Racecourse
Odour	Submission	Avoiding odour impacts from WMF
Air quality	EES evaluation obj.	Minimising dust effects on residents and open space areas

EES evaluation obj = Evaluation objectives from the scoping requirements

Project obj. = EES requirements

Part 3: Environmental impacts

This part of the report considers the environmental impacts of the bypass options under the headings of:

- Project rationale
- Natural environment impacts
- Social and economic impacts
- Heritage and visual impacts
- Displacement and amenity impacts.

6 Project rationale

6.1 Traffic and transport

6.1.1 Introduction

The EES provides a comparison of the three alignment options in the form of an overall OBEM rating as shown in Figure 6-1. The Inquiry formed a different view.

Figure 6-1: Traffic and transport: EES Objectives-Based Evaluation Matrix

	Dry Creek	Quinns Road	Western
Overall OBEM rating	Moderately well	Moderately well	Negligible

Source: EES

Section 4.2 of the Scoping Guidelines provided the following evaluation objective for transport network performance:

To improve road safety, traffic performance and general amenity, particularly in the townships of Kilmore and Wallan, by developing a Northern Highway bypass which will be effective in attracting through traffic, especially heavy vehicles, and provide better connections to the existing local transport network.

The Scoping Guidelines identified the following key issues in relation to transport network performance:

- Increasing impacts from through traffic, especially heavy vehicles, particularly in the main streets of Kilmore and Wallan.
- Effective integration of the proposed project with the local transport network in Kilmore.
- A comparative assessment of the transport performance of relevant alternatives.

The EES sets out the project rationale as being to:

- Improve the amenity and attractiveness of commercial precincts in and around the Northern Highway by significantly reducing truck and traffic volumes
- Improve the efficiency of the arterial and local road network
- Improve safety in the bypassed townships
- Facilitate local employment opportunities.

6.1.2 EES Documentation

The EES included a substantial traffic modelling component undertaken by AECOM which looked at the estimated traffic volumes across the network for the three alignment options in design years 2021, 2031 and 2041. These estimated volumes were then compared to the Base Case, i.e. the no bypass situation.

Figure 6-2: Traffic and transport: EES overview

Bypass option	Transport modelling
Dry Creek	The Dry Creek option is predicted to result a traffic reduction through Kilmore and Wallan. The reduction is not as significant as the Quinns Road option (between 3-14% less than the Quinns Road) over the forecast period
Quinns Road	The AECOM modelling predicted that the Quinns Road option would result in the most immediate and significant traffic reductions through Kilmore and Wallan with consequential improvements to the amenity within the town centres
Western	The Western option is predicted to be the least effective in achieving the Project objectives by a substantial margin. In 2021 in Kilmore, this option would result in little or no traffic reduction. It is only when population increases, traffic volumes grow and travel times on the Northern Highway increase, that the Western option would become more attractive

Source: EES

6.1.3 Evidence and submissions

VicRoads submitted:

There has been a large amount of criticism and scepticism regarding the transport modelling undertaken for this Project, although curiously little comment about the additional traffic modelling provided by VicRoads based on potential traffic calming measures in Sydney Street. The validity and reliability of the modelling was addressed in VicRoads' substantive submission and is not repeated here, other than to say that the modelling undertaken for this Project is widely accepted, transparent and fit for its intended purpose. VicRoads is confident the Inquiry will give greater weight to the model outputs than to the arm-chair (or driver-seat) expertise offered by many submitters.

VicRoads called evidence from Mr Fotios Spiridonos of Interfleet Transport Advisory to provide a Peer Review of the AECOM work.

Mr Spiridonos noted that the type of transport model used, the demographic inputs and the trip generation rates were all appropriate for the EES. In particular he concluded that:-

The model validation results as presented indicate a well-calibrated and well-developed transport model which is fit-for-purpose for the transport modelling of the bypass options.

Mr Spiridonos agreed with the Aecom conclusion as expressed in the EES that:

In the context of the transport modelling, the Quinns Road option performs best in terms of overall traffic performance (i.e. travel time reduction, average travel speed, and traffic volume reduction along the Northern Highway).

It was agreed in evidence by Mr Bodé and Mr Spiridonos that the introduction of traffic calming measures in Sydney Street in Kilmore would have the effect of reducing the desirability of that route and increasing the usage of the bypass.

VicRoads explained that, while it has the statutory power to introduce traffic calming measures (including the power to restrict the use of a roadway by vehicles of a certain size, determine speed limits and place obstructions on a roadway),³ this is a power which is used sparingly. An arterial road functions as a high-capacity road with the primary role of delivering all forms of traffic from collector roads to other arterial roads, highways or freeways. VicRoads' typical practice is to only introduce traffic calming measures on arterial roads where it is required for engineering or safety reasons.

VicRoads provided an overview of the various studies undertaken which led to the Victorian Government's decision to construct a bypass of Kilmore and Wallan.

VicRoads submitted:

... it is fair to say that the issue of congestion within the central commercial precinct, particularly the presence of heavy vehicles, has been the common concern of all network planning initiatives undertaken in the past 10-15 years. As part of the Kilmore Arterial Road Network Study (KARNS), VicRoads presented to Mitchell Shire Council (Council) the results of a series of specialist studies together with proposed inner and outer (both east and west) bypass options.

Council undertook its own analysis of the traffic issues in the Kilmore township and engaged AECOM to prepare the Kilmore Access and Movement Study (13 November 2009). The stated aims of the study were to provide a clear plan of:

- changes to transport infrastructure to be implemented at specific locations in and around Kilmore; and
- specific transport issues or projects for further more detailed investigations.

The study acknowledges the fragmented development of the Kilmore road network (see Figure 6-3), stating:

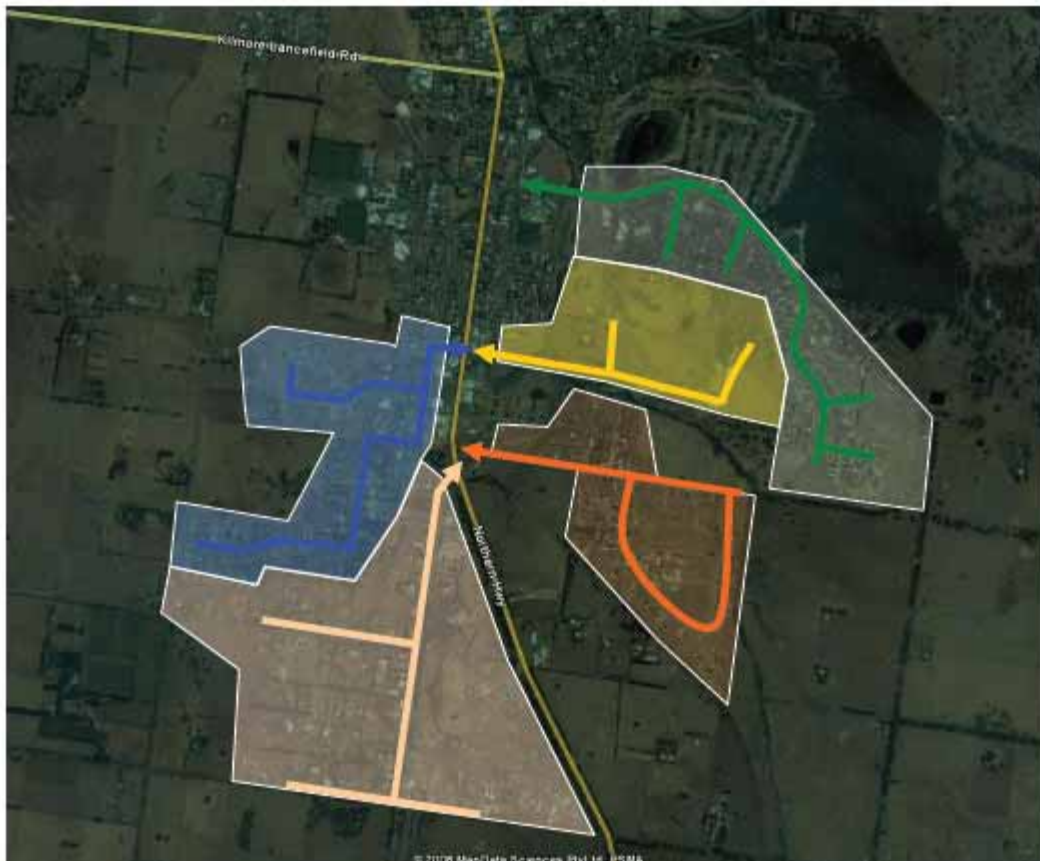
For a variety of reasons, some road links were not physically constructed and as such the road network of the township has several 'missing links'. The

³ See sections 10, 12 and 13 of Schedule 4 to the Road Management Act 2004

missing links in the network create a situation where the main road through the town, Northern Highway (Sydney Road) remains an unavoidable part of nearly all journeys on the network.

Most trips to important local facilities and amenities in the town require a trip that will route along the Northern Highway. This lack of permeability means that drivers are required to take longer journeys within the town and will be making additional trips on the Northern Highway that would otherwise not need to occur.

Figure 6-3: Fragmented road network in Kilmore



Source: Kilmore Access and Movement Study (13 November 2009).

The study stated that any new links proposed should address the following transport issues:

- high traffic volumes routing through the township
- heavy vehicles routing through Kilmore commercial centre
- neighbourhoods that have only one entry and exit road
- steep gradients within the township
- busy intersections within Kilmore.

The study recommended the construction of a number of links to improve connectivity within Kilmore.

The study also made the following comment on the Kilmore Wallan Bypass:

The Mitchell Shire Council has made representations to State government to provide an external bypass of the towns of Kilmore and Wallan. The Council intends to continue to pursue and promote this with all the relevant State authorities that would be responsible for the delivery of such a link. Notwithstanding this intention, Council also recognizes the need to separately pursue viable projects that will improve local connectivity within the township of Kilmore.

VicRoads planning studies

In its submission to the Inquiry, VicRoads described the following planning studies as relevant to the Inquiry:

- **1998 – VicRoads’ B75 Corridor Strategy Northern Highway** – this study recommended further planning studies to investigate future short term transport requirements and, subject to further studies, the duplication of the B75 Northern Highway between the M31 Hume and Kilmore in the medium to long term.
- **2000 – Wallan to Kilmore Study** – this study followed the B75 Corridor Strategy, and was a preliminary study to investigate the need to duplicate the Northern Highway. The study determined that more detailed planning investigations would be required.
- **2002 – Kilmore Arterial Road Network Study (KARNS)** – this study recognised that the lack of north south connectivity within Kilmore was an existing constraint and concluded that while a bypass of Kilmore could not be justified in the short to medium term, the development of a suitable collector/distributor road network should be focused on traffic issues within the Kilmore township.
- **2005 – Northern Highway Duplication Study** – this study followed the 2000 and 2002 studies, and was commenced to identify land required to be reserved to duplicate the Northern Highway from the Hume Freeway to Green Street, Kilmore. In response to community feedback which expressed a strong preference for a bypass, rather than a duplication, the then Minister for Transport directed that a study to examine possible bypass options be undertaken concurrently with the duplication study.
- **2006-2009 – Kilmore Wallan Bypass Options Examination** – Mitchell Shire Council and VicRoads identified 11 options for further investigation following consultation with the community. Of these options, 5 further options were carried forward to detailed planning investigations and would become the basis for the current three alignment options. Following consideration of the study findings, the then Minister for Roads and Ports directed that planning be resumed for providing additional capacity on the Northern Highway south of Kilmore. Furthermore, it was directed that VicRoads work with Mitchell Shire Council to investigate local road network improvements to reduce heavy truck traffic movements in central Kilmore.
- **2009 – Linking Kilmore** – the principal project involved the development of a new link road along Conway-Johns Streets. The then State Government supported and funded the link road, but Council did not ultimately support the

project. Following the 2010 election, the new Government announced that it was committed to the construction of a bypass of Kilmore and Wallan by 2017.

Freight Directions in the Hume Region Report (2013)

This Report was prepared by GHD in 2013 for the Hume Regional Development Australia Committee. The report provides high level strategic directions for freight in the Hume Region. The project contained the strategy to promote development of secondary road corridors and network connections. The Northern Highway from Echuca to Kilmore and Wallan is a secondary connection highlighted for improvement to improve transport efficiency and safety.

Victoria's 2012 Priority Infrastructure Submission to Infrastructure Australia

This submission outlined policies for increasing economic growth, and identified priority infrastructure projects including a focus on efficient transport links between Melbourne and north central Victoria (including the Hume Highway upgrade and safety improvements from Kalkallo to Beveridge). The forecast increase in transport movements along the Northern Highway was noted.

Victoria – The Freight State

This policy document was released by the Victorian Government in August 2013, and provides a long term strategy to improve freight efficiency, grow productivity and better connect Victorian businesses with their markets. It supports the expected transport movement along the northern corridor. Relevant projects identified in the Freight Plan include:

- Consideration of a North East Link linking the Metropolitan Ring Road to the Eastern Freeway
- Longer term planning for a Beveridge Freight and Logistics Precinct
- Development of an Outer Metropolitan Ring, both road and rail.

Traffic allocation

A number of submitters noted that the traffic assignments had not included any significant restrictions on traffic flows on existing routes, particularly in Sydney Street, Kilmore.

It was suggested that the introduction of further speed reductions, additional signalised pedestrian crossings and even truck bans would greatly influence the modelled results as all bypass options would become more attractive for through traffic. The Inquiry agrees.

6.1.4 Discussion

The Inquiry agrees with VicRoads that:

It has been emphasised and should be emphasised again, that the bypass options should not be viewed in isolation, but as an important component of a number of strategic traffic solutions that will need to be implemented to meet Kilmore's traffic needs.

Transport networks can be assessed in terms of the connectivity they provide, and the performance they deliver. Traffic modelling can test the performance of a proposed network, but is not a substitute for the intelligent design of that network. The Inquiry does

not accept the traffic model as the best determinate for assessing the relative transport merits of the various options.

(i) Network design

Role of the bypass

There was some discussion about the use of the term 'bypass' and whether or not the Quinns Road option could be so designated.

The Inquiry adopted the view that the new road would have the role of providing an alternative route for the Northern Highway within the Wallan-Kilmore corridor that would bypass the now heavily built up main streets in the two towns.

It was also noted that the section of the existing highway between Wallan and Kilmore has a substantial number of properties taking direct access to the highway which becomes increasingly less appropriate and more dangerous as the highway traffic volumes increase.

The Inquiry understands that the bypass will provide improved horizontal and vertical geometry, a safer high speed environment, and significantly, restricted access.

The Enquiry was comfortable with the term 'bypass' for all alignment options.

The Inquiry believes that the bypass must be able to provide for the future traffic needs of the Northern Highway corridor and in particular provide:

- a high quality connection between the Hume Freeway and the Northern Highway
- an alternative route for Northern Highway traffic currently travelling through the main street (High Street) of Wallan
- an alternative route for Northern Highway traffic seeking to avoid the section of the existing highway between Wallan and Kilmore
- an alternative route for Northern Highway traffic currently travelling through the main street (Sydney Street) of Kilmore
- where possible resolve other existing arterial road problems.

Hume Freeway to Northern Highway connection

Providing a high quality connection between the Hume Freeway and the Northern Highway is an essential component of the project.

An alternative route to High Street Wallan

While all options provide some potential benefit for the removal of traffic from High Street, the greatest component of 'through' traffic is that travelling between metropolitan Melbourne and Kilmore, and to a lesser degree Lancefield.

The only road component providing relief for this traffic is the upgrading of the Kilmore-Epping Road from Wandong Interchange to the Northern Highway.

This link already provides an alternative to travelling through Wallan. As restrictions and cross-movements within Wallan increase as its development progresses, a high speed, safe link as proposed as part of either the Quinns Road or Western options will become more desirable.

The Inquiry understands that there is already a need to upgrade both the Wandong Interchange to modern standards and improve the horizontal and vertical alignment of the Kilmore-Epping Road.

The Dry Creek route, while providing an excellent connection for Northern Highway traffic not heading to Kilmore (other than to the north of Kilmore) does not, in the view of the Inquiry, adequately serve the Kilmore based traffic that passes through Wallan.

Northern Highway between Wallan and Kilmore

All options provide some potential benefit for the removal of traffic from Wallan however, the road component providing significant relief for this traffic is the upgrading of the Kilmore-Epping Road from Wandong Interchange to the Northern Highway.

The Inquiry understands that there is a need to upgrade the Northern Highway between Wallan and Kilmore, but that it could be delayed if the bypass is constructed. It is significant that the existing Northern Highway is likely to be 'downgraded' when the bypass is in place with possibly lower speed limits as local traffic volumes increase and abutting land is developed.

Speed limit changes and increased local traffic and intersection 'friction' will result in increased travel times which will in turn result in the bypass routes with an upgraded Kilmore-Epping Road component being favoured.

Wandong Interchange and Kilmore-Epping Road

VicRoads has identified the existing Kilmore-Epping Road as being in need of an upgrade as a result of increasing traffic volumes travelling between Kilmore and Whittlesea. The road has poor alignment including a very steep creek crossing ('the Big Dipper') and two low radius right angle corners.

In addition, the existing Wandong Interchange which was constructed in the 1970s is not now appropriate for the increased traffic and heavy vehicle operation as a result of the poor sight characteristics and adverse ramp grades.

The upgrade of the Wandong Interchange and the Kilmore-Epping Road between Wandong and the Northern Highway is a major benefit of the Quinns Road and the Western options.

The Kilmore-Lancefield Road

The Kilmore-Lancefield Road is predicted to carry in excess of 8,000 vehicles per day (vpd) in the 2041 Base Case. Some 3,000 vpd are expected to be travelling to/from Broadford.

The Kilmore-Lancefield Road/Sydney Street intersection is at the bottom of the very steep descent on the Kilmore-Lancefield Road and accordingly does not perform well.

The Western option provides a direct link between the Kilmore-Lancefield Road and the Kilmore-Broadford Road removing all of this through traffic from Sydney Street, Kilmore.

The Western option also provides a more direct link between Lancefield and Whittlesea.

An alternative route to Sydney Street, Kilmore

The Inquiry agrees that current arterial road network within Kilmore lacks structure and connectivity. While the bypass project is required to maintain the integrity of the State Highway (Northern Highway) it will not resolve the lack of arterial roads within the developing Kilmore.

The bypass will provide limited connections to the local road network and will not generally be an alternative to Sydney Street for local traffic.

The Inquiry is strongly of the view that even with the bypass, the Conway-Johns Street inner link road project is still required to allow Council to adequately manage traffic through the commercial centre of Sydney Street.

The Inquiry recommends that:

The road reservation requirements for the Conway-Johns Street inner link project be preserved by the application of a Public Acquisition Overlay as soon as possible.

Figure 6-4 shows the general alignment of the Conway-Johns Street inner link project marked as 'High priority, John Street completion' and 'High priority, Rutledge/Conway Street upgrade'.

Figure 6-4: Conway-Johns Street inner link location



Source: Extract of Kilmore Access and Movement Study (13 November 2009)

(ii) Network performance

A number of EES reports and submitters have concentrated on the relative performance of the options in the traffic modelling, but this misses the broader messages that the modelling gives, namely:

- that the absolute differences in travel time between the options are small
- the traffic distribution is dependent on the shortest route
- the model does not identify long-term reductions in traffic.

All option are expected to improve the safety of the network.

The absolute differences in travel time between the options is small

While the Western option is some 4.5kms longer than the Quinns Road option, it is not unduly longer when compared to the existing Northern Highway route. The travel time difference between the Northern Highway south of Kilmore and the Broadford turn-off would be in the order of 45 seconds longer if the average speeds were 80km/h on the bypass and 60km/h on Sydney Street through the town.

Significantly, if the average travel speeds were 90km/h on the bypass and 50km/h on Sydney Street, then the travel time difference would be less than 5 seconds longer.

Given the anticipated better 'travel experience' in terms of less perceived delay and avoiding the frustration of travelling through the town centre, the Inquiry does not believe the longer travel time is a significant impediment to the Western option.

Traffic distribution is dependent on the shortest route

The system is not at capacity and the allocation of traffic to travel routes is not significantly constrained within any links in the model. As a result, the model predictions tend to be uni-dimensional, assigning all traffic to the quickest route without regard to just how much quicker it is in practice.

This was amply demonstrated in the memo prepared by Christine Bodé in response to requests from the Inquiry regarding the direction of the trucks from the quarry and the purpose of the Kilmore-Epping Road component of the Western option.

Mr Bodé provided a 'select link' analysis which showed that in 2041, none of the traffic using the Western option travelled on the Hume Freeway immediately north of the Northern Highway turn-off, and similarly, none of the traffic using the Quinns Road option travelled on the Northern Highway north of the Hume Freeway through Wallan.

The Inquiry found that this 'all or nothing' model was unrealistic as currently motorists exercise a choice of routes between the Northern Highway just south of Kilmore and the Hume Freeway just south of the Northern Highway turn-off. Traffic currently works on an 'either or' basis rather than 'all or nothing'.

It was also demonstrated by the sensitivity of the model to changes in the posted speed limit on the Northern Highway in Kilmore with the proposed reductions in 2031 model of the Northern Highway to 50 km:

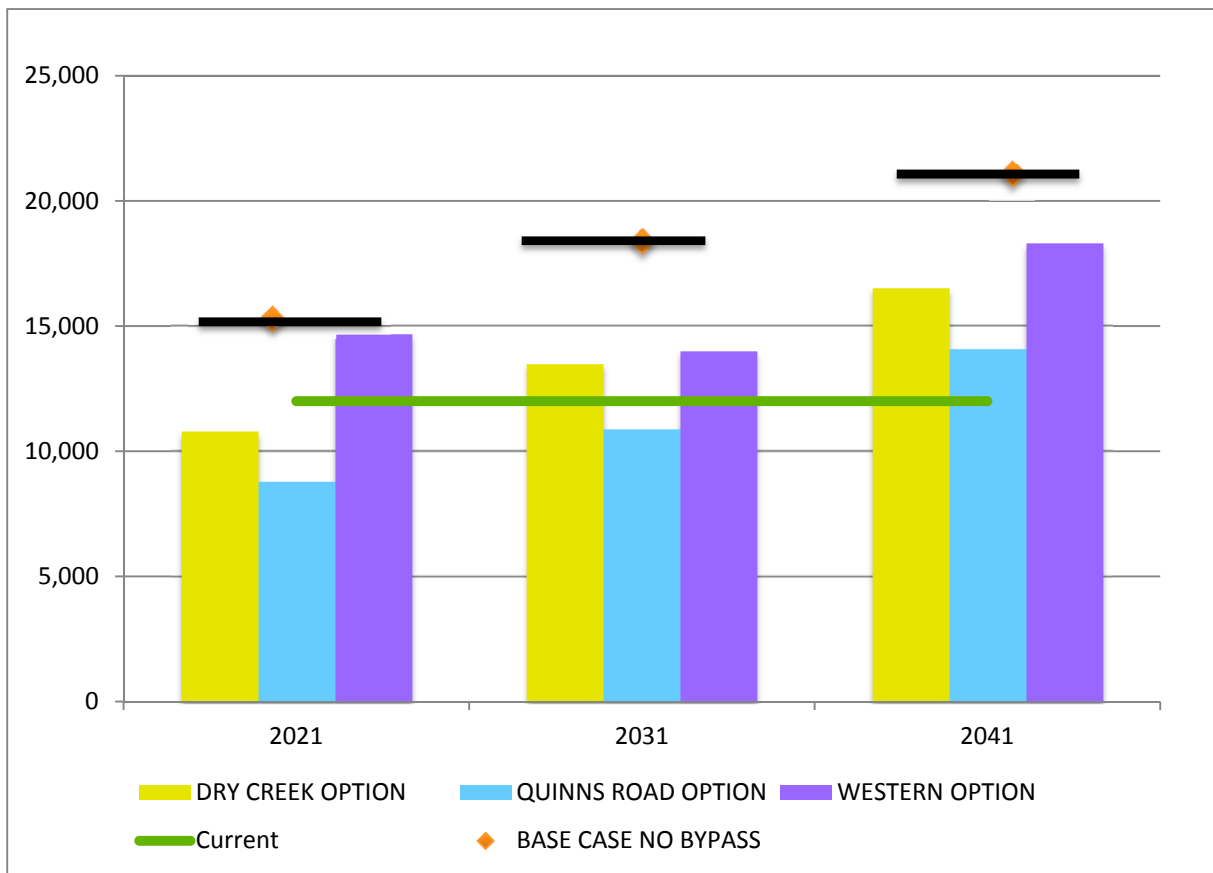
- north of Union Street
- between Kilmore-Lancefield Road and Tootle Street.

This reduction is responsible for the improved performance of the Western option in reducing traffic on Sydney Street in the context of increased traffic overall.

(iii) The model does not identify long-term reductions in traffic

Putting aside the Inquiry's concerns over the modelling, it is worth reflecting on whether the reductions the model predict are sustainable. The model shows they are not. Figure 6-5 shows how by 2031 the traffic in Sydney Street is better than a business as usual scenario, but it is about the same as current levels for all options. The project rationale includes to improve the amenity and attractiveness of commercial precincts in and around the Northern Highway –this implies improving them over the long term, not just for 15 years or so.

Figure 6-5: EES traffic modelling Sydney Street



Source: Prepared by the Inquiry from EES figures

6.1.5 Inquiry OBEM ratings

The Inquiry thinks that the long term transport connectivity issues should be the primary determinant of assessing whether transport objectives are met, rather than the short term improvements identified in the traffic modelling. The Inquiry’s ratings are shown in Figure 6-6.

Figure 6-6: Traffic and transport: Inquiry OBEM rating

		Dry Creek	Quinns Road	Western
Transport network	Kilmore main street alternative	0	+1	+1
	Kilmore-Lancefield Road connection	0	0	+2
	Wallan main street alternative	+1	+2	+2
	Kilmore-Epping Road improvement	0	+3	+3
	Alternative Wallan to Kilmore	0	+2	+2
	Hume Freeway to Northern Highway connection	+3	+2	+1

6.2 Strategic development

6.2.1 Introduction

The EES does not rate the options in terms of how they fit with the strategic development of Kilmore. The EES provides an overall rating for Land Use and Regional Economy, but this does not explicitly rate the land use component of the assessment. The EES concluded that there was no discernible difference – all options are generally consistent with the relevant State and Local planning policies.

Section 4.5 of the Scoping Requirements provides the following evaluation criteria for land use and economic impacts:

To minimise adverse effects on existing and planned land uses and to contribute to positive economic outcomes in the area.

The Scoping Requirements identify the following key issues in relation to land use issues:

- Potential for lack of consistency with existing strategic land use planning objectives, policies or plans.
- Potential for displacement or severance of access to productive land uses.

6.2.2 Evidence and submissions

While Council's submission to the Inquiry did not address the future development strategies for a township, VicRoads called Mr Rob Milner to provide evidence on the strategic development of Kilmore. Mr Milner stated that it would be inappropriate to avoid this issue as part of the process for identifying a preferred town bypass option.

In relation to the wastewater management facility, Dr Harry Grynberg prepared evidence in relation to odour for VicRoads but was not called; Allan Campbell of Beca provided evidence for Goulburn Valley Water.

(i) Expected growth and role of Kilmore

A number of planning strategies indicate that Kilmore's population will grow.

Plan Melbourne (May 2014)

Plan Melbourne, released in May 2014, is the Victorian Government's vision that will guide Melbourne's growth to 2050. Chapter 7, 'A State of Cities', states that:

With Victoria's population projected to rise to around 10 million by 2051 regional cities will need to take a greater share of population growth. This will enable regional cities to offer more opportunities to their residents and mitigate some of the population pressure on Melbourne.

Direction 6.2 'Rebalancing Victoria's population growth from Melbourne to rural and regional Victoria', identifies Kilmore as a designated regional town for growth within Melbourne's peri-urban fringe. The population figures for Kilmore support this statement, as the average annual growth rate was 5.6% per annum between 2006-2011, which was the highest figure recorded for select peri-urban towns around Melbourne.

Growth Corridor Plans – Managing Melbourne's Growth (2012)

The Growth Corridor Plans were released by the Metropolitan Planning Authority (formerly the Growth Areas Authority) in June 2012, and state that the area covered by the North

Growth Corridor Plan will accommodate 260,000 additional people and potentially 83,000 jobs.

Wallan has been incorporated into the urban development of Melbourne's north and will accordingly require transport connections.

The Hume Regional Growth Plan (May 2014)

The Hume Regional Program was released in May 2014. Mitchell Shire Council is one of twelve Hume region Councils. The Growth Plan states that the Hume Region is expected to experience a population growth of approximately 80,000 persons by 2041 (this figure excludes Wallan and land within the metropolitan growth boundary).

Both the Regional Growth Plan and *Plan Melbourne* refer to Kilmore, Broadford and Seymour as towns that could potentially attract housing and population growth. Kilmore is considered as a place that offers both urban growth and lifestyle opportunities.

The *Urban Development Program – draft Regional Residential Report for the Mitchell Shire Council (2011)*, (referred to in the Growth Plan) states:

There is potential for 9190 lots to be created from land zoned for residential use or for infill. This would satisfy more than 15 years of future residential demand across the Mitchell Shire – Northern LSA and nine years of future residential demand across the Southern SLA. Around 85% of these lots are located in Wallan, Beveridge and Kilmore.

Kilmore Structure Plan (2004)

The Kilmore Structure Plan was included as a policy framework in the Mitchell Planning Scheme in 2004 as a result of Amendment C15; and is the current version in the planning scheme. It was the last amendment to Clause 21 until Amendment C87 which was a policy neutral re-write of the MSS.

The Structure Plan has ten key directions:

- *Protect and consolidate Kilmore's core centre*
- *Grow employment uses for economic sustainability*
- *Conserve the Town's green edges*
- *Restore the Kilmore creek corridor*
- *Define the Town's inner and outer gateways*
- *Support key town institutions with mixed use precinct*
- *Manage urban growth with improved amenity*
- *Encourage strong linkages to Kilmore East*
- *Improve north south connections in local road network*
- *Create a strong hierarchy of connected open space.*

In 2008 Mitchell Shire Council commenced the preparation of Amendment C61 to implement rezoning recommendations from the Structure Plan. In September 2010, Council sought an extension of time for preparation of the Amendment, however the request was refused.

Amendment C79 to the Mitchell Planning Scheme came into effect in May 2013. The Amendment rezoned and applied overlays to various parcels of land, most of which were

minor changes and corrections of anomalies. It refers to the Kilmore Structure Plan in its explanatory statement.

There have been no further proposals to implement the Kilmore Structure Plan and no funding provided to implement any of the works associated with the directions in the plan.

However, it is expected that future use or development of land will be generally consistent with the Structure Plan. As noted by Mr Milner in his expert witness statement, this includes the following:

- *buffers between rural, rural residential and urban development*
- *utilisation of natural and landscape features, parkland and public land as boundaries and buffers*
- *consolidation of urban development*
- *rezoning of 'Future Investigation Areas' from Rural to residential or low density residential when existing residential land will provide for less than 15 years projected demand*
- *protection of the town's significant landscapes and natural features*
- *promotion of industry and business in the defined industrial area*
- *containment of commercial development within the town centre*
- *encourage most of large peripheral retailers to locate on land at the southern entrance*
- *encourage most of the horse industry at appropriate locations within and surrounding the existing racecourse*
- *provision of buffers between the horse industry and residential areas.*

The Structure Plan does not refer to a possible bypass.

Kilmore Strategy Plan 2008

The Kilmore Strategy Plan (otherwise known as the Hansen Plan) was prepared in 2008 by Hansen Partnership, prior to changes in metropolitan development policy. It is considered to have significantly underestimated the growth potential of Kilmore.

It is expected that any use and development will be generally consistent with the Strategy Plan, which includes the following:

- *A wish to retain a genuine sense and experience of a physically distinguished country town.*
- *A focus upon a consolidated and expanded central shopping and commercial area, protecting the heritage buildings and the scale and feel of the strip centre.*
- *Building upon the health and educational facilities already established in Kilmore.*
- *A growing interest in Kilmore as a dormitory town to serve the northern metropolitan suburbs.*
- *An ongoing balance and diversity between conventional and low-density residential development with dwelling densities and lot yields particularly towards the urban edge remaining relatively low at an average of approximately 10 dwellings per hectare, in order to respect the country town feel.*

- *Further consolidation of employment and industrial uses in the precinct to the north of the town but mindful that 10-20 years from now there will be significantly larger and proximate tracts of industrial land to the south, within the urban growth boundary.*
- *A short-term (next 5-10 years) emphasis upon consolidating and utilising existing zoned land.*
- *A resistance to urban growth to the east of the ridge line proximate to the racecourse and Monument Hill due to the landscape features, topography, parkland and public land uses in this area.*
- *Consolidation and if warranted expansion of the horse industry and associated activities to the north east of the town.*
- *Provision for new residential land (conventional and low density) in the medium term (10-15 years) to the west and south of the township.*

In his evidence, Mr Milner concluded:

- Kilmore will experience significant long term growth pressure possibly escalating as the Hume/Northern Growth corridor's population increases
- There is policy support to enable Kilmore to grow while respecting its point of difference as a traditional country town
- Additional land will need to be identified and zoned within 10 years
- The growth opportunities for the town are likely to be in the west and south east
- The Dry Creek option poses the least constraint upon strategic choices for future growth, however, the Quinns Road option both confirms and does not compromise options for urban expansion

In his written material Mr Milner stated that a Western option may place a boundary around an important potential growth front and for this reason is the least attractive choice for the bypass, but in the Hearing conceded that other places in the Hume region were identified for more growth than Kilmore.

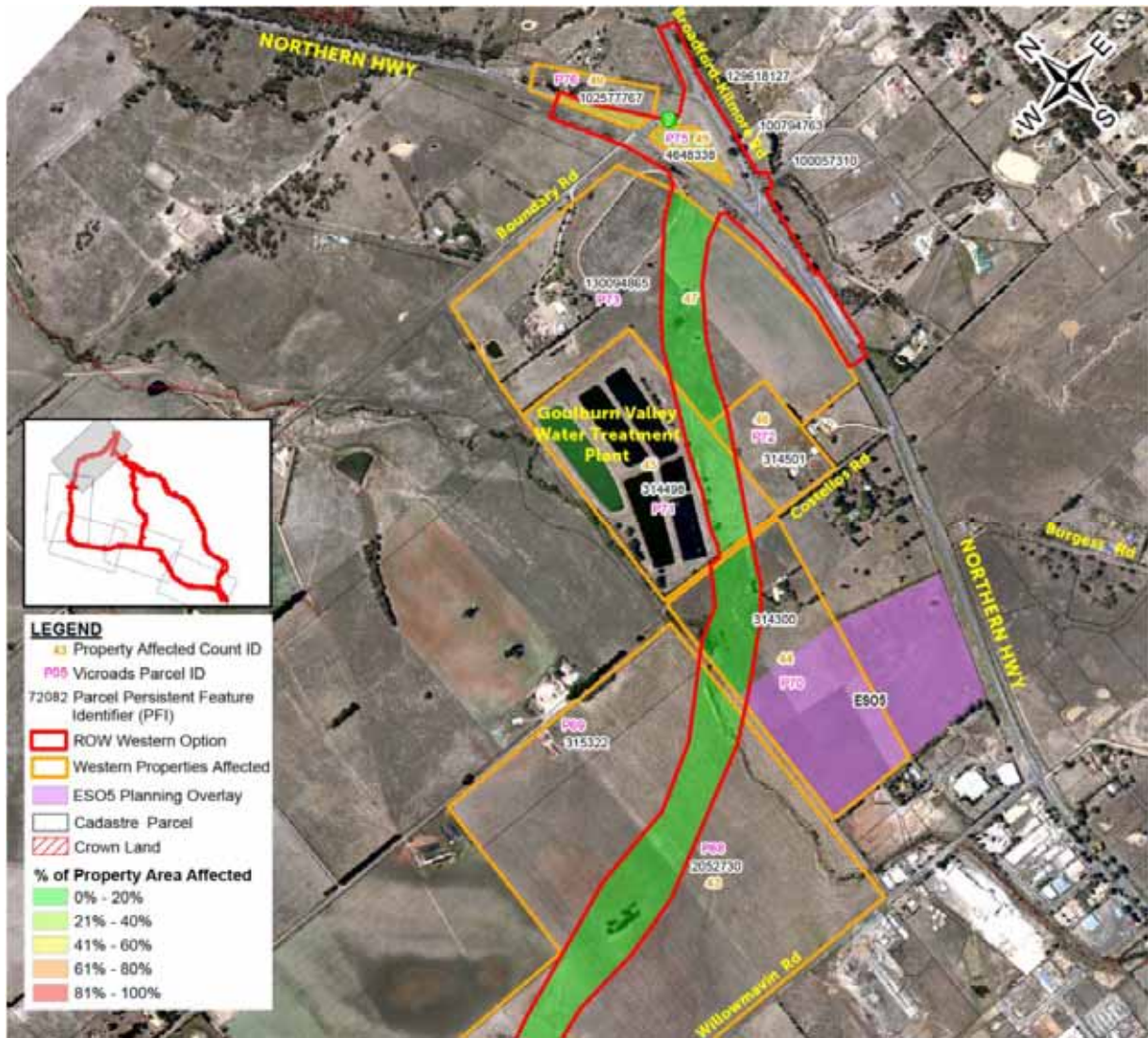
VicRoads submitted that:

... the evidence of Mr Milner provides significant comfort that the population growth patterns and future land use demands in Kilmore are well understood and that there is a sufficient planning basis from which a preferred alignment can be recommended.

(ii) The Kilmore Wastewater Management Facility

The Western option passes through a portion of land subject to the Environmental Significance Overlay (ESO5) to the Mitchell Planning Scheme to the south of the Kilmore Wastewater Management Facility (WMF). The WMF is operated by the Goulburn Valley Regional Water Corporation (GVW). Figure 6-7 shows the proposed alignment in the vicinity of Kilmore Wastewater Management Facility

Figure 6-7 Alignment in vicinity of Kilmore Wastewater Management Facility



Source: EES

GVW submitted that either an alignment other than the Western option be selected or, alternatively, the Western option be modified to achieve a separation distance of approximately 290m from the WMF to protect against adverse odour impacts:

GVW submits that the Western option will have a significant environmental effect on the economic aspect of the expansion of the ... WMF that will reasonably be required if GVW is to continue to provide the essential service of sewerage for the projected population growth of the greater Kilmore area.

If the Western option is adopted as proposed, it will cause GVW to incur additional expense estimated, at \$12.1million based on net present value. Consistent with industry practice for infrastructure delivery the funding required would adopt P95 value allowing a 10% margin for contingencies, making the additional expense \$13.3million

These costs are not approved in the Water Plan 2013-2018, nor proposed for subsequent water plans, which adopt the expansion of infrastructure in the Master Plan.

Without State Government funding GVW expects that these costs will have to be borne by the GVW customers in the greater Kilmore area (i.e. regional impact).

GVW retained Mr Allan Campbell of Beca Pty Ltd for the purpose of preparing an expert witness statement in relation to the impact of the bypass on the WMF and the necessary expansion of infrastructure to provide an essential service of sewerage to the greater Kilmore area over the next 40 years.

GVW is considering the feasibility of alternative technology and infrastructure for the treatment of sewage and trade waste to minimise capital expenditure. GVW submitted:

There are examples where such alternative technology and infrastructure has been successfully applied across Victoria. If the Western option is approved, GVW will lose the opportunity to develop and implement alternative technology and infrastructure for Kilmore and be compelled to incur the costs detailed in the expert witness statement of Mr Campbell. GVW reserves its rights to pursue compensation for any lost opportunity in these circumstances, which is on top of the additional cost to GVW of \$13.3million

In response to Inquiry Direction 14, VicRoads has presented to the Inquiry three possible alignments which achieve the separation distance sought by GVW. It should be noted that any proposed change to the alignment in this location would have consequential impacts on different landowners (who may not have received notice of the Project), particularly on the recently zoned Industrial land at 15 and 45 Costellos Road and the new rural residential lots on the eastern side of the Northern Highway.

VicRoads accepts that GVW is providing an essential service to the growing population of Kilmore and acknowledges that the WMF is an existing land use that could be significantly impacted by the proposed Western option. VicRoads noted that the Inquiry should be mindful that, if the impacts described in the GVW submission are realised, this will add to the cost and land use impact of the Western option.

VicRoads' preferred approach is to accept the submission of GVW that a road within the WMF would bring a larger number of people in closer vicinity to the WMF and that there is a risk (albeit that on Dr Grynberg's evidence, this risk is a low one), of complaints due to odour. VicRoads considers the presence of the WMF to be a potential land use impact of the Western alignment which should be factored into the consideration of the acceptability of that alignment.

Odour from the WMF

VicRoads submitted that it remains committed to working with GVW to minimise any impact and disruption to the WMF and its anticipated future expansion.

However, VicRoads would like to note for the record that it does not agree that the proposed road is a sensitive land use within the meaning of the EPA Publication 1518: Recommended separation distances for industrial residential air emissions (EPA Publication). Under the EPA Publication, a sensitive land use is defined as:

- *Any land uses which require a particular focus on protecting the beneficial uses of the air environment relating to human health and wellbeing, local amenity and aesthetic enjoyment, for example residential premises, child*

care centres, pre-schools, primary schools education centres or informal outdoor recreation sites.

VicRoads submitted that the 'agent of change' principle referred to in the EPA Publication does not apply and that the Inquiry should treat any impact to the WMF as a land use issue and, failing that, a matter for compensation.

6.2.3 Discussion

(i) Growth of Kilmore

The Inquiry believes that the bypass must be able to provide improved access between metropolitan Melbourne and the developing and future development areas of Kilmore, that is to the west and south of the town in addition to the future traffic needs of the Northern Highway corridor.

Residential development around Kilmore is expected principally to the west and south of the town, and to a lesser extent the north. Any eastern expansion is effectively blocked by the Monument Hill Reserve and the ridge-line to its east.

The Dry Creek option allows access to the north of the township and the Equine Precinct. It also provides an indirect link to the industrial area to the north-west of the town but overall, is not as effective in providing local access as the other two options.

The Quinns Road option provides excellent access to the developing areas in the south-east and the north-east but does not serve the west. The upgrade of the Kilmore-Epping Road provides a much improved link to the south but traffic still has to rely on the existing Northern Highway north of the Kilmore-Epping Road intersection.

On the other hand, the Western option provides for alternative access to the developing areas to the west of the existing Northern Highway including the industrial area. In addition, while not part of the bypass project, it allows for Council to upgrade the southern part of Quinns Road in the future to provide the missing connector road link to McIvors Road, Tootle Street and Anderson Road.

(ii) The Kilmore Wastewater Management Facility

The Inquiry agrees that from any reasonable view, a road could not be interpreted as a land use requiring a particular focus on protecting the beneficial uses of the air environment and is not a land use similar in character to the examples given in the definition – residential or child care. Keeping arterial roads away from wastewater management facilities should certainly be a factor in locating roads and wastewater facilities but the Inquiry cannot give it much weight. If there is an adverse event and the plant produces a noticeable odour for users of the bypass this will only be for a relatively brief moment as the vehicle would soon clear the smell.

We agree that the impact to the WMF is a land use issue and, failing that, a matter for compensation.

The Inquiry recognises that recommending the Western alignment be refined in the location of the wastewater plant raises issues of further studies and this may impose delays on the construction of the road in this section.

A decision to proceed with the Western option would set ‘the ground rules’ for a technical discussion on the relative engineering merits and costs to government agencies of:

- minor changes to the location of the Western option adjacent to the WMF, perhaps in combination with reconfiguring the WMF operation, or
- relocating the WMF and bearing the additional cost of this.

6.2.4 Inquiry OBEM ratings

The Inquiry’s ratings for how the options perform in terms of supporting the future development of Kilmore are shown in Figure 6-8.

For convenience the rating for odour, which the Inquiry has assessed as an amenity issue, is also presented in Figure 6-8.

Figure 6-8: Strategic development: Inquiry OBEM rating

		Dry Creek	Quinns Road	Western
Strategic development	Access to the developing areas of Kilmore	0	+1	+2
	Impact on Wastewater Management Facility	0	0	-2
Odour	Wastewater Management Facility	0	0	-1

7 Natural environment impacts

7.1 Biodiversity and habitat

7.1.1 Introduction

The EES provides a comparison of the three alignment options in the form of an overall OBEM rating as shown in Figure 7-1. The Inquiry formed a different view.

Figure 7-1: Biodiversity and habitat: EES Objectives-Based Evaluation Matrix:

	Dry Creek	Quinns Road	Western
Overall OBEM rating	Moderately Poor	Moderately Poor	Moderately Poor

Source: EES

Section 4.7 of the Scoping Guidelines provided the following evaluation objective for biodiversity and habitat issues:

To avoid or minimise effects on native vegetation and listed flora and fauna species and ecological communities, including those listed under the Environment Protection and Biodiversity Conservation Act 1999, and address opportunities for offsetting potential losses consistent with relevant policy.

The Scoping Guidelines identified the following key issue in relation to biodiversity and habitat issues:

Loss of or degradation to significant habitat for protected native flora and fauna species and communities, including those listed under the EPBC Act and/or the FFG Act.

7.1.2 EES documentation

In preparing the EES desktop studies and field assessments were carried out including:

- a spring survey (preliminary flora and fauna assessment)
- detailed surveys to assess vegetation condition and riparian and in-stream habitat
- targeted flora surveys for the Matted Flax-lily, Fringed Sun-orchid and Small-flowered Wallaby-grass
- targeted terrestrial fauna surveys for the Golden Sun Moth, Growling Grass Frog, Striped Legless Lizard, Small Ant-blue Butterfly and Large Ant-blue Butterfly, significant woodland-dependent birds, Brown Toadlet and Southern Toadlet, Brush-tailed Phascogale, Powerful Owl and Barking Owl
- targeted aquatic fauna surveys.

In evidence, Mr Aaron Organ noted that the surveys were quite intensive, with 28 days for terrestrial ecology studies and 15 days for aquatic surveys, each involving a number of people.

Native vegetation types in the study area range from highly modified areas in poor condition dominated by exotic vegetation to areas of remnant vegetation in good condition. Remnant vegetation is generally limited to roadsides reserves and Monument Hill Reserve.

The EES identifies the primary flora and fauna impacts of the bypass as:

- the removal of remnant native vegetation, resulting in the direct loss of habitat supporting significant fauna
- loss of corridors that facilitate significant fauna movement.

These impacts are assessed in terms of:

- impact on species listed under the Environment Protection and Biodiversity Conservation Act 1999
- impact on species listed under the *Flora and Fauna Guarantee Act 1988*
- the removal of native vegetation.

Other impacts on flora, fauna and biodiversity may include introduction and spread of weeds or pathogens, sediment discharge, modification of surface water flows, increased noise and light disturbance and dust from construction. The impacts are assessed as minor or insignificant with appropriate mitigation measures.

Environment Protection and Biodiversity Conservation Act species

One fauna species listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was recorded in the study area: the critically endangered Golden Sun Moth.

Figure 7-2 documents the impacts on Golden Sun Moth habitat. The EES concludes that only a moderately poor impact is expected because of the limited area to be removed, and the implementation of mitigation measures.

The Commonwealth Government will make the final decision and, if necessary, apply additional conditions if more EPBC listed species are identified between the present time and implementation of the project. Mr Stewart, advised that DEPI anticipates that the EPBC issues will be assessed by the Commonwealth, despite moves towards a new bilateral agreement that will delegate these responsibilities to the State.

Figure 7-2: Summary of impacts – *Environment Protection and Biodiversity Conservation Act* species

	Dry Creek	Quinns Road	Western
EPBC impact	Removal of 2.5ha of Golden Sun Moth habitat and 2.2ha of potential habitat (2.0ha and 1.2ha respectively for initial alignment).	No impact identified.	Removal of 3.1ha of Golden Sun Moth habitat and 1.5ha of potential habitat (2.2ha and 1.1ha respectively for initial alignment).
EES rating	Moderately poor	Negligible	Moderately poor

Source: EES, p.9-37

Flora and Fauna Guarantee Act species

Four fauna species listed under the *Flora and Fauna Guarantee Act 1988* (FFG Act) were recorded in the Study Area: Brush-tailed Phascogale, Powerful Owl, Barking Owl and Golden Sun Moth. There is also potential habitat in Monument Hill Reserve for an additional three species: Diamond Firetail, Hooded Robin and Speckled Warbler.

One ecological community listed under the FFG Act, the Victorian Temperate Woodland Bird Community, was also recorded within the Study Area.

The EES notes that a further seven regionally significant fauna species may also be present or utilise habitat within the Study Area that may be removed for the Project. The expected impact on all these species would be minor.

Figure 7-3: Summary of impacts – Flora and Fauna Guarantee Act species

	Dry Creek	Quinns Road	Western
FFG species	Barking Owl, Brush-tailed Phascogale and Powerful Owl habitat	Barking Owl, Brush-tailed Phascogale and Powerful Owl habitat Potential habitat for Diamond Firetail, Hooded Robin and Speckled Warbler	Barking Owl, Brush-tailed Phascogale and Powerful Owl habitat
DSE Advisory List species	Brown Treecreeper, Hardhead, Nankeen Night Heron, River Blackfish and Long-necked Turtle habitat	Brown Treecreeper, Hardhead, Nankeen Night Heron, River Blackfish and Long-necked Turtle habitat Potential habitat for Azure Kingfisher, Bearded Dragon and Black-eared Cuckoo	Brown Treecreeper, Hardhead, Nankeen Night Heron, River Blackfish and Long-necked Turtle habitat
Rating	Moderately poor	Poor	Moderately poor

Source: EES, p.9-37

The bypass could result in increases in the amount and frequency of ‘hostile’ habitats for native fauna and some elements could act as barriers for the future movement of native species and result in impacts to fauna. The EES considered these impacts to be minor and that they would be reduced by the implementation of mitigation measures. This was subject to a number of submissions.

The bypass could also result in an increase in arboreal native fauna species killed or injured by vehicles where the carriageway passes through heavily vegetated areas.

Native vegetation loss

The EES assesses vegetation losses in accordance with *Victoria’s Native Vegetation Management – a Framework for Action (2002)* (‘Framework’) as shown in Figure 7-4.

Figure 7-4: Estimated Vegetation Losses – Initial Alignment and Future Upgrade

	Dry Creek	Quinns Road	Western
Initial alignment (2-lane)	6.9ha including 5.6ha of very high conservation significance EVCs	15.8ha including 9.5ha of very high conservation significance ecological vegetation classes (EVCs)	9.8ha including 4.5ha of very high conservation significance EVCs
Future upgrade (4-lane)	8.9ha including 7.5ha of very high conservation significance EVCs	20.5ha including 12.7ha of very high conservation significance EVCs	12.8ha including 5.8ha of very high conservation significance EVCs
	Removal of: <ul style="list-style-type: none"> • 91 scattered trees • 65 large old trees • 8.9ha of EVCs overall of which 7.5ha are very high conservation significance. 	Removal of: <ul style="list-style-type: none"> • 34 scattered trees • 134 large old trees • 20.5ha of EVCs overall of which 12.7ha are very high conservation significance. 	Removal of: <ul style="list-style-type: none"> • 53 scattered trees • 60 large old trees • 12.8ha of EVCs overall of which 5.8ha are very high conservation significance.
	Moderate Risk Assessment pathway under the Biodiversity Assessment Guidelines	Moderate Risk Assessment pathway under the Biodiversity Assessment Guidelines	High Risk Assessment pathway under the Biodiversity Assessment Guidelines
EES rating	Moderately poor	Moderately poor	Moderately poor

Source: EES, p.9-1

7.1.3 Evidence and submissions

VicRoads called Mr Aaron Organ to provide expert evidence based on the flora and fauna studies carried out for the EES (Technical Appendix B) and Mitchell Shire Council commissioned Mr Geoffrey Carr and Mr Jeroen (Jake) Urlus of Ecology Australia to provide a peer review of these studies.

Mr Stewart, on behalf of DEPI said that Department was satisfied that flora and fauna listed under the FFG Act have been considered in the preparation of the EES and that the EES provides for the management of any listed species that may be affected by the bypass; and that it outlines appropriate contingencies for the management of any listed species currently not identified to occur within the bypass area, but that may be discovered during project works. A permit under the FFG Act will be required (subject to approval of the proposed Project).

Issues raised in evidence and submissions included:

- survey method
- survey results
- issues around avoidance and offsets
- connectivity and edge effects
- mitigation measures

- OBEM rating.

(i) Survey method

Messrs Carr and Urlus (Ecology Australia) suggested that the flora and fauna assessment had material limitations in terms of methodology, data used for assessment, data interpretation and evaluation of the potential impact on flora and fauna values. They identified what they said were numerous inconsistencies and anomalies in the report regarding methodologies, results and ranking of alignment options.

Survey extent

Mr Organ noted that the study area for the flora and fauna surveys included 200 metres on either side of the defined road corridor. Cross sections show that the 2-lane alignment through Monument Hill Reserve varied in width from 27 to 42 metres, with an average of 31 metres and the 4-lane version from 50 to 67 metres, with an average of 54 metres.

Mr Organ acknowledged that the surveys did not cover the whole of the Monument Hill Reserve, but considered that there was no major difference between the quality of the habitat in the road corridor and that outside it.

Ecological Vegetation Class issues

Kilmore is located on the boundary of two bioregions and there is a range of habitats represented.

Ecology Australia criticised the reliance of the EES studies on the Ecological Vegetation Classes (EVC) typology modelled by DEPI and said that this did not recognise that the western part of the study area contains extensive volcanic terrain. Ecology Australia claimed the EES may have overlooked the:

- Plains Grassy Woodland of the Victorian Volcanic Plain (listed as critically endangered under the EPBC Act)
- Box-Gum Grassy Woodlands
- Derived Grasslands (dominated by Yellow Box) on the Western route (EPBC listed).

Ecology Australia noted that remnant indigenous vegetation in the landscape along parts of the Western route clearly conforms to Plains Grassy Woodland of the Victorian Volcanic Plain, but notes that the remnants may not meet established condition thresholds for recognition of the community.

Others submitted that EVCs are poorly mapped in the Kilmore-Wallan area and the consultants may have missed:

- Valley Grassy Forest in the Highlands Northern Fall bioregion
- Herb-rich Foothill Forest in the Central Victorian Uplands bioregion in Monument Hill Reserve.

Submissions contend that local research has identified four EVCs in the Monument Hill Reserve, but Mr Organ considered all remnant vegetation to be Dry Grassy Woodland (based on current vegetation condition) and this was confirmed by DEPI.

Survey timing and effort

Ecology Australia states:

There are material issues in the spatial extent and survey effort of targeted surveys for Golden Sun Moth and Striped Legless Lizard; these surveys did not meet the guidelines established for these species under the EPBC Act.

Mr Urlus suggested that Monument Hill Reserve would provide suitable roosting habitat for the Eastern Horseshoe Bat and Eastern Bent Wing Bat. He said a full survey of Monument Hill Reserve would need to take account of the seasonality of species. Dozens of individual visits would be required. A targeted survey would be required for bats.

Other submitters said that the targeted studies failed to consider the regional impacts of the proposed clearing in Monument Hill, particularly on Brush-tailed Phascogale and Powerful and Barking Owls.

Mr Urlus concluded that the flora and fauna studies for the EES did not meet the objective of the Scoping Requirements, in that they did not 'identify the existence or likely existence of [listed] threatened species'.

Mr Organ responded to criticisms about the survey effort and findings, stating that surveys were completed in accordance with recognised standards by a highly skilled ecology team, experienced in locating and identifying relevant significant species. He was confident about the extent, duration and thoroughness of the surveys and noted:

- Despite the report saying that areas of suitable habitat were 'walked or driven' surveys for Golden Sun Moth and Striped Legless Lizard had mostly been inspected on foot.
- Each potential Golden Sun Moth location was visited four times, as required by the national guidelines.
- The timing of commissioning of the studies meant that tile grids for the Striped Legless Lizard could not be laid out in winter, but doing the survey in October was still useful.
- The consultants carried out targeted surveys for the Matted Flax-lily, but did not find it. He did not discount the possibility that it might occur in the area, but thought there was a low likelihood. If it was found, previous experience shows that it can be salvaged and translocated readily.
- The consultants also did targeted surveys for the Fringed Sun Orchid, without success. It would help to know where the findings reported in submissions had been recorded and the number of plants.
- The flora and fauna surveys counted the number of hollow-bearing trees, not the number of hollows in total. However, hollows are very important and different species have different requirements for size and location of hollows.

Mr Stewart, for DEPI said that Department is satisfied that the assessment, extent and results of surveys undertaken are adequate and reliable.

(ii) Survey results

It was accepted that the surveys may not have identified all relevant species and Mr Organ conceded that other significant species might be present, despite not being recorded during targeted surveys, particularly in Monument Hill Reserve.

Mr Organ's agreed that many flora and fauna species that are not specifically discussed in the report, such as orchids, contribute to local biodiversity, and said he would welcome more information on the exact species and location of potential significant species identified by local residents.

Flora

Mr Organ summarised that no significant flora species or ecological communities were recorded in the study area during the field assessment and none is expected to occur.

Mr Peter Mitchell (document 71) observed that there is more native grassland left to the west of Kilmore than might be expected and it still has conservation value despite clearing and grazing. This point was reinforced by other submitters who said that leaving some native pastures 'unimproved' was a common farming practice to maintain feed in dry periods.

It was submitted further surveys are required for:

- Matted Flax-lily (an EPBC listed species) on the basis that it is likely to be more widespread than current records indicate, and contingency mitigation measures for it should be included in the Significant Species Conservation Management Plan
- Clover Glycine (identified as threatened under the EPBC and FFG Acts) which is scattered throughout the area.

Mr Norm Stimson submitted that over 36 species of orchids have been recorded on Monument Hill and large numbers of fungi (later put at 50 species, by another submitter).

The Save Monument Hill Community Group presented records of the results of its own fieldwork that confirms the presence of 24 orchid species, habitat for the Matted Flax-lily, and a record of the Fringed Sun Orchid, plus a range of other flora listed either under the FFG Act, on the DSE Advisory List or on the Goulburn-Broken Catchment Management Authority (GBCMA) regional list.

The Group submits that the overall assessment for the Quinns Road route for flora and fauna should be 'very poor'.

Fauna

Areas supporting notable terrestrial habitat included:

- Monument Hill Reserve
- hollow-bearing trees through the study area
- remnant native vegetation and wildlife corridors along roadsides and creek lines, such as Quinns Road, Mclvors Road and the Northern Highway
- grasslands, including remnant native grasslands
- Broadhurst Creek
- Dry Creek.

In response to questions Mr Urlus explained that the Golden Sun Moth does not require habitat dominated by native vegetation, so the fact that the Western route runs predominantly across degraded grasslands does not indicate that the moth will not occur in the majority of the area. He considered that there was potential to find the Golden Sun Moth on volcanic soils on the Western route, near Paynes Road in areas of tussock

grasslands, near the corner of the Epping-Kilmore Road and Quinns Road, and in additional locations on the Dry Creek route.

Mr Organ said that the flora and fauna studies for the EES identified the Western alignment as the preferred option based on overall biodiversity factors and that the presence of the Golden Sun Moth had been taken into account in this assessment.

The EES recognised that other EPBC-listed species that may use the study area include the Swift Parrot and the Grey-headed Flying-fox, but considered that the study area is unlikely to provide permanent or limiting habitat for either species. Mr Urlus also contended that the Striped Legless Lizard could occur in the western part of the study area, in habitats similar to those supporting the Golden Sun Moth.

All three options have suitable habitat for the Hardhead duck on dams and for the Brush-tailed Phascogale, Powerful Owl, Barking Owl and Brown Treecreeper in woodlands and other areas supporting hollow-bearing trees. Such habitat is principally found along creek lines, roadsides and in Monument Hill Reserve and is also likely to support the Victorian Temperate Woodland Bird Community. There is potential for four more state-significant species and four additional regionally significant species to be present in areas of higher quality habitat such as Monument Hill Reserve.

Two regionally significant species of aquatic fauna were recorded.

The EES acknowledges that construction of waterway crossings at Dry, Broadhurst and Kilmore Creeks may result in local destabilisation of the waterway banks and channel profile, degradation of river health values and reduction of key aquatic and associated terrestrial habitat. However, it concludes that the impact of construction on aquatic ecology is likely to be minor following the implementation of mitigation measures.

Submissions claimed that the Monument Hill section of the Quinns Road option would have a significant effect on habitat for rare and threatened fauna species and that local extinctions were likely. Mr Organ was unable to say whether the bypass in this location might lead to local extinctions, but noted that large hollow-bearing trees were important to most them.

Dr Victor Hurley submitted that the vulnerable Peregrine Falcon has been breeding at an abandoned quarry north-east of The Dene, Wandong (near the proposed Dry Creek interchange with the Hume Freeway) since at least 1948. Ongoing recovery of Victoria's Peregrine Falcon population requires that traditional nesting sites such as this are protected and free from disturbance.

Mr Organ noted that the Peregrine Falcon is not a listed species but that it requires specialised habitat. He acknowledged the Wandong quarry site's importance for Peregrine Falcon (a regionally significant species) and that it should be protected.

Monument Hill

The ecological values of Monument Hill were the focus of a number of submissions, and it was accepted by experts that Monument Hill has a range of ecological values.

Mr Organ stated:

Monument Hill Reserve supports moderate to high quality, contiguous woodland habitat for fauna species in a landscape which has generally been

cleared for agricultural purposes. It is likely to provide habitat to a wide range of native fauna species, with several significant fauna species recorded in the reserve during targeted surveys (Brush-tailed Phascogale, Barking Owl and Brown Treecreeper), potential for numerous additional species (e.g. Greater Glider, Diamond Firetail, Hooded Robin and Speckled Warbler), and the Victorian Temperate Woodland Bird Community which is listed under the FFG Act.

Mr Organ said that, although all three options were assessed as 'moderately poor', the Quinns Road option was identified as the least preferred, because of its higher overall score in terms of significant biodiversity values. It impacts on a large remnant patch (Monument Hill Reserve) where the ecological quality is much better than the degraded habitat on the other alignments.

Ecology Australia stated:

The habitat quality of Monument Hill Reserve is demonstrably high for a number of threatened fauna species, which has been acknowledged to some extent in parts of the report... However, the assessment of alignments does not reflect this and does not reflect the likely significance of Monument Hill Reserve as potential 'core' habitat for key threatened species (e.g. Barking Owl, Powerful Owl, Brush-tailed Phascogale) within the largely degraded landscape; similar quality and extent of habitat does not appear to occur within at least 5 km of the reserve.

The Save Monument Hill Community Group's own fieldwork confirms the presence of the Brush-tailed Phascogale and Powerful Owl and significant habitat for both species, species from the Victorian Temperate Woodland Bird Community and suitable habitat, plus a range of other fauna listed either under the FFG Act, on the DSE Advisory List or on the Goulburn-Broken Catchment Management Authority (GBCMA) regional list.

The Group considers that the presence of EPBC listed species should elevate the Quinns Road option to the same level of importance as the other two (due to the occurrence of the Golden Sun Moth on the other routes).

Mr Norm Stimson gave a detailed presentation. His supporting material (document 89) included results of a survey of large old hollow-bearing trees in Monument Hill Reserve that counted the number of trees and the number and size of hollows which he said confirms that the lower slopes contain the best fauna habitat in the Reserve, particularly large hollows used by the Barking Owl and smaller hollows utilised by the Brush-tailed Phascogale and the possums and gliders that provide food for the Powerful Owl. If these trees are removed, the number of owls may decline. Mr Organ formed a contrary view that the southern area of Monument Hill Reserve has the greatest habitat diversity. He considered that the area where the road is proposed is not of the same quality, although it does support good ground vegetation.

Mr Peter Mitchell (document 71) submitted that large trees are gradually disappearing from the wider landscape and younger trees take more than 150 years to grow and develop hollows. So species reliant on old trees are facing a bottleneck over the next 100-150 years and this is a very big issue for wildlife conservation. The bypass would therefore have a significant effect on the value of the Reserve.

Mr Stimson considered that the EES studies failed to recognise the greater value of public land, and thus underestimated the significance of Monument Hill Reserve. VicRoads submitted that the legislation (EPBC Act and FFG Act) does not attribute any higher values to biodiversity on public land versus other types of tenure.

(iii) Avoidance and offsets

A number of submitters thought the impacts of Quinns Road seem too great to be mitigated environmentally, short of buying a similar amount of land to the east of Monument Hill and revegetating it.

The Save Monument Hill Community Group (submission 112) suggested that the bypass should have started with a landscape or regional scale assessment, which would have allowed 'true' avoidance of areas of identified high value. Mr Stimson (submission 085) agreed and pointed out that the three final routes were selected prior to carrying out the targeted studies of rare and threatened flora and fauna. He suggested that VicRoads had focused on 'minimising, ameliorating and offsetting, rather than avoidance'.

The Victorian National Parks Association (submission 50) said that the Quinns Road option has the largest ecological impact of any of the three options by far and should be avoided. It stated that with further research, additional state and federally listed species would be able to be identified. The submission continued:

We understand and support the move by local groups to nominate the area for Nature Conservation Reserve. We think this block is of significant conservation value and should be retained in its current form and this route for the bypass dropped, to avoid impact on high conservation value areas.

Mr Mitchell suggested that there are opportunities for detailed planning to reduce the vegetation clearance required, particularly where the bypass options intersect with other roads. He gave examples including the junction of the Quinns Road route with Tootle Street and the intersection of the Western route and Mill Road. Mr Organ acknowledged that some of the large old trees identified for clearing might be able to be avoided. He said the tabulations represented a 'worst case scenario'.

VicRoads told the Hearing that the design of the various alignments had attempted to avoid and minimise the need to clear native vegetation. Figure 7-5 sets out the amount of vegetation impacted.

Figure 7-5: Native Vegetation impacts

	Interim			Ultimate		
	Dry Creek	Quinns Rd	Western	Dry Creek	Quinns Rd	Western
Habitat Hectares	5.8	11.26	6.13	7.76	15.38	8.41
Large Old Trees	326	730	274	480	918	366
Scattered Trees	81	29	36	91	34	53

Source: Objectives Based Evaluation Matrix - Flora & Fauna (Technical Appendix B, p67)

Comparing the unique sections of the Western and Quinns Road options shows that the Quinns road option has a larger footprint.

Table 7.5 Permitted clearing report results for unique sections of Quinns Road and Western options (DEPI)

	Quinns Road (unique)	Western (unique)
Risk-based pathway	Moderate	High
Total extent (ha)	12.058	5.364
Remnant patches (ha)	10.722	2.833
Scattered trees (no. trees)¹	19	36
Location Risk	A	B
Strategic Biodiversity Score	0.102	0.104
General offset amount (Biodiversity Equivalence Units)	0.770	0.265

Source: Mr Organ

Note: Under the Guidelines, scattered trees are converted to an area, on the basis of 1 tree = 0.071 ha. This is included in the Total extent shown above.

VicRoads would be required to obtain offsets for vegetation and habitat losses. These were calculated by DEPI in accordance with the EPBC Act offsets policy and the new Victorian *Permitted clearing of native vegetation, Biodiversity Assessment Guidelines* (DEPI, 2013) ('Guidelines'). The Guidelines result in considerably smaller offset than would have been needed under the previous Framework.

The clearing required for the bypass triggers a moderate risk assessment pathway for the Quinns Road and Dry Creek options and a high risk assessment pathway for the Western option (because a small area near the Kilmore Wastewater Management Facility is mapped as 'Location B' on the Native vegetation location risk map under the Guidelines).

Projects assessed under high or moderate risk pathways must meet specific requirements, including demonstrating how any effects of the proposal have been minimised, on-ground assessment of native vegetation condition, and provision of an offset strategy that details how a compliant offset will be secured (to be provided within 12 months of project approval).

Species-specific offsets are only required for significant impacts to rare and threatened species (based on the proportion of remaining habitat affected) and no such offsets are needed for this project.

Mr Stewart confirmed that DEPI would be involved as a 'recommending' referral authority in relation to vegetation removal on the Western route but had no further role in advising on the other two routes, as the Guidelines do not provide for referral of assessments under the moderate risk pathway.

(iv) Connectivity and edge effects

Submission expressed fears that a road through Monument Hill Reserve would fragment the area and lead to 'edge effects' and invasion of 'edge species' that would compete with or kill resident species, and to weed invasion. Increased exposure to wind and sunlight would dry out the forest and change the habitat and carbon monoxide may impact on plants and insects.

Other submissions put the view that the road will be a more significant barrier to wildlife movement than has been recognised in the EES. Mitchell Shire Council (submission 114) suggested that all options should consider:

- flow-on effects of additional vegetation removal from municipal roads that will access the bypass
- safe movement of native animals
- provision of native vegetation offsets locally.

It sought to have these principles included in the EES approval.

Mr Organ states that a road through Monument Hill Reserve area:

... will result in the direct loss of remnant native vegetation and associated fauna habitat ..., and the potential for ongoing deleterious impacts ... as a result of barrier/fragmentation effects due to the road and loss of habitat continuity and permeability through the landscape.

Submitters were concerned that wildlife would be cut off from water sources on the golf course, resulting in an inordinate amount of road kill (particularly of kangaroos, wombats and echidnas, but also arboreal mammals) and that wildlife would also pose a threat to motorists. It is commonly accepted that kangaroos inhabit Monument Hill and of an evening move down to the adjacent cricket ground and golf course to feed. This takes them across the proposed Quinns Road alignment. Mr Stimson tabled results of a survey of kangaroo movement tracks in the Reserve, which identified 36 tracks of relatively high usage over the 950 metre length of the road corridor. Nearly all the tracks ran downhill, into the bypass corridor.

Ms Neva Gladman (submission 029) summarised the biodiversity and habitat values of Monument Hill Reserve and the likely impacts of the road:

It is a large contiguous area of forested land that supports many species, including species that require large home ranges and cannot survive in the surrounding highly modified and fragmented landscape. The fragmentation of the reserve by a major road, carrying mainly heavy vehicles, will cause a significant impact on this range of species. The total area of habitat will be significantly reduced and this could adversely affect some species by reducing their home ranges or adding to the distance the need to travel for food, and thus affecting their ability to breed. Many of the large 'habitat' trees will be lost, with offset planting unable to provide similar habitat for many decades.

Mitchell Shire Council (submission 114) noted that Council's objective for the Monument Hill Reserve is to preserve its flora and fauna and provide space for passive recreation and for education. Council has adopted a robust and comprehensive management plan, focusing on site conservation and maintaining and enhancing (where appropriate) its biodiversity. Monument Hill is partially covered by the Vegetation Protection Overlay Schedule 1 (VPO1). Council also said that there are significant impacts on vegetation along waterways and roadsides for the Quinns Road option.

Mr Peter Mitchell (document 71) pointed out that the Piper Biolink project is intended to provide a focus for protection and revegetation across the Shire, following the GBCMA's identification of the Piper zone as a high priority for revegetation and connectivity. The South West Goulburn Landcare Group has obtained funding for a 'habitat highway' along Dry

Creek from Mt Piper to Monument Hill and work has begun on this project. Both the Dry Creek and Quinns Road options would impact on it. Monument Hill is 'a significant stepping stone' across the Piper Biolink.

While submissions concentrated on the landscape connectivity of the Quinns Road option at Monument Hill other connectivity issues were raised for the other options:

- It was submitted that Dry Creek is a key corridor linking the eastern ranges to the central Mitchell Shire area and up to the Goulburn River, and that the Dry Creek corridor is a valuable refuge in dry times and a link between Mt Piper and Monument Hill and upstream to the forests east of Wandong. The Dry Creek bypass option would result in losses in the continuity and width of the corridor and in the quality of the vegetation, particularly with the loss of many large trees.
- The Western route runs through depleted and fragmented landscape and further loss of vegetation, particularly large trees, would have a disproportionately large impact on biodiversity and connectivity in the area. A bypass on this route would reduce the opportunities for a network of biolinks.
- The proposed bridge over Broadhurst Creek on the southern section of the Quinns Road and Western routes is 'the only effective [wildlife] crossing planned along this route'.

The Country Fire Authority (CFA) (submission 54) set out its requirements which would exacerbate the edge effects of any option. These requirements include:

- vegetation clearance for three metres behind any wire rope barriers to allow for emergency vehicle access and vegetation management.
- a minimum of four metres between the carriageway and the wire rope barrier on the left side and three metres on the right on divided roads and four metres on each side on 2-lane, 2-way roads, to allow vehicles to be turned around in the case of an accident or other blockage.
- landscaping and revegetation of the bypass should not increase the radiant heat potential beyond 10 kilowatts per square metre on the carriageway and should minimise the creation of 'continuous' fuel.
- existing roadside vegetation should be managed to maintain the existing quality and quantity and not allow a potential build-up of fuel, creating fire risk.

(v) Mitigation

Monument Hill wildlife tunnels

There were a number of submissions and evidence about the efficacy of wildlife tunnels to mitigate the impacts of the Quinns Road option on Monument Hill.

VicRoads advised that no protective fencing for wildlife is proposed in the section of the Quinns Road option through Monument Hill Reserve.

Mr Organ explained that the proposed underpasses on the Quinns Road route would be for ground-dwelling species, such as bush rats and kangaroos, most of which are fairly common, however, the significant species probably would not benefit from them.

Mr Organ said research on fauna bridges or underpasses indicated that they can mitigate severance of habitat, but the barrier will be more serious for species such as toadlets than

for mobile species such as kangaroos. Dedicated wildlife underpasses will be needed, not ones shared with people and horses. Aerial crossings would be needed for the Brush-tailed Phascogale and other arboreal mammals.

Mr Urlus stated that it was unlikely that crossing structures could actually reconnect a home range divided by a highway, but they could allow for dispersal and gene flow across the landscape, but 'none will ever work as well as the original landscape without the bypass'.

Mr Urlus agreed that fauna crossings, despite their shortcomings, should be implemented if the Quinns Road alignment is chosen. For Monument Hill these should include rope bridges and glider poles as well as underpasses. For ground-dwelling species, the more underpasses, the better.

A number of submissions stated that the proposed mixed-use underpasses (for pedestrians, horse riders and drivers, cyclists and wildlife) will not be effective for wildlife. Mr Mitchell considered that specific kangaroo crossing structures will be required, combined with single-purpose underpasses, barrier fencing and structures to allow the animals to escape from the fenced area if they become trapped. Species-specific crossing structures might also be required for wombats, possums, lizards and frogs.

Mr Urlus and Mr Organ agreed that species-specific underpasses would be needed and that wildlife could not share tunnels with pedestrians and horses.

Dry Creek

The Dry Creek option will intrude on the fragile Dry Creek environment and surrounds, which are still trying to recover from the Black Saturday fires. Native flora and fauna are still re-establishing colonies in the aftermath of this destruction and the construction of the bypass would slow this.

Mr Mitchell submitted that bridges would need to be built high enough and with a long enough span to protect the riparian floodplain vegetation and maintain a wildlife corridor. It was submitted that ensuring that the natural course of Dry Creek itself was not impacted or altered would be 'near to impossible'.

(vi) OBEM

The Save Monument Hill Community Group submits that the overall assessment for the Quinns Road route for flora and fauna should be 'Very Poor'.

The Ecology Australia raised concerns about the OBEM, saying:

This matrix is very poorly defined, with no transparency and no rationale presented as to how the rankings were determined or how weightings for different categories were assigned. Furthermore, there are anomalies in the matrix scores, including assigning a lesser impact for the Quinn's Road and Dry Creek options under the Ultimate alignment (i.e. four lanes) than under the Interim alignment (two lanes).

Mr Organ summarised his expert witness report in a slide presentation. However, this contained a version of the OBEM that was different from the one in his written statement (and Technical Appendix B) and the EES report. After reverting to the version in the expert witness report, he was initially unable to explain to the Inquiry the different treatment of the

values for EPBC and FFG/DSE Advisory List issues, compared with the broader native vegetation assessment.

On resuming his evidence, he advised that the native vegetation category was comparative, whereas the other two sub-objectives record absolute impacts and have been assessed on the basis of the Consequence Table (Appendix A of the Risk Assessment Report – Technical Appendix R).

The Consequences Table was developed to provide an objective, structured basis for comparison, with agreed values. A supplementary letter from Mr Organ (document 110) tabled by VicRoads explained that the analysis for native vegetation used the initial consequence rating from the Risk Register in order to provide a measurable outcome for each category. He continued:

This method was found to be too broad for vegetation loss categories, with all three options achieving a similar score and the same rating of 'Poor'... This outcome (although appropriate in the context of the Risk Register) neither allowed for a comparison of options nor adequately reflected the definitions of the OBEM Assessment Scale. As such, comparative assessment of specific quantities of habitat hectare areas, large old trees and scattered trees was undertaken, which allowed for a finer-scale comparison of options based on proposed native vegetation loss.

7.1.4 Discussion

The Inquiry advised that it would adopt a strategic approach, rather than getting bogged down in the numbers shown in the OBEM summary tables. Issues around the OBEM methodology are addressed in Section 4.4 beginning on page 14.

The Inquiry notes that DEPI is satisfied that relevant matters of national environmental significance likely to be impacted have been identified, potential impacts on these matters have been identified and that management arrangements to mitigate impacts to these matters of national environmental significance are appropriately described.

(i) Adequacy of studies

Subject to the various clarifications provided by Mr Organ regarding fieldwork and survey methods, the Inquiry considers that the EES studies provide an adequate understanding of the potential impacts of the three alignments on biodiversity and habitat and meet the requirements of the relevant EPBC guidelines.

The Inquiry also accepts the view put by Mr Organ, Mr Urlus, and submitters Mr Mitchell and Mr Stimson, that it is likely that some significant species, particularly fauna species, may be present in areas where they were not detected during fieldwork. The identification of areas of potential, as well as confirmed, habitat in the assessment addresses this concern, as does the inclusion of contingency measures in the proposed conservation management plan.

(ii) Commonwealth listed species

Potential impacts on the Golden Sun Moth are the major drawback of the Dry Creek and Western options and the Inquiry does not underestimate their importance. There are indications, on the basis of local experience, that the Golden Sun Moth may be quite widespread in the general area of Mitchell Shire. While this may potentially reduce the

impact of removal of specific areas of habitat and potential habitat, it may also mean that the Dry Creek and Western options would affect a greater area of potential habitat than has been recognised at present.

(iii) State listed species

The Inquiry notes the importance of the Dry Creek waterway for aquatic species and riparian vegetation. Mr Organ said that the flora and fauna studies had recommended that all bypass bridge structures be located outside defined waterways. The Inquiry has not investigated the extent to which this has been achieved for the Dry Creek option.

While in theory, an elevated road structure could be consistent with developing a 'habitat highway' the Inquiry notes that a large number of scattered trees, including large old trees and remnant patches would be removed by the Dry Creek option and it would also involve substantial amounts of cut and fill. Neither of these is likely to be conducive to enhancing the role of the creek corridor as a key linkage in the Piper Biolink system.

Regarding the Peregrine Falcon, the Inquiry notes that it not listed as a significant species, but suggests that, if the Dry Creek option were to be chosen, attempts should be made to relocate the road as far away as possible from the quarry.

(iv) Native vegetation

The Inquiry accepts Mr Mitchell's warning that the effect of tree removal on the Western option will be severe because of the degraded and fragmented nature of the remaining native vegetation in the general area. Nevertheless, it notes that the area of remnant patches to be removed on the unique segment of the Western Route is less than one third of that for the equivalent part of the Quinns Road alignment, although the number of scattered trees is larger. Overall, the Western option (including the portion shared with Quinns Road) involves removal of less than half of the total native vegetation, half the EVCs of very high conservation significance and half the large old trees that would be lost if the Quinns Road option were adopted.

The evaluation objective for biodiversity and habitat in the EES scoping document requires the bypass:

To avoid or minimise effects on native vegetation and listed flora and fauna species and ecological communities, including those listed under the Environment Protection and Biodiversity Conservation Act 1999, and address opportunities for offsetting potential losses consistent with relevant policy.

The detailed design of the various routes within the broad alignments may well have sought to avoid native vegetation wherever possible.

The Inquiry notes that 'avoidance' is now only required (under the Guidelines and Clause 12.01-2 of the Planning Scheme) for 'native vegetation that makes a significant contribution to Victoria's biodiversity' and that Monument Hill Reserve does not come under this definition. While this interpretation of the current policy context is clearly true for new applications under the Guidelines, the Inquiry considers that this Project should still be measured against the original evaluation objective, which specifically requires avoidance as a first consideration.

The Inquiry considers that there would be substantial impacts on the biodiversity and habitat of the Monument Hill Reserve, including but not limited to:

- loss of old hollow-bearing trees
- severance effects
- edge effects
- impacts of the road on wildlife movement and vice versa
- the role of Monument Hill Reserve as a key component of the Piper Biolink project
- potential additional clearing that might be required to conform with the CFA's requirements for emergency vehicle access and clearances between barriers and roadside vegetation
- the loss of environmentally significant public open space and the difficulty of providing appropriate offsets.

Potential for offsetting

Vegetation offsets appear very unlikely to be able to compensate for the type of habitat that will be lost if the bypass goes through the Monument Hill Reserve. There is no suggestion that a contiguous parcel of land would be acquired to extend the reserve and for replanting and regeneration. In any case, as noted in submissions, it takes up to 150 years for trees to develop hollows, so no new plantings will substitute for loss of old trees. Offsets are also likely to be located on sites remote from the impact area and may not be in areas accessible to either the species in the Reserve or the public.

While some degree of mitigation of the impacts of the bypass through the Monument Hill Reserve may be possible, the Inquiry takes particular note of the expert opinion regarding the usefulness of wildlife crossings. There seemed to be general agreement that some species would utilise underpasses (although Mr Organ considered that this would not apply to the significant species found in the Monument Hill Reserve) and the Brush-tailed Phascogale and other arboreal species will use rope bridges. However, Mr Urlus pointed out that, while such structures may allow some gene dispersal across the landscape, they are not proven to be effective at the wider population level. In addition, the experts and submitters agreed that species-specific crossings would be required and that wildlife would not mix safely with pedestrians and horses in general use underpasses such as those proposed by VicRoads. Finally, the Inquiry notes that no fencing is proposed through the Reserve. While this is desirable from the viewpoint of human access, it seems to make it almost impossible to preclude kangaroos, in particular, crossing where and when they like and being a danger to themselves and travellers on the road.

Impact on public land

VicRoads submitted that the legislation (EPBC Act and FFG Act) does not attribute any higher values to biodiversity on public land versus other types of tenure. We note VEAC's commentary on the values of public land in the discussion paper for its Melbourne Metropolitan Investigation (October 2010):

Unlike private land, public land provides governments with opportunities to improve social, economic, environmental, cultural and governance outcomes (i.e. liveability outcomes). These opportunities generally contribute to the 'public good' through conservation of the natural environment, opportunities

for recreation and relaxation, the delivery of public services and utilities, and securing land for use by future generations.

Public land benefits members of the community, often without the requirement to pay for access... and generally without being excluded based on ownership or club membership. Most importantly, there is a stability or permanence associated with public land, which may be lacking for private land.

While the legislation does not attribute any higher values to biodiversity on public land, we agree with VEAC that where those values are present, public land offers better prospects for securing those values for future generations.

7.1.5 Inquiry OBEM ratings

It seems fairly clear that based on Technical Appendices B and C and the evidence and submissions presented to the Hearing that the order of preference for the three options as they relate to impacts on biodiversity and habitat is: Western (best), Dry Creek and Quinns Road (worst). The Inquiry’s ratings are shown in Figure 7-6.

The Inquiry thinks that the EES has underestimated the impact of the Quinns Road option on Monument Hill. The Inquiry rates the residual impacts of the northern (unique) section of the Quinns Road option as ‘very poor’ – having a ‘severe disbenefit to the region’ – because of the predicted and potential impacts on a large and largely intact piece of high quality woodland that provides habitat for a number of significant species.

Figure 7-6: Biodiversity and habitat: Inquiry OBEM rating

		Dry Creek	Quinns Road	Western
Flora and fauna	Native vegetation	-2	-2	-1
	EPBC	-1	0	-1
	FFG	-1	-2	-1
	Fauna populations and movement corridors	0	-3	-1

7.2 Catchment Values

7.2.1 Introduction

The EES provides a comparison of the three alignment options in the form of an overall OBEM rating as shown in Figure 7-7. The Inquiry supports this view.

Figure 7-7: Catchment Values: EES Objectives-Based Evaluation Matrix:

	Dry Creek	Quinns Road	Western
Surface water	Moderately Poor	Negligible	Negligible
Ground water	Moderately Poor	Negligible	Negligible

Source: EES

Section 4.8 of the Scoping Guidelines provided the following evaluation objective for catchment values:

To maintain the functions and values of surface water environments and groundwater.

The Scoping Guidelines include the following key issue in relation to catchment values:

Potential adverse effects on the functions and values of adjacent water environments (particularly alignments crossing or running parallel to waterways including Dry Creek and Broadhurst Creek).

7.2.2 EES documentation

The three options cross waterways of various sizes and complexities a total of 36 times with some crossings common to more than one alignment. All the waterways potentially impacted by the bypass are ephemeral and generally only flow after a storm event.

The EES hydrological analysis focussed on crossings of Dry Creek, Broadhurst Creek and Kilmore Creek, due to the size of the structures and potential environmental impacts. The hydrological analysis was undertaken using computer modelling with bridges or culverts incorporated into the models to determine any upstream or downstream changes in water surface levels.

The proposed concept designs include bridge structures as well as culverts. Where feasible, bridges have been proposed to reduce the impact on waterway health by maintaining continuous waterway habitat and preventing disruption to fauna movement. In all cases, apart from the rail crossing on the Dry Creek option, the bridge piers are located outside of the defined waterway which would assist in minimising the impact to waterway health during construction and operation of the bypass.

All the proposed bridge crossings of the Dry Creek option are likely to have some impact on water surface levels in Dry Creek. The hydraulic modelling shows that this increase is contained in the existing banks and, because of the energy grade, does not extend far upstream. Structures have been designed to ensure that any increase in water surface levels meets the CMA's design criteria.

Drainage of saline ground water from cuttings into Dry Creek could potentially impact water quality from the Dry Creek option. This prediction of water quality is based on regional mapping and actual water quality is likely to be site-specific and depend on the particular groundwater lens that may be intersected.

7.2.3 Discussions

Catchment issues were not subject to substantial submissions.

The Goulburn Broken Catchment Management Authority (GBCMA) regulates all works within the Study Area except for a small portion of the Western option which is within the Port Phillip and Westernport CMA (PPWCMA) region. All works on designated waterways would be undertaken in accordance with the requirement of the *Water Act 1989*.

The Inquiry is satisfied that catchment issues have been adequately addressed in the technical material. There is clearly a need to address catchment issues in any Environment Management Plan.

7.2.4 Inquiry OBEM ratings

The Inquiry adopts the ratings from the EES. These are shown in Figure 7-8.

Figure 7-8: Catchment Values: Inquiry OBEM rating

		Dry Creek	Quinns Road	Western
Catchment values	Surface water	-1	0	0
	Ground water	-1	0	0

7.3 Contamination and geotechnical issues

7.3.1 Introduction

The EES undertook an examination of soil contamination and geotechnical issues.

7.3.2 Contamination

The Scoping Guidelines include the following key issue in relation to catchment values:

Potential disturbance of contaminated soils and material associated with past waste disposal activities, which could create hazards especially for water environments.

Wallders Road landfill

The Dry Creek option would intersect a former (closed) landfill at Wallders Road, Kilmore according to the EPA Priority Sites Register. The Quinns Road option would run approximately 200m south and west of the former landfill, which is managed by the Mitchell Shire Council.

The landowner of the landfill site submitted:

The EES acknowledges that there will be considerable costs associated with the partial or full extraction and removal of the Kilmore landfill. VicRoads believes it has fully budgeted for any and all costs that may be required in relation to the landfill. I ask that the Inquiry Panel assure itself that this is indeed the case.

VicRoads called expert evidence from Mr David Ife on contamination. The Inquiry notes his evidence that the landfill can be dealt with if the Dry Creek route were chosen:

If the Dry Creek option was selected, then either a portion of the waste or the full waste mass could be removed. Relocation of landfills has been successfully undertaken on other occasions. I know of one case in particular in NSW.

I have confidence that this process can supply a satisfactory outcome for the site.

The Inquiry accepts the evidence of Mr Ife. In relation to the possible costs associated with dealing with the landfill, the Inquiry is mindful that full removal and remediation could be a significant, but not determinative, cost for the Dry Creek option.

7.3.3 Geotechnical issues

The EES carried out a desktop study of available geotechnical study information and kerbside site inspections. It is anticipated that excavations could be ripped or blasted with appropriately sized construction plant.

No major soil stability and erosion issues were observed during the EES site inspection for any of the proposed bypass options. The Dry Creek and Quinns Road options generally involve deeper cuts than the Western option. All options would generate a large proportion of the fill required to construct embankments in other areas of the routes.

An erosion management overlay in the Study Area may influence design and construction; any stability and erosion issues identified during preconstruction and construction would be managed by reducing the slope of batters and other standard erosion protection measures.

Detailed investigations would be undertaken before construction along the full highway alignment, but will focus on key geotechnical risk areas: bridges, deep cuts and embankments, potential areas of 'unsuitable' or 'borrow' materials and other high risk areas.

7.3.4 Inquiry OBEM rating

The Inquiry accepts that the landfill can be moved, but recognises that this will have impacts above and beyond normal construction activities. For this reason the Inquiry rates it as a moderately poor outcome for the Dry Creek option. All other contamination and geotechnical issues will have a negligible impact if appropriately managed. Figure 7-9 shows the Inquiry's OBEM ratings.

Figure 7-9: Contamination and geotechnical issues: Inquiry OBEM rating

		Dry Creek	Quinns Road	Western
Contamination	Former landfill	-1	0	0
Geotechnical	Soils	0	0	0
	Geotechnical issues	0	0	0

8 Social and economic impacts

8.1 Social impacts

8.1.1 Introduction

The EES provides a comparison of the three alignment options in the form of an overall OBEM rating as shown in Figure 8-1. The Inquiry has formed a different view about which impacts should be rated and the ratings that should be applied.

Figure 8-1: Social impacts: EES Objectives-Based Evaluation Matrix:

	Dry Creek	Quinns Road	Western
Overall OBEM rating	Moderately poor	Moderately poor	Moderately poor

Source: EES

Section 4.4 of the Scoping Requirements provides the following evaluation objective for the assessment of social impacts:

To minimise adverse social effects, including displacement of residents and disruption of access to community facilities.

The Scoping Requirements identify the following key issues in relation to social issues:

Potential social impacts arising from displacement of residences.

Variable (positive or adverse) effects from relevant alternatives (alignment options) on community access and interactions within different parts of the Wallan and Kilmore townships, including access to recreational areas, public open space (e.g. Monument Hill reserve) and other community facilities ...

The Inquiry believes that for the Kilmore Wallan Bypass, issues of the displacement of residents should be considered with the broader amenity issues as they are fundamentally impacts on individuals. This can be contrasted with the community impacts of severance (or improved access) that might impact on the way the current and future community functions.

8.1.2 EES Documentation

The Social Impact Assessment (AECOM, 2014) examined the existing social conditions in the Study Area and identified changes and potential impacts that the bypass may have on individuals and communities. A targeted program of interviews was undertaken with residents of the Kilmore and Wallan areas including landowners potentially affected by the bypass and interviews with community and interest groups.

The interviews identified that the communities valued the friendly close-knit community, the built heritage and scenic rural setting of the towns, Monument Hill Reserve and access to key community facilities and services.

There was general consensus amongst the community that a bypass of Kilmore would be in the best interests of the town and regional road users, and would help reduce traffic in the town centre.

There were substantially different views on which of the proposed bypass options would be the most attractive to road users and result in the most benefit for the community. Most community members indicated they would be tolerant of short-term amenity impacts from construction but concerns were raised about displacement and severance of properties and potential operational amenity impacts, including an increase in noise levels and detrimental impacts on visual amenity.

8.1.3 Evidence and submissions

VicRoads called Mr Glenn Weston to provide expert evidence based on social impacts and Mitchell Shire Council commissioned Ms Ruth Davies to provide a peer review of these studies.

Issues raised in evidence and submissions included:

- Methodology used for the social impact assessment (SIA)
- Severance of towns:
 - Severance in Kilmore
 - Severance of Willowmavin Primary School
 - Severance in Wandong
- Creation of pleasant town environment
- Social impact on Monument Hill
- Impact on social facilities.

(i) Methodology

Ms R Davies stated:

I do not consider that the full range of potential social impacts have been addressed in the SIA [social impact assessment]. I consider that the 'Social' Chapter in the EES does not fully address the scale of potential impacts of each option.

As I have not undertaken primary research, I cannot provide any assessment of the existing options for the Kilmore Wallan Bypass. However, I note that there appears to be very high impacts associated with the Quinns Road options which do not appear to have been captured in the SIA analysis.

This conclusion came from the view that:

The SIA was not based on standard methodologies used for the assessment of road transport in Victoria. In particular, the assessment was not based on the framework for SIA by the International Association of Impact Assessment.

The International Association of Impact Assessment requires that a SIA addresses the following matters:

- People's way of life: that is how they live, work, play and interact with one another on a day-to-day basis
- Their culture: that is, their shared beliefs, customs, values and language or dialect
- Their community: its cohesion, stability, character, services and facilities

- Their political systems: the extent to which people are able to participate in decisions that affect their lives, the level of democratisation that is taking place, and the resources provided for this purpose
- Their environment: the quality of the air and water people use; the availability and quality of the food they eat; the level of hazard or risk; dust and noise they are exposed to; the adequacy of sanitation; their physical safety; and their access to and control over resources
- Their health and wellbeing: health is a state of complete physical, mental, social and spiritual wellbeing and not merely the absence of disease or infirmity
- Their fears and aspirations: their perceptions about their safety, their fears about the future of their community, and their aspirations for their future and the future of their children.

Ms R Davies stated that not all of these categories are relevant for every SIA, and it is incumbent upon the researcher to determine the appropriate categories to use in each assessment.

VicRoads submitted:

Council's expert witness, Ms R Davies was fair in her concession that she had not undertaken her own social impact assessment (and had not been instructed to do so). She also fairly conceded that Mr Weston not 'required' to apply the framework of the International Association of Impact Assessment and that the social planner has discretion to select the appropriate category of issues to be considered.

Ms Davies report simply highlights a series of 'issues' which, in Ms Davies' opinion, may have been explored further or analysed differently. As Ms Davies has not undertaken her own analysis it is not possible to determine whether Ms Davies criticisms (assuming they are valid) would have made any material difference to the conclusions of Mr Weston's report.

OBEM approach

Ms R Davies did not have any criticism of the OBEM methodology and acknowledged that it is a well-used and accepted methodology. She explained that the purpose of the OBEM framework is to assist decision makers in the weighing up the balance between the needs of the many verses the needs of the few.

(ii) Severance of towns

Severance in Kilmore

A number of submissions raised concerns about severance of the town. Concerns about the Quinns Road and Dry Creek options centred on the equine precinct and the Kilmore Crown Land Reserve. An example was:

I am totally opposed to the Quinns Road option and Dry Creek option. I live in the North of Kilmore on the Eastern side; both of the Eastern options will cut my family and myself off from the Kilmore Township and make us feel we don't belong. Whether that is conscious or sub-conscious it doesn't matter we will feel like outcasts, socially cut off from our friends. I am also concerned

that the Kilmore Outdoor Recreational Heritage Precinct will be cut off from the town. Once this sort of thing starts the bureaucracy will continue to chip away at our parks and gardens until nothing is left and we have lost our beautiful native Monument Hill.

Severance of Willowmavin Primary School

A number of submissions raised concerns about the impact of the Western option in severing Kilmore from the Willowmavin Primary School.

Willowmavin Primary School is a public primary school located six kilometres to the west of Kilmore on Willowmavin Road. The student population is growing slowly and is currently in the low 60s. It attracts students from the Kilmore area who would have to cross the bypass if the Western option were constructed.

The primary school is in a country location some distance from Kilmore, and is not part of the existing township area of Kilmore. A staggered intersection is proposed for the Willowmavin Road and a number of submissions claimed that this would be unsafe.

Severance in Wandong

The Western and Quinns Road option have the potential to improve connections in Wandong as they allow use of the redundant section of the Epping-Kilmore Road (Hume Freeway underpass) to provide a shared path linking Wandong Station and the Broadhurst Lane extension.

This would reduce severance in Wandong improving connections across the freeway.

(iii) Creation of a pleasant town environment

Mr Weston stated that 'a vibrant, pleasant and safe town centre would be a significant asset for existing and future residents of Kilmore and is worth pursuing'.

This improvement to the town centre came at a cost according to some submitters:

By building a Quinns Road (Monument Hill) option, VicRoads are removing the trucks from the main streets of Kilmore and subjecting this noise, fumes, vibrations, and disruption from the main street to many, many more residential properties in the North, East and South of the town.

VicRoads submitted:

In relation to the question posed by Mr Townsend during Mr Caelli's presentation regarding a threshold volume of traffic to be achieved to deliver amenity benefits in Sydney Street, it is noted that this is not the objective of this Project. The express objective is to improve the amenity and attractiveness of commercial precincts in and around the Northern Highway by significantly reducing truck and traffic volumes on Sydney Street. The objective is not directed to any nominated volume which must be achieved and then maintained, but to an overall reduction. This reduction necessarily requires a comparison against the no project base case for an equivalent year. There has been no exploration before the Inquiry of an ideal or optimal level of traffic reduction to achieve some hypothetical quantum of amenity.

(iv) Social impact on Monument Hill

Ms R Davies pointed out that while there has been a lot of attention paid to the heritage value of Monument Hill, the social value of the Reserve is also important. The effect of a new road through this area would be to introduce a barrier in an area which currently appears to be highly permeable for active and passive recreation.

Mr Weston proposed the following specific mitigation measures in relation to the Quinns Road alignment:

- Provide a pedestrian underpass to Monument Hill near Anderson Road (south of the Golf Course), to retain pedestrian access into the reserve at this location.
- Consider additional measures which can mitigate noise emissions to Monument Hill and adjacent open space/recreational areas, such as the Kilmore Golf Course.
- Make use of the redundant section of the Epping-Kilmore Road (Hume Freeway underpass) to provide a shared path linking Wandong Station and the Broadhurst Lane extension.

Residents submitted that Monument Hill is an invaluable public space and an asset to Kilmore and the Mitchell Shire, being the only reserve within the township that contains dense wooded areas.

The Inquiry was told that it is widely used by residents and visitors alike, and with the rapidly increasing population and housing density to the south, the need for such easily accessible green spaces and recreation areas will become more critical. A survey of local schools presented at the Inquiry showed it used extensively as part of teaching programs.

Typical submissions about Monument Hill are:

- *Kilmore already struggles with its sense of identity and charm and this would just be the nail in the coffin of a small town that residents are working hard on through initiatives such as produce swap meets, bush walking groups, celtic festival and the art society. Monument Hill is one of the 'special' things that I am proud of about Kilmore and I think the racecourse and golf course will grow in importance to the town as retail diminishes.*
- *Being able to walk daily in Monument Hill benefits our family's physical and mental health – the surroundings are peaceful and relaxing, and hiking up and down the hill is great exercise. I'm sure similar benefits are experienced by many other local residents who visit Monument Hill.*

(v) Impact on social facilities

Submissions raised issues about potential impact on other facilities including the Kilmore Hospital.

8.1.4 Discussion**(i) Method**

The Inquiry agrees with Ms R Davies that a social impact study needs to address how a community functions and that in this case this involves a consideration of:

- the community's way of life

- their shared beliefs and values
- the character, services and facilities community.

Many submissions addressed these issues, and it is fair to say the points they raised were not adequately canvassed in the social impact assessment of the EES. They were addressed in the precinct assessment but this assessment could have been better integrated with the social assessment.

(ii) Severance in Kilmore

The Inquiry accepts submissions that the Dry Creek and Quinns Road options will have local severance effects, at a community level, in terms of the equine precinct and Monument Hill.

Monument Hill clearly has social value for many people of Kilmore. The effect of a new road through this area would be to introduce a barrier in an area which currently appears to be highly permeable for active and passive recreation.

VicRoads submitted:

In relation to data on the recreational use of the Monument Hill Reserve, the extent of utilisation of the reserve was explored via an interview with Council. At the time of the interview Council had no information on usage rates but it was assumed it is well used based on anecdotal feedback received via resident interviews. Mr Weston appropriately rated severance at the Reserve as a severe disbenefit to the locality.

A range of mitigation measures were proposed in relation to the Quinns Road option:

- Provide a pedestrian underpass to Monument Hill near Anderson Road (south of the Golf Course), to retain pedestrian access into the reserve at this location.
- Consider additional measures which can mitigate noise emissions to Monument Hill and adjacent open space/recreational areas, such as the Kilmore Golf Course.

There was considerable discussion at the Hearing as to whether the underpasses could reasonably cater for walkers, horse riders and wildlife. Ultimately the Inquiry formed the view that the underpasses as proposed would not be able to mitigate the impact of the Quinns Road option so that its impact was something less than a 'severe disbenefit to the locality'.

Severance of Willowmavin Primary School

The Inquiry does not accept that the Western option will have a significant severance impact on the relationship between Willowmavin and Kilmore. The inquiry accepts that many parents from Kilmore choose to send their children to the school, but the construction of the Western option will not materially alter their ability to do this. Certainly the car trip to the school would have to cross the bypass, but that is in the context of a trip that already involves driving on rural roads. The school is not within the built up area or future built up area of Kilmore.

The Inquiry also rejects assertions that the proposed intersection of Willowmavin Road and the Western option will be unsafe. It has been designed in accordance with relevant standards.

The Western route has only a negligible severance impact on the Willowmavin School.

(iii) Creation of pleasant town environment

The EES states the Quinns Road option would:

... substantially improve perceived amenity and safety on Sydney Street for the foreseeable future and in doing so contribute to revitalisation of the Kilmore town centre.

In fact the option will only improve perceived amenity and safety on Sydney Street until about 2031 as traffic modelling shows traffic volumes returning to current volumes by this date. The Inquiry has already voiced its doubts about the traffic modelling (see Section 6.1), but if the modelling is accepted it shows that the improvements to the town centre will not be sustained.

The Inquiry has further concerns with claims of improvements to Sydney Street: the claims assume that the reduced traffic volumes will have a noticeable impact on amenity. The Inquiry is not convinced by this. The noise modelling shows no noticeable reduction in noise on the street and traffic volumes under all options will remain at arterial road levels as opposed to local road levels based on neighbourhood street network standards in 56.06-7 of the VPP. This is particularly likely to be the case if no traffic calming measures are put in place.

Reducing traffic is a means to an end, and that end is improving the amenity of the towns. There is no benefit to the amenity of Kilmore if traffic is not reduced enough to make a noticeable difference.

All the options open the possibility of further road network and streetscape improvements for Kilmore.

(iv) Impact on social facilities

There were a number of submissions regarding the community facilities including the Kilmore Hospital.

A number of Ms R Davies' criticisms were of a minor, more 'nit-picking' nature. An example is Ms R Davies' criticisms regarding the hospital which is located approximately one kilometre from any alignment and chose not to make a submission or participate in consultation. Ms R Davies suggested that mitigation measures be considered similar to those imposed in the Peninsula Link Project. It is noted that in that project the Peninsula Private Hospital is directly adjacent to the road alignment.

The Inquiry agrees with VicRoads that, on any objective assessment, no mitigation measures are required as the hospital is almost 1 kilometre from the Quinns Road alignment and the local land form is such that the alignment would not be visible from the site.

There do not appear to be any other social facilities affected by any of the options.

8.1.5 Inquiry OBEM ratings

While there are impacts on individual in the equine precinct due to displacement, there are also social impacts in term of community functioning as the result of the Quinns and Dry Creek options. The Quinns Road option also has impacts on community severance in Kilmore because of its impact on Monument Hill.

The Inquiry has considered the various mitigation options suggested, considering the current amenity provided by Monument Hill with how it would function if bisected by a bypass. The Inquiry considers that in the context of the ‘country atmosphere’ of Kilmore the underpasses and screening proposed would not ultimately reduce the impact of the bypass from a ‘severe disbenefit to the locality’.

Using the current road as a pedestrian underpass in Wandong would have a positive impact reducing some existing severance.

Figure 8-2: Social impacts: Inquiry OBEM rating

		Dry Creek	Quinns Road	Western
Social impacts	Severance/accessibility of Kilmore	-1	-2	0
	Severance/accessibility of Wandong	0	+1	+1
	Creation of pleasant town centre environment	+1	+1	+1

8.2 Economic and land use

8.2.1 Introduction

The EES provides a comparison of the three alignment options in the form of an overall OBEM rating as shown in Figure 8-1. The Inquiry has formed a different view about how the impacts should be measured and the ratings that should be applied.

Figure 8-3: Economic and land use: EES Objectives-Based Evaluation Matrix

	Dry Creek	Quinns Road	Western
Overall OBEM rating	Moderately Poor	Well	Well

Source: EES

Section 4.5 of the Scoping Guidelines provided the following evaluation objective for land use and economic issues:

To minimise adverse effects on existing and planned land uses and to contribute to positive economic outcomes in the area.

The Scoping Guidelines include the following key issues in relation to land use and economic issues:

Potential for displacement or severance of access to productive land uses.

Economic performance of project alternatives in terms of relevant benefits and costs.

8.2.2 EES Documentation

The EES technical report undertook a relative ranking of the options. All the discussion in the technical report is in terms of the relative merits of the options and the OBEM approach is introduced only towards the end of the report. When the report provides additional justification for the rating it has used it states, for example:

The Quinns Road alignment is assigned a 'Well' rating. This is due to the estimated highest travel-time savings, the immediate diversion of traffic, greater improvements to amenity and public safety in the Kilmore Town Centre, and the second lowest relative construction costs. These aspects alone mean that the potential benefits to the region and the state would be greater than for the Dry Creek option and the Western option.

The Western alignment is assigned a 'Moderately Well' rating. This is because it has the second highest annual travel-time savings (only \$1.2m per annum lower than the Quinns Road bypass option) and the lowest estimated construction costs for the three shortlisted options.

The technical report has assessed the options by comparing them to each other, rather than how well or poorly they meet identified objectives. This renders the rating useless for the OBEM approach. The EES ratings are different to those in the Technical report.

8.2.3 Evidence and submissions

VicRoads called Ms Marianne Stoettrup to provide expert evidence on economics impacts and Mr Jeff Smith in land use planning.

(i) Equine industry

The Kilmore Equine Lifestyle Precinct is an area of Rural Living Zone to the north of Kilmore with blocks of typically 1 to 2.5 hectares and policy and planning provisions to support the keeping of horses. The area is recognised in the Mitchell Planning Scheme with a Design and Development Overlay (DDO3) with the objective:

... to allow for the establishment of horse stables with minimal adverse amenity effect on surrounding residential use.

The Equine Lifestyle Precinct is intended to support the:

... facilitation of the horse industry and related activities at appropriate locations within the surrounds of the existing racecourse' (Clause 21.11).

Alignments to the east of Kilmore would result in land use impacts on the Equine Lifestyle Precinct. Figure 8-4, based on the EES, summarises these impacts. Some submitters thought that some impacts had not been included in this table. The impacts may be more significant than Figure 8-4 shows.

The Kilmore Racing Club summarised what it saw as the impacts of the Quinns Road option as:

The Kilmore equine industry is one of the district's largest employers with many Thoroughbred and harness meetings and trials throughout the year. Although the racecourse area itself would not be severed there will be a very significant impact on the racecourse stables (north-east corner), the swimming dam area and the equine area to the north of Kilmore East Road where horse properties will be cut, reduced and have access/travel to the racecourse changed.

Figure 8-4: Summary of land use impacts for Equine Lifestyle Precinct Land use impact

	Dry Creek	Quinns Road
Number of properties affected in Equine Lifestyle Precinct	16	17
Number of lots severed in Equine Lifestyle Precinct	2	3
Direct equine impact – both alignments	Grazing paddocks of one of the commercial stables, but not stable buildings	
Direct equine impact – Quinns Road		Two private stables
Total extent of Rural Living Zone land impacted (ha)	24.1	24.3

Source: EES

(ii) Impact on land uses**Quarrying**

Hanson Construction Materials Pty Ltd operates two hard rock basalt (bluestone) quarries located on Dry Creek Road north of Kilmore East and north east of Kilmore. These are the only two operating quarries in the Kilmore area.

The Dry Creek option provides best access to the Hume Freeway and to the industrial area in Kilmore's north for the quarrying industry.

Industrial activity

Kilmore's industrial area is located north west of the town centre, with access to the Northern Highway from Willowmavin Road and Clarke Street.

As part of economic development in Kilmore, industrial and manufacturing businesses are encouraged to locate in the industrial area, and it is a Council objective to strengthen Kilmore's position as a preferred location for light industrial and small business enterprises based on the availability of infrastructure, workforce and transport.⁴

The production of pre-cast bridge elements and other pre-cast concrete is a local source of truck traffic that has benefited from the location on the Northern Highway and proximity to the Hume Freeway. Inputs in the form of cement, sand and stone are delivered from north (sand), south (cement) and east (Kilmore East quarries). These businesses have growth potential, which would generate further truck movements.

The industrial area's location, with good connections to the northern end of all three alignments would facilitate future growth within the industrial precinct.

Tourism

Kilmore's peri-urban location and heritage has potential as a daytrip destination from metropolitan Melbourne, particularly in connection with events such as the races at Kilmore Racing Complex, the Celtic festival, farmers markets, and the Kilmore Show. As a submitter noted:

Beautiful transformations of regional or Melbourne fringe towns have proven to be very beneficial to the community and a thriving weekend getaway trade.

⁴ Mitchell Planning Scheme Clause 21.11-3

Towns like Woodend, Castlemaine, Healesville, Daylesford are all great examples, and I believe the bypass provides that opportunity to Kilmore.

Ms Stoettrup gave evidence that:

The best option for tourists to Kilmore is the Dry Creek option, which provides the shortest route at 11.2kms to the northern end of Sydney Street, providing access to the town's built heritage assets. The Dry Creek option also provides good access for visitors to the Racing Complex for events, and is scenic through the rural and forested landscape in Dry Creek valley.

(iii) Travel time savings

A number of submissions calculated the extra cost to drivers of using the longer Western option.

8.2.4 Discussion

(i) Equine industry

The Inquiry accepts submissions on the importance of the equine precinct and it is clear that the Quinns Road and Dry Creek options will adversely impact on the precinct. These options will have a direct impact on a number of properties, and will also disrupt the precinct as a whole.

The Inquiry notes the proposed mitigation measures and the proposal for an overpass or underpasses across the bypass for horses, both ridden and driven, to access the racecourse. However, the Inquiry remains unconvinced of the effectiveness of such measures unless they were of a significant size, which would seem to the Inquiry to further impact on the amount of clearing required and the extent of earthworks.

(ii) Impact on land use

The impact on agriculture is negligible considered in the regional context.

The Inquiry accept Ms Stoettrup's evidence that that Dry Creek would have a positive impact on the quarrying industry.

All options are expected to have a positive impact on industrial activity although the Inquiry believes that the Western option provides the easiest external link to the industrial area.

The Inquiry agrees that Kilmore has potential as a daytrip destination from metropolitan Melbourne. There is also potential, discussed at the Hearing of tourism related to a long distance trail on or near the route of the former Sandhurst Railway.

The issue is not the ease of access to Kilmore but the quality of what is on offer. Kilmore is not a tourism oriented town, but if it is to develop this aspect of its economy it will need to build on its assets, such as its main street and the Kilmore Crown Land Reserve. In particular, the Kilmore Racing Club should be supported as it is, and can be expected to continue to be, a major drawcard to the town.

The Quinns Road option would have a moderately poor impact on Kilmore's tourism potential.

(iii) Travel cost savings

There was a tendency in submissions and evidence to assess the travel time savings for the options based on the time travel on the bypass rather than the total travel time produced by the transport model.

In evidence Mr Bodé stated that the network performance differences of the options against base case were marginal given timescale.

Figure 8-5: Travel time savings relative to existing Northern Highway – current conditions

	Dry Creek	Quinns Road	Western
Annual savings for road network	\$8.2 million	\$11.2 million	\$9.8 million

Source: EES

8.2.5 Inquiry OBEM ratings

The Inquiry's ratings for how the options perform in terms of supporting the future development of Kilmore are shown in Figure 6-8.

The technical report did not rate the travel cost savings benefit in the OBEM approach. Given the uncertainties around the traffic modelling discussed in 6.1 the Inquiry does not think that the options can be distinguished in terms of this impact. They have all been rated identically as 'moderately well'

Figure 8-6: Economic and land use impacts: Inquiry's OBEM rating

		Dry Creek	Quinns Road	Western
Regional economy	Equine industry	-2	-2	0
	Industrial activity	+1	+1	+1
	Agriculture	0	0	0
	Quarrying	+1	0	0
	Tourism	0	-1	+1
	Travel cost savings	+1	+1	+1

9 Heritage and visual impacts

9.1 Aboriginal Cultural Heritage

9.1.1 Introduction

Section 4.9 of the Scoping Requirements sets out the Aboriginal Cultural Heritage objective as:

To avoid or minimise adverse effects on Aboriginal...cultural heritage values.

The EES rating for Aboriginal Cultural Heritage is shown in Figure 9-1. The Inquiry supports these ratings.

Figure 9-1: Aboriginal Cultural Heritage: Objectives-Based Evaluation Matrix

	Dry Creek	Quinns Road	Western
Impact on registered sites	Poor	Moderately poor	Moderately poor
Potential impact on unregistered sites	Poor	Moderately poor	Moderately poor

Source: EES p10-12

9.1.2 EES Documentation

The EES was informed by a desktop and standard assessment prepared by Australian Cultural Heritage Management (Technical Appendix F) comprising:

- a desktop assessment
- consultation with Registered Aboriginal Parties
- a standard assessment involving surface archaeological surveys
- a draft Cultural Heritage Management Plan (CHMP).

In addition, an options assessment and an impact assessment were carried out by Andrew Long & Associates (Technical Appendix G), which included predictive modelling to rate the potential impact of each option on as yet unidentified Aboriginal cultural heritage places by site type. The model assessed surface geology, original vegetation, elevation, slope, proximity to primary and secondary water sources and areas described by the relevant RAP as having significant cultural value.

Field surveys identified a number of isolated artefacts and artefact scatters. Figure 9-2 details the known aboriginal heritage sites impacted. The figures in the Technical report are different to the figures in the EES.

Figure 9-2: Aboriginal Cultural Heritage sites

	Dry Creek	Quinns Road	Western
Technical Appendix F p58, 61 & 73-74	11 in construction footprint	5 in construction footprint	5 in construction footprint
Technical Appendix G p87	13 in road reserve 7 in construction footprint	4 in road reserve 3 in construction footprint	4 in road reserve 3 in construction footprint
EES Study area	3 recorded artefact scatters 7 new artefact scatters (3 common to the Quinns Road option) 20 isolated artefacts	1 new artefact scatters 8 new isolated artefacts (5 common to the Western option, and 3 to the Dry Creek option)	3 new artefact scatters 8 new isolated artefacts (5 common to the Quinns Road option)
EES Earthworks footprint	3 new artefact scatters 4 new isolated artefacts	3 new isolated artefacts (common to the Western option)	3 new isolated artefacts (common to the Western option)

Source: EES pages 10-6 to 10-7 7 and Technical Appendices

Dry Creek is predicted to have a significantly greater likelihood than the other options of encountering Aboriginal cultural heritage places.

Future work

A Cultural Heritage Management Plan (CHMP) involving complex assessment (archaeological subsurface testing) is required for the bypass and will be undertaken for the selected option only.

9.1.3 Evidence and submissions

VicRoads called Mr Ricky Feldman of Andrew Long and Associates to provide expert evidence based on Aboriginal Cultural Heritage.

(i) Methodology

Mr Feldman explained that the predictive model is based on the defined 'areas of Aboriginal heritage sensitivity' set out in the Aboriginal Heritage Regulations 2007. The Dry Creek route has a higher level of sensitivity than the other two, because of the watercourse. It would be likely that artefact scatters and some geological features would be found there, and there was a low possibility of encountering burials.

A number of submissions discussed Aboriginal cultural heritage. Mr Stimson (submission 85) raised concerns that the EES studies, particularly for the public land, appeared to deal only with registered sites; the fact that subsurface testing would only be carried out for the preferred route meant that new sites might not be discovered until construction was underway.

(ii) Findings

Mr Feldman stated:

In my opinion, the impacts to previously identified Aboriginal cultural heritage places are of local significance, however, potential impacts on rare occurrence Aboriginal cultural heritage places (c.f. stone arrangements, earth features)

and/or burials would be of a higher order. Furthermore, based on the typical ground conditions and previous land use, a positive correlation may exist for the potential identification of these site types, with higher levels of integrity, in association with the Dry Creek option, as both the Quinns Road and Western options have been subject to higher levels of disturbance. I note that it is problematic to express significance ratings in the context of local, state or national importance for Aboriginal heritage, when these ratings are more suited to the consideration of environmental factors.

He noted that several areas had been identified by the Taungurung Clans Aboriginal Corporation as having significant non-archaeological heritage values, including sites with a view of Mt Piper, an area of remnant vegetation around Monument Hill, a ridgeline near Dry Creek and the Dry Creek valley. This information had been incorporated into the predictive model for non-archaeological places.

The Wandong History Group submitted that the new interchange at Wandong could impact on Aboriginal artefactual material adjacent to the township.

Dr Hewitt, an archaeologist, as part of his verbal submission for the Kilmore History Group, recounted the results of his research on a very large Aboriginal archaeological site on the Dry Creek route. He suggested that many more exposures are likely. He said that there are mound sites and a ring site on the adjoining land, now covered by timber plantations. Dr Hewitt stated that he would not recommend the Dry Creek option, because of the effect on a very important Aboriginal cultural landscape.

(iii) Monument Hill

Several submissions put the view that Monument Hill had significant Aboriginal cultural values and noted that the local community had identified three potential sites in addition to those already registered with the Office of Aboriginal Affairs Victoria (OAAV). These included a stone axehead, scarred trees, a possible campsite/meeting/ceremonial place that might have spiritual values or connections.

Mr Feldman, after speaking to his expert witness statement, tabled two preliminary report forms obtained from the Office of Aboriginal Affairs Victoria (OAAV) covering a greenstone axehead, three scarred trees and a possible Aboriginal campsite/meeting/ceremonial place within the Monument Hill reserve. He agreed that they may be of Aboriginal origin but was unable to determine this from the photographs accompanying the report forms or to identify the precise locations relative to the proposed route of the bypass.

Mr Feldman's conceded that if the nominations of the axehead, scarred trees or campsite/meeting/ceremonial place were accepted by OAAV, the assessment for Quinns Road would be different.

(iv) Further work

Mr Feldman stated that undertaking a complex assessment of all options risked unnecessary harm to potential Aboriginal cultural heritage places, so OAAV advised that subsurface testing should only be carried out on the preferred route.

VicRoads' normal procedure in assessing the potential effects of roads projects on Aboriginal cultural heritage is to carry out desktop and standard impact assessments and to prepare a

draft CHMP. This approach was not considered sufficient to enable the three separate alignments to be assessed and compared. As a result, the predictive model was developed and used, to consider likely effects on sites not yet identified.

VicRoads reiterated that once an alignment is selected, a complex assessment involving archaeological subsurface testing would be undertaken for the selected activity area. Prior to the bypass proceeding, an approved CHMP will be required to manage the risk to any site identified in the complex assessment, along with any unassessed sites that are discovered during construction.

9.1.4 Discussion

The Inquiry notes that surface assessments of the road corridors were carried out and that additional sites were identified as part of these investigations, however, due to the poor ground surface visibility in many areas, it is likely that more sites exist than have been identified to date. These might include the Aboriginal archaeological place at Wandong, mentioned by the Wandong History Group. For these reasons the Inquiry thinks that equal weight should be given to the modelling of potential sites as to the impact on registered sites.

The Inquiry accepts that restricting subsurface testing to a preferred route is standard practice, to avoid unnecessary damage to sites, and that non-archaeological Aboriginal cultural heritage places were taken into account in the predictive modelling.

Construction of a bypass on any of the proposed routes would destroy some registered Aboriginal cultural heritage sites and potentially impact on other recently discovered or currently unidentified sites.

Overall, the Inquiry is satisfied that the EES background studies provide a sufficient basis to assess the likely impacts on Aboriginal cultural heritage sites and that the procedures outlined in the Risk Register (Technical Appendix B) will enable impacts to be avoided or mitigated where possible.

9.1.5 Inquiry OBEM rating

The Inquiry endorses the overall OBEM assessments for the impact of the bypass on Aboriginal cultural heritage.

It is clear from the EES background research, predictive modelling, evidence and submissions that the Dry Creek route would impact on the greatest number of identified Aboriginal cultural heritage sites, all of common occurrence.

The Quinns Road and Western routes impact on a smaller number of identified sites, also of common occurrence, but Quinns Road was modelled as having a slightly lower potential to encounter unidentified sites. The Inquiry adopts the rating of the EES and these are shown in Figure 9-3.

Figure 9-3: Aboriginal Cultural Heritage: Inquiry's OBEM rating

		Dry Creek	Quinns Road	Western
Aboriginal Heritage	Potential impact on unidentified sites	-2	-1	-1
	Impact on identified sites	-2	-1	-1

9.2 Historic Heritage

9.2.1 Introduction

Section 4.9 of the Scoping Requirements sets out the non-Aboriginal Cultural Heritage objective as:

To avoid or minimise adverse effects on... non-Aboriginal cultural heritage values.

Non-Aboriginal cultural heritage is described as ‘historic heritage’ in the EES and this report.

The EES rating for Historic Heritage is shown in Figure 9-4. This assessment did not include the proposed Kilmore Outdoor Recreation Heritage Precinct.⁵ The Inquiry has formed a different view.

Figure 9-4: Historic Heritage: Objectives-Based Evaluation Matrix

	Dry Creek	Quinns Road	Western
Overall OBEM rating	Negligible	Negligible	Negligible

Source: EES, p10-22

9.2.2 EES Documentation

There are no identified historic heritage places of national or state significance recorded in the study area and no sites listed on the Victorian Heritage Inventory. Submissions contend that the Kilmore Outdoor Recreation Heritage Precinct is of state significance, due in part to Monument Hill being used as a vantage point by Hume and Hovell during their 1824 expedition. Amendment C56 to the Mitchell Planning Scheme, recently adopted by Council, proposes to apply a Heritage Overlay (HO) to the whole Precinct.

In addition to the Precinct, three places of local heritage significance are identified in the EES as being within the footprint of the bypass options. These are:

- Carlsberg Farm Complex (proposed HO283), 15 Costellos Road, Kilmore.
- Beuhne Monument Cairn and Avenue of Southern Mahogany Gums (proposed HO243), Broadford-Kilmore Road.
- House and Garden (proposed HO294), 770 Wandong Road (Epping-Kilmore Road), Wandong.

These places have also been recommended for HO protection in Amendment C56.

⁵ This precinct has been called by several names at different times and in different submissions. The Inquiry decided to use the name originally applied to it in 2006, and also refers to it in discussions below as ‘the Precinct’

Figure 9-5: Historic Heritage places impacted by options

Bypass option	Heritage place impacted
Dry Creek route	Carlsberg farm complex Beuhne memorial and avenue
Quinns Road route	Carlsberg farm complex Beuhne memorial and avenue House and garden at 770 Wandong Road Kilmore Outdoor Recreation Heritage Precinct
Western alignment	Beuhne memorial and avenue House and garden at 770 Wandong Road

Source: EES

The Carlsberg farm complex

The Carlsberg farm complex contains a large brick house constructed from 1879-88, outbuildings, stables, coach house and underground tank, as well as the remains of an early hotel building. Appendix D notes that the eastern extent of the Carlsberg property would be affected. A small triangle of land at the intersection of the Northern Highway and Costellos Road would need to be acquired for access to the roundabout where the Dry Creek and the Quinns Road options join the Northern Highway.

Because the house and the significant outbuildings at Carlsberg are set well back from the road, the impact on the heritage place is likely to be negligible. The eastern side of the site, fronting the Northern Highway, is believed to contain the remains of the early Rising Sun Hotel, but inspections failed to find any trace of it. The consultants speculate that it might be under the sealed service road and acknowledged that, if so, it could be impacted by the bypass options.

Beuhne memorial

The Beuhne memorial is a bluestone cairn and plaque, erected in an avenue of Mahogany Gums in memory of a pioneer apiarist. The works required to the intersection of the Northern Highway and the Broadford–Kilmore Road to construct the proposed roundabout – common to all three alignments – would require the removal of the two remaining original Mahogany Gums on the western side of the road. The cairn would not be directly affected, though it could be relocated to the opposite side of the road, where the remaining row of trees would provide a more appropriate context. The consultants concluded that the impact of the road alignment on the heritage place would be low to moderate.

House and Garden (proposed HO294), 770 Wandong Road

The house – originally a duplex – at 770 Wandong Road, Wandong fronts that road (also known as the Epping-Kilmore Road) just east of the existing interchange with the Hume Freeway. The heritage citation for the property describes it as a late Victorian Italianate red brick house and garden. Technical Appendix D says only:

The inspection of the place as part of this assessment noted that the significant building (house) is set back from the road, and the road is already

existing at its frontage. The impact of any road construction or improvement at this location is likely to be negligible.

The Quinns Road and Western options would take a slice off the frontage of the property, varying from two to seven metres, to allow construction of access ramps over the Hume Freeway, rather than under it as at present. The garden and historic trees, like the house, are set back from the existing road, and the EES states there would be no direct impact on them:

A small visual impact may be sustained as the works may change the current aesthetics of the house due to increased proximity to the road and the removal of the existing fence. However, the fence is largely missing from the front of the property and is a non-contributory element in its current state.

Kilmore Outdoor Recreation Heritage Precinct

The consultants who prepared the initial historic heritage assessment (Technical Appendix D) failed to identify the Kilmore Outdoor Recreation Heritage Precinct or Monument Hill as a potential heritage place. VicRoads commissioned a specific assessment of the heritage value of the Precinct from Mr Ray Tonkin (Technical Appendix E). This assessment did not consider the potential impact of the bypass.

The Precinct, includes Monument Hill, adjoining sporting and recreational areas, and the former reservoir (which has an existing HO). It was identified in the Mitchell Shire Stage 2 Heritage Study (2006) by Lorraine Huddle Pty Ltd. The Precinct was proposed for the Victorian Heritage Register (VHR) in 2013.

In evaluating the potential state heritage significance of the Precinct, Mr Tonkin presented a limited comparative analysis of other examples of this type of place on the VHR. He identified several listed public reserves and recreation facilities, but acknowledged that most of them were not directly comparable, as they are designed and cultivated reserves. He stated:

The Monument Hill area of the Kilmore Reserve is largely an area of native bushland, reserved as a catchment for the reservoir in 1862. Whilst that role ceased many years ago, its classification as a cultural landscape is debatable. For inclusion on the VHR this area of land needs to demonstrate cultural values.

Mr Tonkin considered established heritage criteria and thresholds⁶ to demonstrate some of the requirements a place must meet to be identified as of historic, aesthetic or social significance at a state level. He concluded:

It is difficult to see how the Kilmore Outdoor Recreation Reserve meets these thresholds. It is undoubtedly a well-loved local reserve with a strong association with Kilmore's history, but it is not something with the same values at a state wide level.

⁶ From the Heritage Council of Victoria's *Criteria and Threshold Guidelines* (2012)

9.2.3 Evidence and submissions

VicRoads called John Patrick to provide heritage evidence in relation to the Kilmore Outdoor Recreation Heritage Precinct. VicRoads also tendered evidence from Dr Canning on other heritage sites; but the Inquiry did not seek to hear from or cross-examine Dr Canning.

Mr Tonkin, the author of Technical Appendix E, was unavailable to appear at the Hearing, so VicRoads commissioned Mr John Patrick to provide an assessment of the potential impact of the Quinns Road alignment on the heritage values of what he described as 'the Kilmore Historic Outdoor Recreation Precinct'.

(i) Mitigating impact on heritage places

Dr Canning identifies potential mitigation measures for each place.

He points out that under the draft Incorporated Document forming part of the planning scheme amendment to introduce Public Acquisition Overlays for the preferred route, a planning permit will not be required under the HO to impact identified heritage places. However, any recommendations from the technical reports that are included in the Minister's Assessment of the EES will be carried through into the environmental management framework, with which VicRoads and its contractors must comply.

Beuhne memorial mitigation

Dr Canning considers that the local significance of the cairn would not be affected if it was relocated within close proximity to its original site and that incorporating parking and landscaping in the new location would enhance the experience of visitors to the memorial.

Carlsberg Farm complex mitigation

For the Carlsberg Farm complex, Dr Canning's expert witness statement concludes that the impact of the bypass would be negligible. He recommends replacing any affected fencing with a fence of the same style, avoiding significant trees and ensuring that there is no access by machinery, vehicles or people to the place, outside the land to be acquired. Monitoring of initial ground disturbing works is also recommended, in case the remains of the rising Sun Hotel are discovered.

The Mitchell Shire Council (submission 114) concurs with the EES judgement that the impacts on Carlsberg would be negligible.

Wandong impacts

The Wandong History Group (submission 130) submitted that the proposed interchange at Wandong could impact on a wide range of historic sites. It concluded: 'We have a lot of historic sites yet to be identified and the proposed routes would radically impact a number of these.'

The Wandong History Group stated:

No heritage survey of the historic township of Wandong has occurred to date and the History Group is in the process of budget priorities for this to occur. Based on the computer visualisation, there could be impacts on ... Chinese vegetable garden sites, earliest European settler sites, original church and police station sites, first water connection of Wandong sites in the 1890s, gold mining processing – cyanide processing plants 1880s, 1880s industrial sites

associated with Robertson's sawmilling and seasoning works operation, archaeological material, historical aesthetic views, significant vegetation.

Dr Canning recommended replacing any affected fencing at 770 Wandong Road with a fence of the same style, avoiding the willow tree at the front of the property and ensuring that there was no access by machinery, vehicle or person to the place, outside the acquired land.

Mitchell Shire Council (submission 114) agreed that the impacts on 770 Wandong Road would be negligible.

(ii) Kilmore Historic Outdoor Recreation Precinct evidence

Mr Patrick's evidence

Mr Patrick said that 'VicRoads is proposing to construct a two lane highway that will provide a bypass of the town of Kilmore'. He acknowledged that the Quinns Road option would pass through the existing SLO, but pointed out that this recognised Monument Hill for its high landscape, scientific and conservation values, rather than its heritage significance 'though protection is offered from visual intrusion and inappropriate development'.

In considering the impact of the bypass on the monument and a 10 metre radius around it (proposed in the exhibited Amendment C56 as the extent of the HO for the lookout tower and its surrounds) Mr Patrick said:

While I believe there may be some minor visual impact on views this impact was generally to the south of the heritage precinct and within the precinct there would be no impact that might compromise heritage values.

He quoted Heritage Victoria's statement (in the Executive Director's assessment of the Precinct) that the views from the monument are now obscured by trees, so their significance in relation to what Hume and Hovell may have seen has been reduced.

On views from the Precinct more generally, he continued:

In general, I would suggest that this proposed road alignment will not impact on north/south views and, indeed, impacts on east/west views will generally be slight from most viewpoints, though clearly there will be impacts when the road is viewed at close quarters.

and:

I am generally satisfied that the visual impact of the proposed road alignment is acceptable from a heritage viewpoint. Its proposed alignment runs within a belt of trees which serves to screen it from the [sporting facilities].

He also concluded that the heritage values of the western part of the Precinct would be undiminished by the proposed road construction.

Mr Patrick quoted from the C56 Panel report a passage that he describes as 'their most telling observation':

The Panel notes that a critical factor in the integrity of the Precinct is its cohesiveness as a single space, with strong visual, physical, social and historical links that bind the four sub-precincts into one Significant Precinct that is very high valued by the community. Clearly, any interruption to the continuity of the Precinct would have a detrimental impact on its significance.

He then commented:

It is my view that this somewhat over-states the significance of the precinct. It is, after all, considered to be of local significance and while there is little doubt that the Kilmore community values the Precinct it should be recognised that one of the original purposes of this reserve was to accommodate roads.

Mr Patrick quoted from Tonkin's report (Technical Appendix E) concerning the original purpose of township reserves – which included provision for roads as well as other uses – and reiterated Tonkin's comment that 'there is no reason to believe that such roads [as the bypass] would be precluded from using such reserves'.

He later agreed with a questioner that part of the historical material quoted by Tonkin referred separately to reserving areas for roads and areas for other public purposes, including health and recreation. He said he had no information that this reserve was intended for some other purpose, but acknowledged that it was not necessarily meant to accommodate roads.

In terms of mitigation, Mr Patrick recommended minimising visually intrusive roadside paraphernalia on the section of the road within the SLO, and said:

I consider it is quite appropriate to seek a modified and more sensitive response from VicRoads when they are providing a roadway through a heritage area.

Additional mitigation measures proposed include:

- Revegetation 'using indigenous plants of local provenance, to the greatest degree possible along the road alignment'. As well as trees, 'greater importance perhaps lies in the use of dense shrubs to 3-4 metres to offer screening for those moving close to the road alignment'.
- Providing the opportunity 'for the contiguous areas of the heritage precinct to facilitate appropriate movement between the sub-precincts within the Reserve'.
- Considering a third underpass at the southern end of the golf course to accommodate access for pedestrians and bicycle riders from the southern portion of the town.
- Further noise mitigation within the SLO area.

Mr Patrick stated that maintaining permeability was the key to minimising the heritage impact on Monument Hill and the rest of the Precinct. VicRoads tabled a plan (document 9), showing an additional underpass proposed by Mr Patrick, located north-east of the golf club dam and south of Monument Road linking with one of the direct pathways to the Hume and Hovell monument.

In response to questions, Mr Patrick made the following points:

- While accepting that shrubs 3-4 metres high are not a feature of the vegetation type that occurs naturally on Monument Hill (Dry Grassy Woodland), he considered that some native tree species might grow with lower branches on the edge of a forest where they were exposed to more light, and could serve the same screening function.

- He had not considered the potential for archaeological evidence to be found in the Precinct, because he had overlooked the submissions concerning the location of the former rifle range.
- His assessment was generally based on a two-lane road, but he thought that if it became a four-lane road, although the visual impact of canopy removal would be greater, it would not make an enormous difference to the impact. (Mr Patrick was unable to state the width of road corridor that he assumed in his assessment, saying he had used 'just a general concept of a two or four-lane road'.)
- He did not consider that the fact that ex-servicemen built Monument Road was significant, as there are many more notable examples, such as the Great Ocean Road.
- Despite his statement (in his written evidence) that the C56 Panel report 'somewhat over-states the significance of the precinct', in view of what he sees as local significance only, he agreed with its comment about the importance of maintaining the continuity of the precinct. However, he thought that the proposed linkages (underpasses) addressed this to some extent.
- He had not considered the potential social significance of the Precinct that might arise from community attachment, rather than the use values associated with traditional sporting and recreational pursuits.

Submissions

Many submissions raised concerns about impacts of the Quinns Road bypass alignment on historic heritage places. Nearly all dealt with Monument Hill and other parts of the proposed Kilmore Outdoor Recreation Heritage Precinct. Most submissions did not separate heritage from landscape/amenity and broader social issues, as shown in submission 74:

This Reserve is, and always has been, a recognised area of community, cultural and social, environmental, and historic/heritage and landscape value of great significance and is highly regarded by the Kilmore community. In 1853, this land was set aside for the community as public use for both recreational and sporting activities. This continues to this day.

VicRoads submitted that the professional evaluations to date have all assessed the reserve as of local significance, and that none of the matters raised in submissions (to that point) justified it being raised to State significance. As a result the Inquiry must proceed on the basis that the reserve is of local significance and that the elements of that significance are set out in the adopted statement of significance.

The Inquiry was presented with several very detailed compilations of the history and values of Monument Hill and the wider Precinct, as well as:

- evidence concerning the route taken by Hume and Hovell, which makes it highly probable that they did climb Monument Hill
- material relating to the erection of the monument in 1924 and its restoration in 1998-99 for the 175th anniversary of Hume & Hovell's journey
- details of the use of a government grant to employ returned servicemen to construct Monument Road in 1919.

The Save Monument Hill Community Group, in its supplementary submission (document 112) put the view that the intactness of 'The Reserve' and Monument Hill should not be sacrificed for an 'internal link road' that has the greatest social impact of the three options.

Ms Goble, in her presentation to the Hearing, put the view that despite Mr Patrick's qualifications and the high regard in which he is held as a landscape architect, the fact that he was unable to measure the footprint of the road means that his assessment that it would be able to be easily absorbed into the landscape is not reliable.

VicRoads addressed the issue of the Kilmore Outdoor Recreation Heritage Precinct in response to submissions:

...VicRoads rejects any assertions that the Precinct has been undervalued by its consultants or that there remain any material unknowns about any potential impact. On the contrary, the impacts have been assessed in detail, weighted appropriately and, in some cases, the Precinct has been attributed higher status than that which can be currently ascribed to it. For example, ...impacts on Monument Hill have been assessed as though it is subject to a heritage overlay, notwithstanding that there is none in place and the recommendation of the C56 Panel and other experts was the use of the significant landscape overlay.

VicRoads put the view that the Inquiry should confine its considerations of the heritage values of the Precinct to the revised SLO and the statement of significance for the Precinct, which stresses:

- the contribution of vegetation to visual significance
- views to from and within the Precinct
- permeability/mobility
- social significance arising from the long-term uses of the place.

VicRoads submitted that vegetation loss would be restricted, even within Monument Hill and no structures would protrude above the canopy of trees. Views to the precinct would not be materially affected and views from the monument would not be affected at all. Only views within the immediate vicinity of the road would be altered. VicRoads interpreted the Monument Hill Management Plan (2014) to say that walkers, cyclists and horse riders would be confined to designated tracks and considered that, since these link with the proposed underpasses, permeability will be maintained. Use of the cricket ground and the golf course would not be affected, although noise levels would increase.

(iii) Other heritage issues

One submission (number 75) stated that the Dry Creek option would take out nine of Kilmore East's 150 year-old oak trees, planted when the local school was built in the 1870s.

Dr Hewitt, for the Wandong History Group, gave the name of the property at 770 Wandong Road, as 'Windermingle' and explained that it is one of a number of buildings in the village made of terra cotta lumber, an innovative construction material invented in America and produced in Wandong. He considered that Technical Appendix D had not considered how the property related to the historic structure of the village. The house would be affected by the new interchange, but Dr Hewitt said that it was impossible to tell how much until details

of the height of the access ramp were available. He asked for a very careful review of the design of the interchange.

Dr Hewitt reiterated the statement in the Group's original submission (number 130) that there had been no heritage survey of the town of Wandong, and also stated that the Huddle 2006 study did not investigate the archaeological potential of the Wandong area. He put the view that the EES had not assessed the effect of the interchange on the village character, aesthetic values and local scale of Wandong.

9.2.4 Discussion

(i) Not all heritage impacts considered

Kilmore Outdoor Recreation Heritage Precinct

The Inquiry notes that Technical Appendix D appears to have confined its consideration of heritage values in the study area to those places proposed for HOs under Amendment C56 that lie within the direct footprints of the bypass options. The consultants did not consider the Hume and Hovell monument (proposed for its own HO) or the Kilmore Outdoor Recreation Heritage Precinct, despite the clear attribution of heritage values to it in the Shire's heritage studies and the C56 Panel report.

VicRoads, in response to submissions claiming that the Precinct had been undervalued by the EES report, pointed to the AECOM Precincts Summary Report (Technical Appendix Q), which it said brings together all the impacts on Monument Hill and considers them in an integrated way.

The Inquiry notes that this report compiles the relevant findings of the various technical appendices and also considers the provisions of the revised SLO1. It summarises what it calls the 'impacts/benefits for the Monument Hill and Sporting Precinct'. Impacts include landscape and visual, noise, land use and regional economy (land acquisition), ecology, historic heritage, Aboriginal heritage, access and movement. The only benefit identified is:

Relative to the three options proposed, the Quinns Road option would also facilitate the greatest and immediate truck and traffic reductions and amenity benefits for Sydney Street, Kilmore.

The report concludes:

None of the specialist investigations have identified issues that would, in accordance with current policy and legislation, prevent the Quinns Road option from being constructed. The legislative and subordinate policy requirements will ensure that the mitigation measures proposed in the EES are implemented to minimise the potential impacts on the environment and local community.

The considerations of this report are not reflected in the OBEM for historic heritage.

Mr Stimson (submission 85) points out that Technical Appendix D did not seem to have undertaken any research to investigate 'previously unidentified historic heritage values within the bypass area'. The Inquiry accepts that the need for this is set out in the priorities for characterising the existing environment in the EES Scoping Document, and considers it disappointing that no apparent attempt has been made to fulfil this requirement.

Wandong

With regard to the Wandong Heritage Group's claim that no heritage study has been carried out for Wandong, the Inquiry notes that Amendment C56 proposes Heritage Overlays for a heritage precinct in Wandong, east of the railway line, and for a church. The C56 Panel recommended that additional sites identified by the Group (in submissions on the amendment) should be subject to further investigation, particularly in relation to industrial heritage, and the Inquiry endorses this recommendation. The officer's report to Council on the C56 Panel's recommendations noted that this would require specific allocation of resources for a separate piece of work. Since several of the areas identified by the Wandong History Group are archaeological places, particular attention should be paid to these concerns in detailed design for the Wandong interchange and in monitoring of excavation work.

Kilmore East

Concerning the suggestion that the Dry Creek option would destroy nine historic oak trees in Kilmore East, the Inquiry suggests that if this alignment is preferred, detailed design should seek to avoid impacts on these trees.

(ii) Impact on Kilmore Outdoor Recreation Heritage Precinct

The main issue to be determined in relation to historic heritage is the acceptability of the residual impact of the Quinns Road alignment on Monument Hill and the Kilmore Outdoor Recreation Heritage Precinct.

The Inquiry accepts the weight of evidence from previous assessments (Huddle, Context, the C56 Panel) that the Kilmore Outdoor Recreation Precinct has historical, aesthetic, social significance at the local level and that the Hume and Hovell monument might have state significance. Tonkin (Technical Appendix E) and Mr Patrick both confirmed this view.

The Inquiry agrees with the C56 Panel's view that 'a critical factor in the integrity of the Precinct is its cohesiveness as a single space, with strong visual, physical, social and historical links that bind the four sub-precincts into one Significant Precinct' and does not accept Mr Patrick's suggestion that this statement over-states the significance of the precinct. That Panel had the benefit of a number of days of hearing and consideration of a range of background reports and submissions.

The Inquiry agrees that any interruption to the continuity of the Precinct would have a detrimental impact on its significance. The issue is how much detriment given the possible mitigation measures.

The Inquiry agrees with VicRoads that the fact that a place has value to a local community is not necessarily sufficient to elevate it to heritage significance. Affection for and connection to a place does not of itself afford it social significance in cultural heritage terms, although it may do so if the attachment is sustained over several generations. In this case, however, this type of social significance has not been attributed to the Precinct. The impact on its cultural heritage significance must be assessed by reference to the impacts on vegetation, views, permeability and social significance resulting from its long-standing use for public outdoor recreation, being those elements identified in the adopted statement of significance and the revised SLO. This does not mean that broader aspects of community values cannot be considered when assessing the social impact of the road.

With regard to Mr Patrick's evidence, and in the light of the statement of significance, the Inquiry makes the following comments:

- It cannot agree that the township reserve was intended for a road, certainly not the construction of a four lane divided highway.
- It accepts that views from the monument are unlikely to be affected to the point that would compromise the heritage values of the proposed HO318.
- It does not accept Mr Patrick's that the impact of the road on other views within the Precinct will be slight 'because it runs within a belt of trees which serves to screen it' or that it will be acceptable from a heritage viewpoint.
- It does not agree with Mr Patrick that even after construction of the second stage [the additional two lanes] 'the impact on heritage values will ... be restricted and acceptable'. The Inquiry notes Mr Patrick's lack of precision about the width of the road corridor he was assessing and does not consider that his evidence on this matter can be relied on.
- It considers comments such as 'clearly there will be impacts when the road is viewed at close quarters' underestimate its impact on heritage values within the Monument Hill Reserve.
- It does not accept his dismissal of the heritage value of the vegetation to be removed (described as 'native vegetation and only low heritage value planting of recent recruitment') in view of the identification in the statement of significance of the 'indigenous bushland' as a part of the significance of the Precinct.

The Inquiry does not accept that the continuity and permeability of the Precinct (stressed by Huddle and the C56 Panel, as well as the adopted statement of significance) can be maintained purely by provision of underpasses for walkers, cyclists and horse riders.

9.2.5 Inquiry OBEM ratings

The Inquiry concludes that the impact of the proposed bypass options on historic heritage has been understated in EES and particular in the OBEM.

The Inquiry considers that impacts on the Beuhne memorial could be mitigated effectively, including by relocation of the cairn. It also accepts that if the Dry Creek or Quinns Road alignment were selected, the effect on the Carlsberg farm complex would be relatively limited and the operational requirements outlined in the Risk Register (EES Technical Appendix B) would ensure appropriate responses if any archaeological remains of the Rising Sun Hotel were discovered during ground disturbance.

It is more difficult to gauge the effect of works associated with the reconstruction of the Hume Freeway interchange on the house at 770 Wandong Road, Wandong. While the plans show only minor elevation of the current roadway, if any additional elevation were to occur, the effect may be greater than the EES's prediction of a 'small visual impact [that] may be sustained as the works may change the current aesthetics of the house due to increased proximity to the road'. However, the Inquiry notes VicRoads' advice that the intersection will need to be reconfigured, regardless of which bypass option is chosen, and suggests that detailed design should seek to minimise impacts on the heritage place.

The OBEM does not reflect the information in the EES because it does not include any evaluation of the effect on the Kilmore Outdoor Recreation Precinct. The Inquiry has prepared its own version of the OBEM.

The Inquiry has formed the view that the impact on the Kilmore Outdoor Recreation Heritage Precinct is inconsistent with the policy of preserving its heritage, and that this impact is severe.

Figure 9-6: Historic Heritage: Inquiry OBEM rating

		Dry Creek	Quinns Road	Western
Historic heritage	Heritage historic places	0	0	0
	Kilmore Outdoor Recreation Heritage Precinct	0	-2	0

What if Monument Hill is of State significance

The Heritage Council of Victoria was scheduled to hear an appeal on 3-4 September 2014 against the recommendation of the Executive Director of Heritage Victoria that the Kilmore Outdoor Recreation Public Heritage Precinct should not be added to the Victorian Heritage Register, as it was not of state heritage significance. The Inquiry was advised on 29 August that the Heritage Council hearing had been postponed.

Parties to the EES Inquiry were advised at the Directions Hearing and in the Directions letter that the Inquiry would proceed on the basis that the Monument Hill Reserve has local heritage significance. If the Inquiry formed a view that a State heritage grading of the Reserve would make a material difference to its recommendation, this would be stated explicitly.

If Monument Hill were deemed to be of State significance then the 'impact of the bypass on the heritage values of Kilmore Outdoor Recreation Heritage Precinct' should be rated as 'very poor'. The Inquiry recommends against the Quinns Road option and a change in the heritage status of the Reserve would only serve to further support that recommendation.

9.3 Landscape and Visual

9.3.1 Introduction

Section 4.6 of the Scoping Guidelines provided the following evaluation objective for landscape and visual values:

To minimise adverse effects on landscape and visual amenity values.

The Scoping Requirements identify the following key issues in relation to landscape and visual values:

The potential for adverse effects on landscape values, in particular Monument Hill, ridgelines and waterway crossings.

The EES rating for visual impact shown in Figure 9-7.

Figure 9-7: Visual impact: EES Objectives-Based Evaluation Matrix

	Dry Creek	Quinns Road	Western
EES OBEM rating	Moderately poor	Poor	Moderately poor

Sources: EES table 13-15

9.3.2 EES Documentation

Methodology and findings

The EES summarised the methodology and findings of the landscape and visual assessment carried out by AECOM (Technical Appendix J). The study used a corridor five kilometres from the centre line of each road alignment as its study area.

The three components of the assessment were:

- consideration of the impact of the bypass on significant views from representative public viewpoints
- visual impact on valued landscape characteristics
- impacts on the landscape value of identified existing and future open spaces.

Significant views

‘Visual receptors’ likely to be impacted by the bypass were categorised as residential properties, public gathering areas and key transport nodes. Clusters of residential properties were considered more sensitive, as views are typically experienced often, for long durations and by receptors with a strong connection and familiarity with the surrounding visual character.

Concentrations of dwellings that would potentially be affected were identified as:

- houses within the Kilmore township
- lower density development north and south of Kilmore and to the west along Kings Lane
- residential development in Kilmore East on undulating land on O’Gradys Road
- the township of Wandong and Heathcote Junction.

Thirteen representative public viewpoints were chosen for detailed assessment (six on the Dry Creek route, one on the section common to the Quinns Road and Dry Creek routes, one on the section common to the Quinns Road and Western options, three on the northern section of Quinns Road and two on the western and northern sections of the Western route). They did not cover the township of Wandong or the proposed alterations to the interchange with the Hume Freeway.

While some viewpoints assessed were selected for their proximity to clusters of dwellings, they were not held to be representative of the views from all of those residences. The technical appendix presents photographs showing the existing view from each point and artist’s impressions of the view once the bypass was constructed (2-lane then 4-lane versions).

The EES report summarised the impacts of the Quinns Road alignment on representative public viewpoints as varying from negligible to major. For the Western option, impacts assessed as ranging from ‘minor to moderate adverse’ to ‘moderate adverse’. For Dry Creek,

impacts were assessed as 'minor adverse to negligible', 'minor to moderate adverse', 'moderate adverse' or 'moderate to major adverse'.

Valued Landscape Characteristics

To assist in determining the ability of the landscape to absorb the changes associated with the bypass, Landscape Character Types were defined for the study area.

Elements considered central to the overriding landscape and visual character of the study area included:

- the undulating landform and associated ridgelines to the East of Kilmore
- Monument Hill Reserve
- the rural character of the study area and the wider region
- existing native roadside and riparian vegetation
- the character associated with the township of Kilmore.

The EES report concluded that the Quinns Road option would traverse an area of generally flat land and therefore would not impose significant visual impacts on hilltops and ridgelines or require any large bridge structures. However, it would also extend through a section of the Monument Hill Reserve, where extensive vegetation removal would result in a gap in the existing tree canopy, with consequent visual impacts and changes to the landscape character within the Reserve and from other parts of the study area. It would also have visual impacts to the Kilmore Golf Club and the Kilmore Racecourse, but because the road would largely be screened from these locations by existing vegetation the change in character would be minimal.

The Dry Creek option, due to its topography, would require extensive earthworks, having an impact on hilltops and ridgelines. It also had a number of bridge structures which would be inconsistent with the existing landscape and visual character and would result in visual impacts to residential areas to the east of Kilmore.

The Western option would traverse relatively flat land and would not require any large bridge structures. It would have minimal impact on the character associated with hilltops and ridgelines and would be more easily absorbed into the existing landscape character than either of the other options. This option and the Quinns Road option would require removal of vegetation along the Epping-Kilmore Road.

All of the alignments would result in improvements to the visual character of Sydney Street in Kilmore and High Street in Wallan, as a result of removal of heavy vehicular traffic.

Identified existing and future open spaces

In addition to Monument Hill, existing public open space and recreational facilities identified included the golf course, cricket ground, racecourse and the Kilmore East Recreation Reserve. The disused railway reserve south of Kilmore and Kilmore Creek were also considered to be significant. Monument Hill was assessed as the element most sensitive to change, with the lowest ability to absorb change.

The Quinns Road and Western options could potentially impact on the character of several existing and future open spaces identified in the Mitchell Planning Scheme. The Dry Creek option could have an adverse effect on the Kilmore East Recreation Reserve.

Potential for mitigation

The EES report stated that standard VicRoads mitigation measures including screen planting and vegetated batters would reduce some adverse visual impacts. It noted that other project-specific mitigation actions were included in the preliminary designs.

The assessment concluded that future expansion of the bypass to a four-lane road would not result in significant increases in landscape and visual impacts over and above those experienced from the initial alignment.

The residual risks from the project, after implementation of environmental management measures, were assessed as 'high' for construction impacts for all alignments, 'high' for the presence of bridges within the landscape in the Dry Creek option and 'high' for vegetation removal within Monument Hill Reserve on the Quinns Road route.

Figure 9-8: Summary Landscape and Visual Impacts

	Dry Creek	Quinns Road	Western
Impact on identified significant views (representative public viewpoints)	Moderate adverse visual impact due to extensive earthworks and largest number of bridge structures.	Minor to moderate adverse impact – views largely screened by existing vegetation	Moderate adverse visual impact due to relatively flat land.
Visual impact on landscape characteristics	Dominant impacts on ridgelines and natural landscapes due to significant areas of large cut and fill works required along the entire length of the roadway. Localised removal of roadside and riparian vegetation. The imposition of a four lane, dual carriageway road within the broader rural landscape would detract from the rural character of the landscape – particularly with respect to locations where bridges are proposed.	Avoids impacts on ridgelines. Considerable visual impact on Monument Hill Reserve due to vegetation removal and earthworks. Removal of areas of roadside and riparian vegetation. Localised changes in character due to noise attenuation (earth mounds and fencing) just north of Kilmore East Rd. The imposition of a four lane, dual carriageway road within the broader rural landscape would detract from the rural character of the landscape – particularly with respect to locations where bridges and noise mounds are proposed.	Avoids impacts on ridgelines. Removal of areas of roadside and riparian vegetation. The imposition of a four lane, dual carriageway road within the broader rural landscape would detract from the rural character of the landscape – particularly with respect to locations where bridges and noise mounds are proposed.
Impact on the landscape value of identified existing and future open spaces	Proximity to Kilmore East Recreation Reserve – dual elevated bridges over the Melbourne-Sydney Railway would be visible from various points of the reserve, although partially screened by trees.	Proximity to Kilmore Racetrack and Kilmore Golf Course and Kilmore Cricket Ground – largely be screened by existing vegetation with minimal visual impact. Severance to the continuity of landscape character within Monument Hill Reserve would be a significant change in character for the reserve.	Localised changes only.

Source: EES, p13-15

Overall, the Western and Dry Creek options were assessed as having the least impact from a landscape and visual perspective and described as 'moderately poor' (assuming the implementation of project-specific mitigation measures). The Quinns Road option was assessed as 'poor'.

9.3.2 Evidence and submissions

VicRoads called Ms Wendy Davies to provide expert evidence on landscape and visual impact.

Issues raised in evidence and submissions included:

- assessment methodology
- assessment findings
- visual impacts on households and small communities
- impacts on the Kilmore Crown Land Reserve, especially Monument Hill
- ranking of options.

(i) Assessment methodology

Issues with the assessment methodology related particularly to the choice of representative public viewpoints and the identification of elements considered central to the overriding landscape and visual character of the study area.

Ms W Davies said that the viewpoints were selected to be representative of views of the bypass likely to be obtained by 'key receptor groups' from key public vantage points, that would be suitable for preparation of artist's impressions to communicate likely impacts and would provide a reasonable basis for comparison of the options. The assessment process emphasised views readily accessible to the general public, as opposed to private views or views typically accessed only by certain recreational user groups. Impacts on private views were not assessed in the report, although a number of the viewpoints are from roadways in proximity to houses.

Ms W Davies explained that rather than moving from viewpoints to an integrated assessment, the landscape and visual assessment starts by considering segments of the whole route, then chooses viewpoints to represent them. Although the viewpoint representations are static, but the fact that vehicles will be moving has been taken into account in the judgements made on impacts.

Several submissions suggested that the artist's representations of the visual impact of the bypass were misleading, because of the choice of viewpoints. In particular, there were no visualisations of the impacts from the Hume and Hovell monument or other locations within Monument Hill Reserve or the recreational areas.

Ms W Davies said that in a wooded and undulating setting, public views are often curtailed by vegetation, with limited opportunities to obtain long-range views. The Hume and Hovell monument was not selected as a viewpoint because of the screening effect of vegetation. She agreed that views from within the active sporting areas were not specifically assessed during the study.

The potential impacts on landscape characteristics were assessed in relation to effects on those elements identified as central to the landscape character of the study area, that is,

hilltops and ridgelines, Monument Hill, the general rural character, roadside and riparian vegetation and the township character of Kilmore.

One submission objected to the apparent discounting of impacts on the racecourse and golf course because they were not considered central to the overriding character of the study area.

Ms W Davies responded by saying that the effects on the racecourse and the golf course were considered under the sub-objective dealing with impacts on public open space and recreational facilities.

(ii) Assessment findings

At the Hearing, Ms W Davies took the Inquiry through the viewpoints and artist's impressions of the appearance of the initial and final alignments of the bypass, to show the projected impacts on landscape and visual amenity. She also explained the degree of impact and the level of sensitivity attributed to each viewpoint in Technical Appendix J.

Ms W Davies pointed out that moderate to major adverse impacts would be experienced in the areas shown in Viewpoints 3 and 13 for the Dry Creek option and 10 for the Quinns Road option (Hunts Road, immediately adjacent to the bypass corridor). The view over the golf course dam to Monument Hill Reserve (viewpoint 12) was assessed as having low visual sensitivity because views would be experienced for only a short time as people travelled along Anderson Road. However, the Monument Hill Reserve as a whole was given a rating of high sensitivity, equivalent to a landscape of national significance.

Several submissions queried the assessment of viewpoint 12 and opposed Ms W Davies contention that people would only be exposed to the changes in this area for a short time.

(iii) Visual impacts on households and small communities

Several submissions put the view that the EES had completely ignored the impact of the proposed changes to the Hume Freeway interchange on Wandong township, particularly the town entrance and the main street.

Ms W Davies said that the consultants visited Wandong and considered potential impacts upon it. The report focussed on areas immediately west of Wandong rather than the township, as it was considered that there was greater potential for impact of the Dry Creek option from these elevated areas. The team did not do a viewpoint assessment at Wandong, although Ms W Davies conceded that perhaps they should have. She said, however, that it probably would not have changed the overall assessment, as there is an interchange there already. She considered that an overpass rather than an underpass was not a radical change, although there would be some additional visual impact, which should be considered when the details of the design are available.

Various submissions considered that the EES had not given due weight to the visual impact on the Kilmore East community of the elevated bridge structures required by the Dry Creek option. These included the interruption of views to Mt Piper, the perception the bypass would create of visual severance from Kilmore and the effect of 'an ugly underpass' at Hunts Road as the new entrance to Kilmore. One submission said that the bypass would have 'a massive unsightly footprint which cannot be absorbed into the existing landscape character'

and would impact on sensitive hilltops and ridgelines. Another suggested that it was likely to cause accelerated erosion, which would exacerbate the visual alterations.

Ms W Davies contended that the visual impacts of the elevated bridge structures at Kilmore East had been adequately considered in the report.

Some submissions on the Western alignment agreed with the EES that it has a footprint that could be absorbed into the existing landscape character and although it would result in moderate visual intrusion because of the relatively flat land, the landscape changes would be localised.

Others submitted that this option would have a greater visual and amenity impact than the EES acknowledged, as in relatively flat and open country, the visual and noise impacts would be substantial across a large distance and sound barriers (fences or mounds) would also be unattractive. In addition 'agricultural landscapes have a long history and valued future for primary production'.

Ms W Davies responded that the impacts of the bypass and associated structures on views on the Western alignment have been assessed in the report. Screen planting to mitigate the effect of the roadway would be consistent with existing shelterbelts, though it might also shut out valued distant views.

Several submissions from affected landowners raised issues about the impacts of the bypass, particularly the bridges, on their views and visual amenity. Assessment of effects on private property has been discussed in relation to displacement and amenity impacts in section 10 above.

(iv) Kilmore Crown Land Reserve (including Monument Hill)

A number of submissions referring to the landscape impacts of the Quinns Road option have already been discussed under biodiversity and habitat in section 7.1 or historic heritage in section 9.2 above.

Additional points raised included:

- claims that the EES under-rated the visual impacts on Monument Hill and the adjoining recreational areas
- impacts on the ambience and serenity of Monument Hill Reserve
- visual effects of vegetation clearing and road construction
- adverse effects on the identity of Kilmore, due to separation of the township and Monument Hill
- impacts on Hunts Road
- detraction from the 'country feel' of the golf course and racecourse, a significant part of their appeal for visitors
- inconsistency with the objectives of SLO1 and the values it seeks to protect, as well as with other provisions in the Mitchell Planning Scheme.

Mr Jim Lowden (submission 88) stated:

The vistas created to and from the various uses and vantage points, as well as to and from Monument Hill, are visually stimulating and thought provoking, based on the themes of landscape, recreational uses, water, tree and shrub plantings, hilltop access and community management.

Ms W Davies said that the effects of the Quinns Road option on Monument Hill Reserve had been considered in various places throughout the report and the public land values of the area had been adequately reflected.

She reiterated that the report assigned a conservative ‘high’ sensitivity rating to Monument Hill, the same level as would be used for a landscape of designated national significance (even though she did not consider the area to be of national importance).

Views eastward from the racecourse and golf course, including the view to Monument Hill would be affected by the presence of transport infrastructure but could be mitigated by screen planting that would be appropriate in this landscape context. She acknowledged that the sense of visual interconnectedness between Monument Hill and the formal recreation areas would diminish as a result of the Quinns Road alignment but considered that the visual character of the area as a whole would remain dominated by trees.

Ms W Davies also said that the proposed changes to SLO1 and adoption of Amendment C56 would increase the extent to which Monument Hill and the Precinct are considered sensitive to landscape and visual amenity impacts associated with the Quinns Road option.

(v) Ranking of options

Ms W Davies discussed the ratings of the bypass alternatives in against the three sub-objectives established for the assessment (Figure 9-9).

Figure 9-9: Performance against sub-objectives – Landscape and Visual Impacts

	Dry Creek	Quinns Road	Western
Impact on identified significant views (representative public viewpoints)	Poor	Moderately poor to poor	Poor
Visual impact on landscape characteristics	Moderately poor	Poor	Moderately poor
Impact on the landscape value of identified existing and future open spaces	Neutral	Moderately poor	Moderately poor

Source: Ms W Davies

Ms W Davies rated the three alignments, in order of least to most impact and taking into account the extent to which impacts could be mitigated as:

- Western: This route has the least impact on landscape and visual values and avoids the sensitive landscape elements such Monument Hill and the undulating land east of Kilmore. Adverse impacts are more easily mitigated in flat areas, for example from establishing belts of vegetation. The main drawbacks of this option relate to vegetation removal along the Epping-Kilmore Road (this also applies to the Quinns Road alignment) and two crossings of Kilmore Creek and one of the disused railway reserve, potentially impacting on existing and proposed open spaces.
- Dry Creek: This route would have an intermediate impact on landscape and visual values. It avoids Monument Hill, generally avoids the need for extensive vegetation removal and avoids impacts on existing and future open space. Against this, it would have the greatest impact on visual amenity, due to the

earthworks required and its effect on sensitive ridgelines and hilltops east of Kilmore. The substantial bridges would be inconsistent with the existing landscape and visual character and very difficult to mitigate. The bridges would impact particularly on residences.

- Quinns Road. This option has the greatest impact on the key landscape and visual values identified. It generally traverses relatively flat land and therefore requires fewer earthworks and only minor bridge works. However, it traverses Monument Hill Reserve, requiring earthworks within the Reserve and associated extensive vegetation removal which is expected to impact on the internal character of the reserve and the area included under SLO1. Roadside vegetation removal is required along Epping-Kilmore Road (as with the Western route). It affects the disused railway corridor and runs close to key open space parcels in the eastern part of Kilmore.

Ms W Davies told the Inquiry that the overall assessment of the order of preference of the routes in her expert witness report was based on judgement rather than the results of a matrix.

In commenting on the margin between the rankings, Ms W Davies said that, while there was an element of subjectivity in her assessment, she considered that the Quinns Road option had a significantly greater impact on landscape and visual values than the other options. This was largely because of the impact on land covered by the existing SLO1 (and even more so in the light of the more stringent requirements in the adopted revised version) and the extent of its public use and the consequent number of visual receptors likely to be affected by the changes. She considered the differences between the other two routes to be less pronounced, but the residual impact of Dry Creek was likely to be greater, because the large concrete structures could not be so readily integrated into the rural landscape.

9.3.3 Discussion

The Inquiry considers that the key community-level issues concerning the impact of potential bypass routes on landscape and visual amenity are:

- the effects of the earthworks and bridge structures required for the Dry Creek option
- the clearing and earthworks required for the Quinns Road option to traverse Monument Hill Reserve
- the impact of the reconfigured Hume Highway interchange on Wandong.

There will also be impacts, some of them severe, on views from private residences and neighbourhoods, whichever option is chosen.

(i) Significant views

The Inquiry notes the methodology used to select representative viewpoints and understands that it is standard practice in assessing the landscape and visual impacts of proposed infrastructure projects for such views to be taken from areas commonly accessible to the public, such as roads or public facilities (such as the 'Kilmore Trackside' complex). Viewpoints are not usually identified within active recreation areas such as golf courses or on public land accessible only on foot. This component of the assessment, therefore, covers only one aspect of the potential landscape and visual impact of the bypass routes.

The Inquiry found the artist's impressions useful in gaining an understanding of the likely visual impact from selected locations, although it notes that they do not show the potential effects of loss of tree canopy in the views looking towards Monument Hill Reserve (viewpoints 10 to 12). A visualisation of the effect on Wandong of the proposed overpass across the Hume Freeway would also have been useful.

In general, the Inquiry accepts the assessments of the magnitude of change and the impact significance from each viewpoint. However, it notes that the number of sites assessed varied significantly between routes and that the 'moderate to major adverse' findings for one viewpoint on the Quinns Road route and two for Dry Creek do not feature in the summary results in the OBEM. Impacts on views from Wandong to the Hume Freeway interchange have not been assessed under this sub-objective.

(ii) Valued landscape characteristics

The Inquiry considers that the elements identified as central to the landscape character of the Project area are appropriate and that the impacts on hilltops and ridgelines, Monument Hill Reserve, the general rural character of the area, roadside and riparian vegetation and the township character of Kilmore have been characterised appropriately.

(iii) Identified existing and future open space

The Inquiry notes the assessment of impacts on existing and future open space, but is somewhat puzzled by Ms W Davies' evidence that Dry Creek was considered to be 'neutral' for this sub-objective, Quinns Road 'moderately poor' and the Western route 'neutral to moderately poor'. The potential impact on the Kilmore East Recreation Reserve appears to the Inquiry to be more significant than the 'localised impacts only' shown for the Western Route. The Western route, like Quinns Road, would have impacts on the disused railway reserve, but this is not mentioned in the summary table.

Mitigation

The bypass-specific mitigation measures recommended in Technical Appendix J, the Risk Register (Technical Appendix B) and Ms W Davies' presentation to the Hearing (document 13) are supported. If either the Quinns Road or the Western option is chosen, detailed design of the interchange with the Hume Freeway should seek to minimise its visual impact on Wandong-Heathcote Junction.

9.3.4 Inquiry OBEM ratings

The Inquiry concludes that the landscape and visual assessment is an adequate basis for evaluating the likely impact of the bypass options on the existing character and visual amenity of the areas affected by the various alignments.

The Inquiry generally endorses Ms W Davies' opinion in terms of the residual landscape and visual effects of the proposed bypass routes, with the exception that the Inquiry thinks that the visual impacts of the future alignment of the Western option will only have a 'moderately poor' impact. The ratings are shown in Figure 9-10.

Figure 9-10: Visual impact: Inquiry OBEM rating

		Dry Creek	Quinns Road	Western
Visual	Significant views	-2	-1	-1
	Landscape character	-1	-2	-1
	Open space	0	-1	0

10 Displacement and amenity

10.1 Displacement

10.1.1 Introduction

The EES provides a comparison of the three alignment options in the form of an OBEM rating as shown in Figure 10-1. The Inquiry supports these ratings.

Figure 10-1: Displacement: EES Objectives-Based Evaluation Matrix

	Dry Creek	Quinns Road	Western
Technical report OBEM rating	-1	-2	-1

Source: EES

Section 4.4 of the Scoping Requirements provides the following evaluation objective for the assessment of social impacts:

To minimise adverse social effects, including displacement of residents and disruption of access to community facilities.

The Scoping Requirements identify the following key issues in relation to social issues:

- *Potential social impacts arising from displacement of residences.*
- *Variable (positive or adverse) effects from relevant alternatives (alignment options) on community access and interactions within different parts of the Wallan and Kilmore townships, including access to recreational areas, public open space (e.g. Monument Hill reserve) and other community facilities including.*

The Inquiry believes that for the Kilmore Wallan Bypass issues of disruption of access to community facilities should be considered with the broader social and economic considerations.

10.1.2 EES Documentation

Figure 10-2 shows the number of private properties directly affected by the bypass options.

Figure 10-2: Summary of impacts – Land acquisition

	Dry Creek	Quinns Road	Western
Land severance	12 lots	12 lots	15 lots
Total number of properties impacted by acquisition	33 properties	71 properties	53 properties
Rural lifestyle properties impacted by acquisition	15 properties	41 properties	11 properties
Access to Kilmore town centre made less convenient – Note 1	55 properties	78 properties	13 properties
Access to Kilmore town centre increased by over 1 kilometre		5 properties	1 property

Note 1: For the majority of properties this entails less than about 500 metres additional travel

Source: EES, Social Technical Appendix, p 60

The Social impact technical report observes:

Rural lifestyle properties are less easily replaced than conventional residential properties due their relative scarcity in the housing market.

Owner/occupiers of such properties are commonly emotionally invested in their home and life style. Owners of affected properties may leave Kilmore if they cannot rationalise/manage impacts on the affected property or find a comparable replacement property in the area. The impact on farming properties is considered to be a dis-benefit to the individual land holders at the particular localities.

10.1.3 Evidence and submissions

VicRoads called Mr Glenn Weston to provide expert evidence based on social impacts and Mitchell Shire Council commissioned Dr Rob Gordon to provide evidence on displacement impacts. Dr Gordon is a registered clinical psychologist working with communities, individuals and families affected by natural disasters since 1983.

VicRoads submitted:

Mr Weston's evidence regarding the reduction of negative social impacts over time is an important consideration in a Project which is forecast to provide continuing benefits to the Kilmore and Wallan communities in the decades to come. The impacts should also be weighed against the serious and ongoing disbenefits in the amenity of the Kilmore town centre where a poorer performing alignment is selected.

Dr Rob Gordon gave evidence that given recent traumatic events some individuals and families might experience more serious repercussions from disruptions associated with land acquisition for the bypass. He stated:

In summary, anything that interferes with people who have rebuilt after the bushfires completing their recovery by consolidating their new lives in the manner of their choice is likely to have serious emotional and health repercussions, with consequences for many other areas of their lives. Their recovery is still ongoing – it is just a different stage devoted to rebuilding the lives they have had to put aside to rebuild and putting them through having to do it again is likely to stress even the most resilient.

In response to the difficulty of ranking individual or household impact, Mr Weston emphasised that his social impact analysis is not that fine grained. VicRoads submitted that Mr Weston adopts the legitimate method of reporting the total numbers of people exposed to particular types of change (i.e. the number of houses to be acquired) and using primary research to consider the likely sensitivity of affected households.

A number of submissions outlined how the different options would affect them personally.

10.1.4 Discussion

The Inquiry accepts that rural lifestyle properties are less easily replaced than conventional residential properties and hence the impact on the owners of these properties might be greater than other properties where there are more options to remain in an area.

The Inquiry also accepts Dr Gordon's evidence that given recent traumatic events impacts on land owners might be heightened.

10.1.5 Inquiry OBEM ratings

Considering the number and nature of the properties impacted the Inquiry agrees with the ratings presented in the EES technical appendix on social impact. The Inquiry adopts the ratings shown in Figure 10-3.

Figure 10-3: Displacement: Inquiry OBEM rating

		Dry Creek	Quinns Road	Western
Displacement	Impact on private property	-1	-2	-1

10.2 Noise

10.2.1 Introduction

The EES provides a comparison of the three alignment options in the form of an overall OBEM rating shown in Figure 10-4. The Inquiry formed a different view.

Figure 10-4: Noise: EES Objectives-Based Evaluation Matrix

	Dry Creek	Quinns Road	Western
Overall OBEM rating	Moderately well	Negligible	Negligible

Source: EES

Section 4.3 of the EES Scoping Requirements provides the following evaluation objective for the assessment of noise and dust:

To minimise noise and dust effects on the amenity of residents and open space areas.

The Scoping Requirements identify the following key issue in relation to noise and dust:

Increased noise levels from the project's operation could affect amenity in adjacent residential and public open space areas.

The Scoping Requirements require VicRoads to characterise the existing noise setting of relevant alternatives in adjacent established residential and open space areas, and at other sensitive land use locations.

In relation to design and mitigation measures, the Scoping Requirements direct VicRoads to:

Identify design responses or other mitigation measures to avoid, reduce or manage any significant noise effects at sensitive land use locations during project operation, in the context of applicable planning policy and VicRoads' Traffic Noise Reduction Policy 2005.

10.2.2 EES Documentation

Chapter 12 of the EES provides an assessment of the potential noise and vibration impacts that result from constructing and operating the bypass.

Existing noise conditions were identified through field noise measurements at key receptor points, including 18 dwellings and five community assets located along the three alignment options. The results were used to establish Project Objective Noise Levels (PONLs). They also validated the traffic noise model that was used to predict noise levels at all receptors likely to be impacted. The noise modelling indicated that after introducing the proposed noise mitigation measures:

... there will be increased noise levels along all proposed bypass alignments at all of the identified receptors compared to noise levels if the Project did not proceed.

The predicted noise levels were assessed relative to the 'no project' scenario based on two evaluation criteria:

- The predicted noise level exceedance above the established Project Objective Noise Levels with and without mitigation
- The actual change in noise level at each receptor following the implementation of the mitigation measures, compared to the 'no project' scenario.

Figure 10-5 summarises the number of properties and the relative change in noise level (with mitigation) from the no project scenario in respect of each of the alignments:

Figure 10-5: Change in noise level at residential dwellings (with noise mitigation)

	Dry Creek	Quinns Road	Western
Noise increase relative to 'do nothing' scenario	An increase in noise level from 1 to >10 dB(A) at 46 dwellings.	An increase in noise level from 1 to >10 dB(A) at 80 dwellings. An increase in noise level at 5 community facilities.	increase in noise level from 1 to >10 dB(A) at 67 dwellings.
Noise decrease relative to 'do nothing' scenario	A reduction in noise between 1 to >10 dB(A) at 22 dwellings.	A reduction in noise between 1 to >10 dB(A) at 13 dwellings.	A reduction in noise between 1 to >10 dB(A) at 24 dwellings.
Construction noise	No discernible difference – all options would result in temporarily degraded residential amenity as construction activities move past properties.		
Construction vibration	Some potential temporary discomfort due to vibration associated with pile driving activities located very close to houses (eg properties adjacent to Wallders Rd where bridge works are to occur).	Some potential temporary discomfort due to vibration associated with pile driving activities located very close to houses (eg properties adjacent to the Kilmore East Rd overpass where bridge upgrade works may occur).	Vibration levels due to construction not generally expected to result in discomfort or building damage.

Source: EES

Evidence and submissions

VicRoads called Mr Rob Brown of Renzo Tonin to provide expert evidence on noise impacts.

The VicRoads Traffic Noise Reduction Policy (VTNRP) states that VicRoads must reduce the noise impacts of new or upgraded road alignments to 63dB(A) at the most exposed façade of a residential building, where practicable.

Where the existing noise level is 50dB(A) or less, VicRoads will consider limiting the increase in noise from the new road to 12dB(A) above the existing level.

With the exception of sections of the Quinns Road and Western options within the existing Epping-Kilmore Road reservation, the full length of the three alignments are subject to the VicRoads Traffic Noise Reduction Policy.

Issues relevant to noise included:

- Noise from vehicles slowing down and accelerating out of roundabouts
- Noise impacts at submitters' properties
- Noise in public areas
 - Potential noise impacts at the Golf Club
 - Noise at Monument Hill Reserve
 - Noise impacts on horses at Kilmore Racing Club.

(i) Noise from slowing vehicles

Mr Glenn Roberts (submission 32) who opposed the Western option, stated that the noise generated by trucks using their exhaust brakes slowing down for the roundabouts and accelerating out of them would impact on the tranquillity of the area.

In response to submissions on vehicles slowing down and accelerating out of roundabouts and associated engine brake noise, Mr Brown stated that engine brake and acceleration noise is not assessed by the modelling algorithm used for calculation of noise impacts under the VicRoads Traffic Noise Reduction Policy. He considered that it would be unreasonable to provide mitigation, and that consideration be given to the use of signage.

(ii) Impacts on private dwellings

A number of submissions addressed noise concerns. Of particular concern were noise issues in Kilmore East. Ms Christine Cerasin (submission 70) commented on the potential impact on residents of Kilmore East, stating that:

As current local heavy truck traffic within the Kilmore East precinct would not be able to access the proposed bypass, residents would be faced with heavy haulage trucks on residential roads as well as the increase in traffic (noise and vehicle pollution) close by on the 'link' road. The ability to reduce the visual and noise impact on residents of Kilmore East would be near to impossible given the number of bridges required along this route.

(iii) Impacts on open space

Mr Peter Mitchell (submission 48) commented on noise impacts at the Monument Hill Reserve, stating that:

Noise can affect the acoustic environment for wildlife, with consequent impacts on affected populations. For example, researchers have linked traffic noise with reduced bird diversity and species abundance adjacent to roads to distances of up to 1,750 metres from highways through forests and further through other habitats.

In response to submissions on noise increases in public open space, VicRoads stated that such noise increases are a legitimate social impact and should be considered in those contexts. However, it could not be considered in the same context as residential uses because this would alter the application of State-wide acoustic policy.

In his expert witness statement on social impacts, Mr Weston recommended further mitigation measures in relation to the Quinns Road option:

Consider additional measures which can mitigate noise emissions to Monument Hill and adjacent open space/recreational areas, such as the Kilmore Golf Course.

10.2.3 Discussion

(i) Noise impacts on dwellings

The Inquiry accepts the noise modelling and evidence on the impacts of the alignments.

Mitigation measures investigated in the EES included consideration of low noise asphalt, earth mounding, noise barriers, or a combination of measures. The Inquiry agrees with VicRoads that according to the acoustic assessment, following the implementation of design mitigation measures, operational noise impacts on dwellings for all alignments are reduced to 'negligible'.

(ii) Noise on open space

The VicRoads Traffic Noise Reduction Policy prescribes noise level objectives for various types of road developments. It also identifies circumstances when mitigation must be provided. Where noise levels at locations covered by the policy are expected to exceed specified levels, VicRoads will implement measures in an attempt to reduce noise levels.

The VTNRP does not apply to recreational facilities or larger open space areas for passive use. The EES has not explicitly considered the impact of noise on open space as part of the OBEM. The EES states:

There are three key recreation facilities immediately adjacent to the Quinns Road alignment. The Traffic Noise Reduction Policy does not apply to recreational facilities or larger areas of passive use. However the Kilmore Racecourse and the Kilmore Golf Course are in close proximity to residential properties where noise mitigation measures are proposed and as a result, a significant noise reduction benefit would be achieved along the east side of the racecourse and the north-eastern corner of the Kilmore Golf Course.

VicRoads submitted:

VicRoads understands community concerns in relation to the potential for noise increases to decrease amenity in public open spaces (particularly where those spaces currently enjoy low levels of background noise). VicRoads

accepts that such noise increases are a legitimate social (and as noted by Mr Patrick, potential cultural landscape) impact and should be considered in those contexts.

A requirement to attenuate public open space in the same manner as residential uses would be a drastic change in the application of State-wide acoustic policy. As noted in the evidence of Mr Brown, the East West Link Inquiry made such a recommendation (which should, in fairness, be considered in the context of the type of road and its proposed location) but the recommendation was not adopted by the Minister for Planning and was not incorporated into the project performance requirements. In VicRoads' view, the Minister's approach to East West Link is a sensible one as it guards against the development of project by project incremental noise policy which could have the effect of creating inequities of benefits and disbenefits in road projects throughout Victoria. If the Inquiry shares the concerns of the East West Link inquiry in relation to the appropriate treatment of public open space, it is submitted, those concerns should be expressed as recommendations for policy reconsideration, rather than the introduction of additional requirements for this Project.

VicRoads has submitted that that the Inquiry avoid a requirement to attenuate noise in public open space in the same manner as residential uses. There are a number of issues in attempting to mitigate noise in open space:

- there is no agreed standard
- noise mounds may extend the earthworks footprint into sensitive vegetation
- noise walls may adversely impact on visual qualities
- low noise asphalt may add significantly to costs.

There is a difference between factoring in the noise impacts on open space as part of an integrated assessment of the bypass, and concluding those impacts should be mitigated.

The Inquiry has been asked in its Terms of Reference to consider the impact of noise on open space. It is clear that the Quinns Road option will have an adverse impact on open space by way of noise. The Inquiry accounts for this in its integrated assessment.

10.2.4 Inquiry OBEM ratings

The Inquiry adopts the noise assessment ratings from the EES, but adds the impact of noise on open space as required by the Scoping Requirements.

Figure 10-6: Noise: Inquiry OBEM rating

		Dry Creek	Quinns Road	Western
Noise	Noise level change	0	-1	-1
	Noise impact on open space	0	-1	0

10.3 Air quality

Issues associated with odour from the Kilmore Wastewater Management Facility are addressed in 6.2.

Air quality was modelled based on traffic volume, distance to sensitive receptors and road type to determine a worst case estimate of likely atmospheric contaminant concentrations. This concentration is subsequently adjusted using factors to account for the proportion of heavy vehicles, road gradient and road location.

The model indicates that worst case air quality concentrations at the closest receivers to the highway are substantially less than the levels specified in State Environment Protection Policy (SEPP) for air quality management.

Air quality would be included in the Construction Environmental Management Plan (CEMP) and would include management of dust and emissions from vehicles and plant.

Figure 10-7: Air quality impacts: Inquiry OBEM rating

		Dry Creek	Quinns Road	Western
Air quality	Air quality on route	0	0	0

Part 4: Assessment

This part of the report presents the Inquiry's integrated assessment of the bypass options.

11 Integrated assessment

11.1 EES

VicRoads submitted:

Chapters 8-15 of the EES include results from the OBEM assessment for each environmental issue, across all three alignment options. Table 18-1 synthesises these results into a consolidated summary.

Table 18-1 of the EES presents an overall summary of the option performance, but it is not a comprehensive presentation of the OBEM assessments of the options. The OBEM assessments were never brought together into one table.

Typically OBEM results are presented in a table simply listing the performance against each element. Figure 11-2 shows the ratings from the EES technical reports and EES.

The OBEM approach has developed a number of ways to explore the ratings to make an assessment. A typical approach is to present a 'count of scores' table, showing the number of times each option has received each score. A table is useful in that it shows which options have a preponderance of scores at either the higher or lower end of the scoring scale. The 'count of scores' summary for the EES and Technical appendices is shown in Figure 11-1.

Figure 11-1: Summary of performance, EES scores

Rating		Dry Creek	Quinns Road	Western
Very well	+3	0	0	0
Well	+2	0	2	1
Moderately well	+1	3	1	1
Negligible or not rated	0/NR	17	20	21
Moderately poor	-1	15	12	18
Poor	-2	8	8	2
Very poor	-3	0	0	0

Note: The EES rated 28 Impacts, 15 impacts were not rated

Figure 11-2: Summary table of ratings from EES technical appendices by sub-objective

			Dry Creek	Quinns Road	Western
Transport		Summary	+1	+1	0
Biodiversity and habitat	B1	EPBC	-1	0	-1
	B2	FFG	-1	-2	-1
	B3	Native vegetation	-2	-2	-1
		Summary	-1	-1	-1
Historic Heritage	D	Heritage place	0	0	0
Recreation precinct heritage	E	Heritage impact	NR	NR	NR
Aboriginal Heritage	G1	Artefacts	-2	-1	-1
	G2	Burials	-2	-2	-2
	G3	Earth features	-1	-1	-1
	G4	Non archaeological	-2	-1	-1
	G5	Quarries	-2	-1	-1
	G6	Scar trees	-1	-1	-1
	G7	Shell middens	-1	-1	-1
	G8	Stone features	-1	-1	-1
		Summary	-2	-1	-1
Economy	H1	Improve connectivity	NR	NR	NR
	H2	Policy consistency	NR	NR	NR
	H3	Severance	NR	NR	NR
	H4	Town amenity	NR	NR	NR
		Summary	-1	2	2
Noise		Summary	+1	0	0
Visual	J1	Significant views	-2	-1	-2
	J2	Landscape characteristics	-1	-2	-1
	J2	Open space	0	-1	0
		Summary	-1	-2	-1
Social	K1	Transport network	1	2	1
	K2	Displacement	-1	-2	-1
	K3	Noise social	-1	-2	-1
	K4	Visual social	-2	-2	-1
		Summary	-1	-1	-1
Hydrology	L1	Surface water	-1	0	0
	L2	Groundwater	-1	0	0
Air quality	M1	Air quality	NR	NR	NR
Odour	N1	Wastewater plant	NR	NR	NR
Contamination	O1	Wastewater plant	NR	NR	NR
	O2	Former landfill	NR	NR	NR
Geotechnical	P1	Surface and groundwater	NR	NR	NR
	P2	Salinity	NR	NR	NR
	P3	Soils	NR	NR	NR
	P4	Geotechnical issues	NR	NR	NR
Precincts	Q1	Equine	NR	NR	NR
	Q2	Monument Hill	NR	NR	NR

Note 1: NR means the impact was not rated in the EES or technical appendix

Note 2: Where the Technical Appendix and the EES present a different summary rating the EES rating is reported

11.2 Inquiry

In Chapters 6 to 10 the Inquiry discussed the issues associated with the options. As part of its assessment the Inquiry assigned an OBEM rating in accordance with its assessment of the various issues. Figure 11-3 presents the ratings for all the issues identified.

Figure 11-4 shows the number of times each option received a particular rating, on the Inquiry's revised assessment.

Figure 11-3: Inquiry OBEM ratings

Issue	Impacts	Overall impact	Dry Creek	Quinns Road	Western
Transport network	Kilmore main street alternative	8.00%	0	+1	+1
	Kilmore-Lancefield Road connection	8.00%	0	0	+2
	Wallan main street alternative	8.00%	+1	+2	+2
	Kilmore-Epping Road improvement	8.00%	0	+3	+3
	Alternative Wallan to Kilmore	4.00%	0	+2	+2
	Hume Freeway to Northern Highway connection	4.00%	+3	+2	+1
Strategic development	General growth	5.00%	0	+1	+2
	Wastewater Management Facility	5.00%	0	0	-2
Flora and fauna	Native vegetation	3.75%	-2	-2	-1
	EPBC	3.75%	-1	0	-1
	FFG	3.75%	-1	-2	-1
	Fauna populations and movement	3.75%	0	-3	-1
Catchment values	Surface water	1.50%	-1	0	0
	Ground water	1.50%	-1	0	0
Contamination	Former land fill	1.00%	-1	0	0
Geotechnical	Soils	0.50%	0	0	0
	Geotechnical issues	0.50%	0	0	0
Economic	Equine industry precinct	1.50%	-2	-2	0
	Industrial activity	1.00%	+1	+1	+1
	Agriculture	0.50%	0	0	0
	Tourism	0.50%	0	-1	+1
	Quarrying	0.50%	+1	0	0
	Travel cost savings	1.00%	+1	+1	+1
Social	Severance/accessibility of Kilmore	2.50%	-1	-2	0
	Creation pleasant town environment	2.00%	+1	+1	+1
	Severance/accessibility of Wandong	0.50%	0	+1	+1
Historic Heritage	Outdoor Recreation Heritage Precinct	2.80%	0	-2	0
	Heritage	1.20%	0	0	0
Visual	Significant views	1.00%	-2	-1	-1
	Landscape character	1.00%	-1	-2	-1
	Open space	1.00%	0	-1	0
Aboriginal Heritage	Potential impact on unidentified sites	2.00%	-2	-1	-1
	Impact on identified sites	1.00%	-2	-1	-1
Displacement	Impact on private property	5.00%	-1	-2	-1
Noise	Noise level change on dwellings	1.50%	0	-1	-1
	Noise impact on open space	1.50%	0	-1	0
Odour	Wastewater Management Facility	1.00%	0	0	-1
Air quality	Air quality on route	1.00%	0	0	0

Note: The Inquiry rated 38 Impacts

Source: Inquiry ratings from Chapters 6 to 10

Figure 11-4: Summary of performance, Inquiry scores

Rating		Dry Creek	Quinns Road	Western
Very well	+3	1	1	1
Well	+2	0	3	4
Moderately well	+1	5	6	7
Negligible	0	19	13	14
Moderately poor	-1	8	7	11
Poor	-2	5	7	1
Very poor	-3	0	1	0

Note: The Inquiry rated 38 Impacts

11.3 Integrated assessment

11.3.1 EES assessment

The EES summarised its overall assessment as follows:

Overall there are two main conclusions which can be drawn from the comparison of options summarised in this chapter, as concluded from each of the preceding chapters of this EES. Firstly, all options are considered to result in a net community benefit, primarily resulting from the transport and economic benefits, however there is a distinct difference in the performance and timeliness of the benefits delivered by each of the three options. Secondly, the option which best balances the transport benefits against environmental, economic and social outcomes is a subjective choice and the outcome would vary depending upon the relative importance individuals or groups of individuals place upon each issue.

It should also be noted that the specialist investigations found that there are no matters of legislation or policy that would prevent any of the three options from proceeding, and none of the options would result in unacceptable outcomes.

On balance, the Quinns Road option is the best performing option (short and long term) in reducing traffic in Kilmore and Wallan – recognising that it has comparatively higher amenity and land acquisition impacts, and higher environmental impacts within the Monument Hill Reserve. Dry Creek is the next best performing option for traffic with balanced social impacts, but would have significant environmental impacts, and the highest cost of construction. The Western option performs well with regards to reduced levels of amenity impacts on residential properties, but would not realise traffic benefits until the longer term development to the west side of Kilmore occurs, and even then, only a marginal reduction would be achieved.

For this Project, there are substantial challenges in making a decision on an option which best balances the various economic, social and environmental benefits and impacts and which would result in a net community benefit. All options would meet Project Objectives to varying degrees and meet the need to address the key project drivers as set out in Chapter 1.

11.3.2 Inquiry assessment

(i) Monument Hill

A key issue before considering the balance of economic, social and environmental performance of the options is to consider whether routing the bypass through Monument Hill can be considered as a 'fatal flaw' for the Quinn's Road option.

Certainly, the Inquiry considers that the approach used in the EES of discipline specific studies that did not consider the reserve holistically may have led to an underestimation of the importance of the reserve and of the cumulative impacts upon it from the points of view of environmental values, landscape, community use and attachment and heritage.

VicRoads, in opening, submitted that the assessment of the Precinct in the EES had been extremely conservative, in the sense of attributing to it a higher significance than was warranted by existing independent evaluations. It was argued that there was no evidence that the impact to the Precinct was so significant that the disbenefits of the Quinns Road option outweighed the benefits to the point where it should not be selected to proceed.

The Inquiry believes Monument Hill and the Kilmore Crown Land Reserve have significant ecological, social and heritage values and these would be impacted by the bypass, including impacts on:

- the heritage values of the Kilmore Outdoor Recreation Heritage Precinct
- the ecological values of Monument Hill
- visual impacts.

The route also has impacts on the equine precinct and the tourism potential of Kilmore.

The Inquiry has formed the view that the damage the Quinns Road option does to Monument Hill and the Kilmore Outdoor Recreation Heritage Precinct outweighs any amenity improvements it might deliver for the town centre, but this is not to say the option has a fatal flaw. Simply, that assessed against the objectives for the project and the EES it would not deliver a net community benefit.

(ii) What is important

The EES did not explicitly address the relative importance of the various impacts of the options. This cannot be avoided when assessing options with different performance characteristics, and where no option is 'good all round at everything'.

Some commentators on the OBEM approach argue against weighting objectives and compare the OBEM to what they call 'mathematical models' which apply weights to objectives and sub-objectives⁷:

It is in the process of establishing, adjusting and applying these weights that a mathematical model loses its transparent link to issues and objectives.

The objectives-based assessment model does not take these steps and therefore does not lose transparency. It presents the simple and unadjusted

⁷ Helen Gibson, *Review of the Objectives Based Assessment Model: An Assessment Tool Used by Planning Panels Victoria*, Planning Panels Victoria, October 2002.

order of performance against unweighted objectives and then reserves judgements about differential weightings to a second stage of clearly qualitative, written analysis. In this way, the transparency of the panel's reasoning is preserved.

The Inquiry does not agree with this approach. Just the simple act of counting (or graphing) the score applies an effective weight to them, that is, they are all weighted the same. There is no escaping the issue of weighting of objectives and sub-objectives if the OBEM is to produce useful summary information. There is no avoiding weighting OBEM results if they are to be counted in any way.

A number of technical assessments weighted the sub-objectives and this needs to be carried forward into any summary of results.

The Inquiry has adopted weightings to assist it in separating options building on the OBEM approach. The summary of weightings adopted are shown in Figure 11-5 and Figure 11-6.

The weightings are not meant to imply an overly technical approach to assessment, but rather the broad level of importance that the Inquiry has ascribed to each issue.

The Inquiry has rated the project rationale at 50 per cent (40 per cent transport and 10 per cent strategic development), but has also considered impacts if this element were less important to the overall assessment. If the project rationale is given less weight the options appear to have more negative impacts than positive benefits; given the commitment to build the bypass, this is counter intuitive.

Based on its consideration of submissions and issues the Inquiry has formed the view that environmental impacts are more important for this project than other impacts, and of these flora and fauna impacts are the most important.

Figure 11-5: Inquiry' summary of weightings, broad themes

Project rationale	50%
Natural environment	20%
Social and economic	10%
Heritage and visual	10%
Displacement and amenity	10%
<hr/>	
Total score	100%

Figure 11-6: Inquiry's summary of weightings, by issue

Project rationale	Transport network	40.0%
	Strategic development	10.0%
Natural environment	Flora and fauna	15.0%
	Catchment values	3.0%
	Contamination	1.0%
	Geotechnical	1.0%
Social and economic	Economic	5.0%
	Social	5.0%
Heritage and visual	Historic Heritage	4.0%
	Visual	3.0%
	Aboriginal Heritage	3.0%
Displacement and amenity	Displacement	5.0%
	Noise	3.0%
	Odour	1.0%
	Air quality	1.0%

(iii) Integrated assessment

The assessment by the Inquiry has concluded that there is not as much balancing to be done as the EES suggests.

The Dry Creek option ultimately has little to recommend it. It does provide a more direct connection between the Hume Freeway and the Northern Highway, but this is only one transport connection, albeit an important one, that the bypass needs to deliver. It does not provide other important network improvements for Kilmore. Because much of the option is on bridge structures it would not impact fauna movement, but would have adverse impacts on the environment of Dry Creek. According to the Inquiry's ratings it does not perform better on any other significant impact, being only better in terms of the economic benefit to the quarries and noise level changes.

The unsuitability of the Dry Creek option means that the task of the Inquiry is to recommend between the Quinns Road and Western options.

The Quinns Road option is superior to the Western option only in terms of:

- the more direct connection it provides between the Hume Freeway and the Northern Highway
- impact on the EPBC listed Golden Sun Moth
- impacts on the WMF.

The Western option is superior to the Quinns Road option in terms of:

- the transport connection it provides between the Northern Highway and the Kilmore-Lancefield Road
- supporting the strategic development of Kilmore
- displacing fewer properties
- having less of severance impact on Kilmore

- avoiding adverse impacts on the Equine Lifestyle Precinct and the tourism industry if this were to develop
- avoiding impacts on Monument Hill and the Kilmore Crown Land Reserve
- having less of an impact on flora and fauna in general, and especially in terms of fauna movement
- having fewer visual impacts on landscape character and open space.

A critical issue is the relative transport performance of the options, recognising that no option by itself is enough of a solution for Kilmore. Reducing the adverse amenity impacts from traffic on the town centre will require an internal alternative as well as a bypass. If such a link is constructed (and the Inquiry has specifically recommended that land should be reserved for it) then the modelled results for traffic over the next 15 years become even less of a determining factor.

Building the Quinns Road option would (on the EES material) shift the traffic from the town centre to an open space area with all the impacts that entails, only to have traffic levels creep back up in the town centre to exceed those that prompted the bypass in the first place. Kilmore in 15 years' time would have no significant amenity improvement on its main street, but would have sacrificed some of its open space amenity.

(iv) Costs

The EES provides a ranking of construction costs; the ranking is:

- Western option: Lowest estimated construction costs
- Quinns Road option: Second lowest estimated construction costs
- Dry Creek option: Highest estimated construction costs.

The EES does not document a benefit-cost analysis, and VicRoads did not present one at the Hearing.

Press releases for the project put the price of the bypass as \$130 million. This might be assumed to be a 'ball park' figure, but serves as a convenient figure for comparison. On this basis the relative cost (based on material presented at the Hearing) would be (roughly):

- Western option: \$130M
- Quinns Road option: \$140M
- Dry Creek option: \$180M.

All three options were likely to be subject to cost increases due to uncertainties or amendments to the final design. In particular, the Inquiry noted that:

- the Western option may involve compensation costs at the WMF
- the Quinns Road option needs additional noise amelioration measures and underpasses through the Monument Hill section
- the Dry Creek option has unresolved issues with the former tip site.

The Inquiry has concluded that the price difference between the Western option and the Quinns Road option is not a significant criterion to be considered in recommending an option. If it were an important factor, the Inquiry would have expected submissions from VicRoads on this issue.

11.3.3 Recommendation

Having considered the environmental impacts of the options in the context of applicable legislation, related policy, relevant best practice, the principles and objectives of ecologically sustainable development and public submissions, the Inquiry concludes that:

The Western option is the most suitable alignment option for the project and will substantially meet project objectives and deliver an appropriate balance of environmental, economic and social outcomes, having regard to the evaluation objectives in the EES Scoping Requirements.

The Western and Dry Creek options could achieve acceptable environmental outcomes.

The Quinns Road option would not achieve acceptable environmental outcomes.

The Inquiry recommends that:

The Kilmore Wallan Bypass be constructed along the Western alignment.

There is scope for refinement of the route and the Inquiry recommends:

VicRoads and Goulburn Valley Water work together to refine the detailed design of the bypass in the vicinity of the Kilmore Wastewater Management Facility generally along the alignment proposed in the Environmental Effects Statement. The design work should explore reconfiguration or relocation of the plant with the view of achieving an efficient 'whole of government' resolution of the infrastructure needs of Kilmore.

VicRoads identify any opportunities to make minor adjustment to the bypass to reduce the numbers of trees and particularly the small patches of remnant native vegetation that are affected by the construction of the bypass.

11.4 Sensitivity testing

Graphing the results of the OBEM has allowed the Inquiry to explore how the balance of the impacts change with different weightings applied to different themes or issues, or if impact ratings themselves were different. This allows for sensitivity testing of judgements.

Figure 11-7 shows the ratings under each theme for each option presented graphically. In these charts the ratings have been weighted in accordance with the importance the Inquiry has ascribed to the issue. The weightings used are those in Figure 11-5 and Figure 11-6. The Inquiry also reviewed charts without weighting the issues and this does not affect the conclusions.

This form of presentation makes it clear that the Western option is the superior option across a range of differing assumptions.

What the graphs show

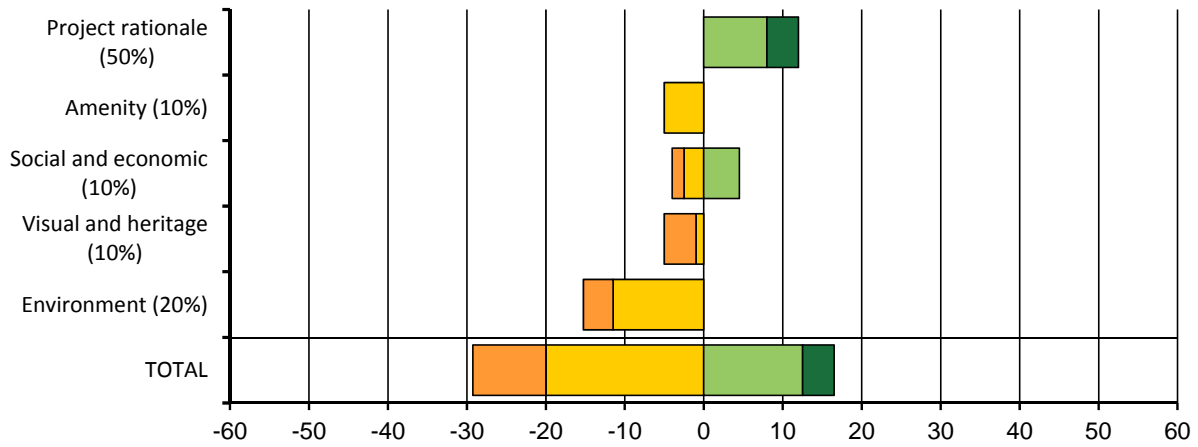
The graphs present the positive and negative impacts under the themes identified by the Inquiry. For example, they show that, in total, the Western option scored a positive rating on 50 percent of impacts, based on the Inquiry's weighting of issues. Comparing the Quinns Road and Western options, the length of the bars shows that each option was given a negative rating on 32 per cent of impacts, and the colours show that the Quinns Road option impacts are more severe.

The graphs are a way of communicating the results of the OBEM and are not intended to be a formulaic approach to decision making. The length of the bars has been adjusted to account for the importance that the Inquiry has applied to an impact.

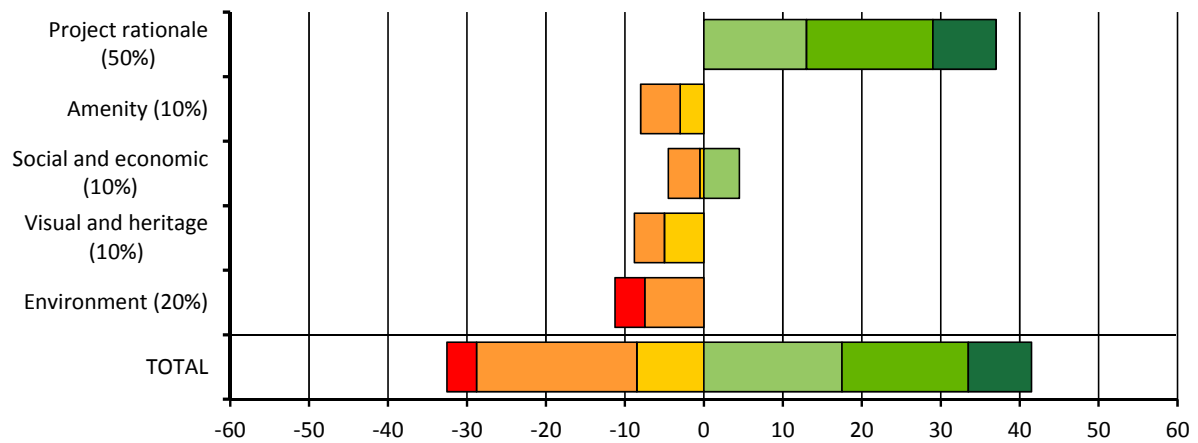
The graph also ensures that ratings are not artificially skewed simply by the number of impacts used for evaluation. Economic impact has been assessed against six sub-objectives, however this does not imply it is twice as important as social impact that has been assessed against three sub-objectives, and the graph adjusts for this.

Figure 11-7: Summary of performance, Inquiry scores, weighted impacts by theme
 The length of the bars shows a weighted count of negative and positive impacts. The shading depicts the rating assigned to these impacts, but ratings do not affect the length of the bars.

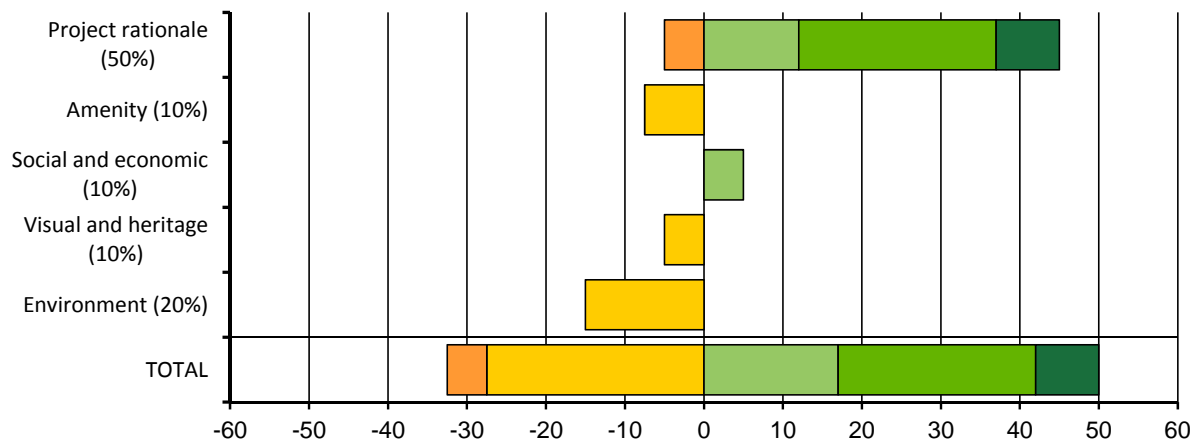
Dry Creek Option



Quinns Road Option



Western option



12 Environmental Management Framework and approvals

12.1 Introduction

The Inquiry's Terms of Reference require its report to present:

Statement of appropriate approval conditions under Victorian and Commonwealth law, necessary to achieve acceptable environmental outcomes in the context of applicable legislation and policy, including advice on the planning scheme amendment for the relevant alignment and design of the project.

Recommendations on the framework for environmental management for the project, including in relation to the necessary Environment Management Plan(s) required in association with approvals.

12.2 Planning scheme amendment

The EES presents draft Planning Scheme Amendments intended to manage planning approvals. The draft amendments:

- apply a Public Acquisition Overlay to the land required for the bypass – this allows land to be compulsorily acquired if necessary
- exempt the bypass from all planning scheme requirements subject to meeting certain conditions.

Incorporated document

A range of permissions would normally be required under the Mitchell Planning Scheme.

The EES proposes managing planning approval by way of an incorporated document under Clause 52.03. This clause provides for land identified in a schedule to the clause to be used or developed in accordance with the specific controls contained in an incorporated document. The specific controls may:

- allow the land to be used or developed in a manner that would otherwise be prohibited or restricted
- exclude any other control in this scheme.

The draft amendments propose to exempt the bypass from all planning scheme requirements subject to meeting four conditions:

- The project must be undertaken by or on behalf of VicRoads.
- An Environmental Management Framework or VicRoads Project Environment Protection Strategy must be approved by the Department of Transport, Planning and Local Infrastructure. The framework must accord with any requirements the Minister for Planning imposes as part of the Minister's assessment of the Project.

- A Native Vegetation Offset Strategy must be prepared to the satisfaction of the Department of Environment and Primary Industry. Offsets must be secured within 12 month of vegetation removal.
- A Threatened Species Management Plan must be prepared before works commence. The plan must be prepared in consultation with Department of Environment and Primary Industry and the Commonwealth Department of Environment and endorsed by the Secretary to the Department of Environment and Primary Industry.

Using Clause 52.03 is an appropriate mechanism for a proposal of this type given the public process to date and the requirements under planning scheme.

Amendment process

Section 20(4) of the *Planning and Environment Act* allows the Minister for Planning to amend planning schemes without public notice or submissions. The use of these powers is governed by the Ministerial Powers of Intervention in Planning and Heritage Matters Practice Note.

The Practice Note requires the Minister for Planning to meet certain criteria in the exercise of Ministerial powers of intervention. As an overriding consideration, Ministerial powers will only be exercised having regard to and within the confines of, the legislative provision in question.

The EES advises that VicRoads will request the Minister to approve an amendment under section 20(4) of the *Planning and Environment Act*.

The amendments were not subject to submissions. The Inquiry has reviewed the amendments and endorses the approach proposed which has been used in a number of similar road projects.

If the alignment of the western option is refined in the vicinity of the WMF it may be necessary to adjust the boundary of the Public Acquisition Overlay.

We have considered the criteria set out in the Practice Note, and support a Ministerial Amendment under section 20(4) of the *Planning and Environment Act*. Specifically we advise that:

The Inquiry is satisfied that the circumstances for Ministerial intervention and the nature of the recommended amendment satisfy the relevant criteria in the Ministerial Powers of Intervention in Planning and Heritage Matters Practice Note on the basis of the following Practice Note criteria:

- **Criterion 1 – The matter is one of genuine regional significance as it raises a major issue of regional public interest.**
- **Criterion 2 – The matter will give effect to an outcome where the issues have been reasonably considered and the views of affected parties are known.**
- **Criterion 4 – The matter will raise issues where the public interest would be served by immediate action.**
- **Criterion 5 – The matter requires co-ordination to facilitate decision making by more than one agency.**

Criterion 3 is not relevant to the draft amendments.

The Inquiry recommends that:

The Minister for Planning, under Section 20(4) of the *Planning and Environment Act 1987*, prepare and approve an amendment to the Mitchell Planning Scheme generally in accordance with the draft amendment published as part of the Environment Effects Statement.

12.3 Framework for environmental management

Chapter 17 of the EES presents the Environmental Management Framework (EMF) proposed for the detailed design, construction, and operational phases of the bypass.

12.3.1 VicRoads' environmental management system

VicRoads has a well-established and sophisticated environmental management system and this is shown in Figure 12-1.

The EES explains the various components of Figure 12-1.

Environmental Investigations Screening Checklist

VicRoads completed an Environmental Investigations Screening Checklist to assist in identifying what surveys and investigations were required to assess and manage potential environmental risks. The Inquiry is satisfied that the EES has identified all relevant risks.

Surveys and Investigations

The specialist studies presented in EES Technical Appendices A-Q have identified potential environmental impacts and risks and detail potential mitigation measures.

Risk Assessment

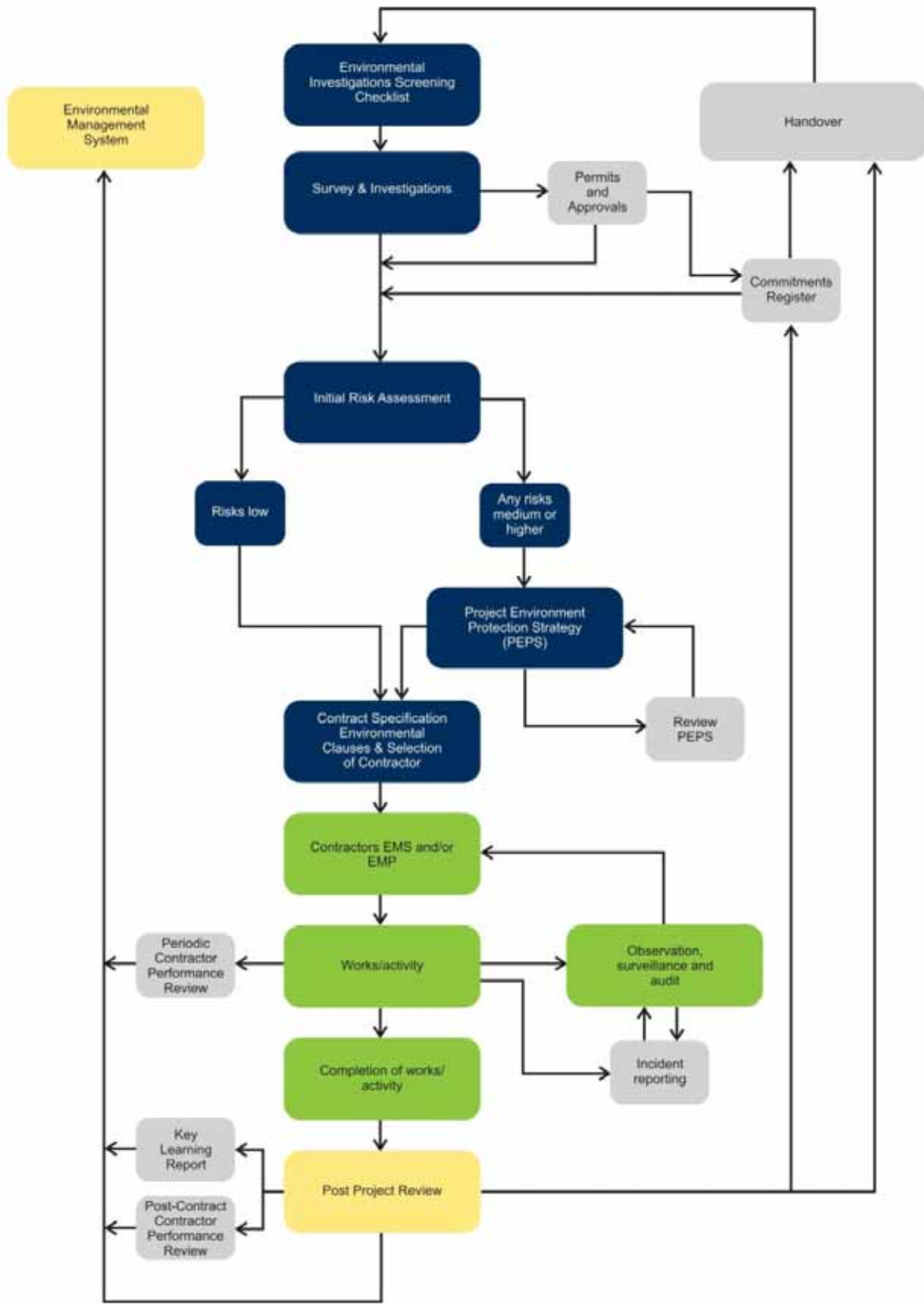
Technical Appendix R contains a copy of the risk report including the risk register developed for the EES. The Inquiry is generally satisfied that Technical Appendix R has identified all relevant risks.

Project Environment Protection Strategy

The Project Environmental Protection Strategy (PEPS) is a VicRoads document and would be used by VicRoads to guide environmental management for the Project and to track implementation of overall environmental commitments and approval conditions.

The PEPS would be informed by the contract risk register and commitments register as well as containing the environmental management measures and objectives described in this EES.

Figure 12-1: VicRoads Environmental Management System



3130187Process Diagrams/VicRoads EMC implementation.pdf

Source: EES Figure 17-1

Contract specification

VicRoads contract specifications have standard contractual requirements for environmental management for major works and this was presented in Technical Appendix S of the EES. The contract specifications allow for additional environmental management and monitoring requirements to be incorporated into the contract specification as 'special clauses' where relevant.

Section 177 covers:

- Part A - Environmental Management
- Part B - Water Quality
- Part C - Air Quality
- Part D - Erosion and Sediment Control
- Part E - Contaminated Soils and Materials
- Part F - Waste and Resource Use
- Part G - Fuels and Chemicals
- Part H - Noise
- Part I - Flora and Fauna
- Part J - Cultural Heritage
- Part K - Reporting
- Part L - Audits
- Part M – References.

Section 177 requires:

Works under the Contract shall be undertaken so that impacts on the environment are avoided or minimised. The Contractor shall ensure that the environmental objectives and measures outlined in the relevant State and Federal legislation are complied with. Where different objectives are nominated, the more stringent requirement shall be adopted.

The Contractor shall prepare a project specific Environmental Management Plan for the management of activities that impact on the environment in accordance with the requirements of Section 177 of this specification.

The Western option presents a range of environmental management issues, but none of these is particularly unusual. Section 177 requires a comprehensive approach to environmental management and approvals based on existing practices.

The Inquiry has reviewed the requirements of Section 177 and conclude that they provide an adequate framework to manage environmental issues associated with the Western option.

Contractors Environmental Management Plan

The construction contractor would be required as a condition of contract to prepare a project specific Environmental Management Plan (EMP) for construction. The EMP would be required to address the range of environmental risks and impacts and proposed management measures identified in the EES. The EMP would incorporate the following:

- a statement of scope and purpose and the environmental objectives
- a schedule of environmental elements that are expected to be affected by the works

- the identification of work activities and an assessment of their potential impacts and associated risks
- processes and responsibilities for:
 - the implementation, onsite review and maintenance of EMP and associated controls
 - reporting and investigation of environmental incidents or complaints
 - an adaptive approach for the review and update of the EMP as works progress
 - after hours response
- legal and other requirements
- competence, training and awareness
- operational control
- scaled drawings that clearly show the location and extent of environmental controls, modifications to existing control devices and monitoring locations
- emergency preparedness and response
- nonconformity, environmental incidents and corrective and preventative action procedures
- audit

Contractor monitoring

Contractors would be required to undertake monitoring and audits for construction activities, VicRoads would also conduct its own surveillance and auditing to assess the contractor's compliance with the EMP and the requirements of the Contract Specifications through:

- observation of project activities on a day-to-day basis
- periodic risk based surveillance of the effectiveness of environmental controls and processes implemented on site
- audit of the implementation and effectiveness of the EMS and/or EMP and the effectiveness of the controls and processes implemented on site.

External Audit

The construction contractor would be required to engage an independent, suitably qualified and experienced auditor to conduct an audit prior to commencement of construction works to confirm that the contractor's EMP conforms to the contract specification and that proposed controls and procedures are consistent with best practice environmental guidelines.

VicRoads would engage suitably qualified and experienced environmental auditors to undertake compliance audits on a quarterly basis during construction. The compliance audits will assess the contractor's performance against the requirements of the contract specification, legislative requirements and the contractor's EMP. The contractor will be required to address any identified non-compliance.

12.3.2 Conclusion and recommendation

The Inquiry is satisfied that VicRoads' Environmental Management System will adequately manage the risks associated with the construction of the Western option.

The Inquiry's Terms of Reference require it to make recommendations on the framework for environmental management for the project. The Inquiry recommends that:

VicRoads' Environmental Management System be adopted as the framework for environmental management for the project.

12.4 Relevant approvals

The bypass requires a range of approvals.

(i) Approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* – for potential impacts on threatened species and ecological communities

The project was determined to be a controlled action that requires assessment and approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 16 April 2013 because of its potential impacts on matters of national environmental significance (NES). The controlling provisions under that Act relate to listed threatened species and communities (sections 18 and 18A).

The EES process is being applied as the accredited assessment process under the Commonwealth-Victorian Bilateral Agreement for Environmental Impact Assessment, to provide for the assessment of matters of NES required under the EPBC Act. The agreement came into operation on 25 June 2009 and provides for the accreditation of specified Victorian statutory processes to ensure an integrated and coordinated assessment of actions requiring Commonwealth approval.

The Victorian Minister for Planning's Assessment under the *Environment Effects Act* will be provided to the Commonwealth to inform the EPBC Act approval decision, in accordance with Schedule 1 Part B of the Agreement.

The Terms of Reference require that the Inquiry report should address impacts on matters of national environmental significance to inform the Victorian Minister for Planning's Assessment, as set out in paragraph 26.

The issue of Commonwealth significance is the impact on Golden Sun Moth habitat. These impacts are discussed in section 7.1. It is possible that other species may be impacted and any environment management plan should anticipate this.

The Inquiry recommends approval for the bypass include the requirement that:

The Environment Management Plan for the Project:

- **include a salvage and translocation program and post-translocation monitoring plan for *Environment Protection and Biodiversity Conservation Act 1999* listed species that may be impacted, approved by Department of the Environment before construction begins.**

VicRoads prepare an Offset Management Strategy to satisfy requirements under the *Environment Protection and Biodiversity Conservation Act 1999* Environmental Offsets Policy (Department of Environment, 2012).

A decision under the EPBC Act may impose additional conditions.

The EES advises that VicRoads would arrange for an appropriately qualified ecologist to prepare the salvage and translocation program and post-translocation monitoring plan.

Conditions and requirements from the Offset Management Strategy would be incorporated into the VicRoads Project Environment Protection Strategy and addressed by VicRoads.

(ii) Cultural Heritage Management Plan pursuant to the Victorian Aboriginal Heritage Act 2006

VicRoads has prepared a draft Standard Cultural Heritage Management Plan (CHMP) and complex assessment methodology outline for the Project.

The Inquiry recommends approval for the bypass include the requirement that:

VicRoads prepare a Cultural Heritage Management Plan in accordance with the requirements of the *Aboriginal Heritage Act 2006* after the Minister for Planning's Assessment of the environment effects of the project has been issued.

Specific commitments made in the CHMP be incorporated into the Project Environment Protection Strategy specification and addressed by either VicRoads or through the construction contracts as appropriate.

(iii) Offsets for native vegetation losses in accordance with the Permitted clearing of native vegetation, Biodiversity Assessment Guidelines (DEPI 2013)

Offsets for native vegetation losses (including native vegetation of very high conservation significance) would be required to be secured within 12 months of vegetation removal as per the DSE-DOT Memorandum on Native Vegetation Offsets, and as set out in the proposed Planning Scheme Incorporated Documents.

Conditions and requirements from the Offset Management Strategy be incorporated into the VicRoads Project Environment Protection Strategy and addressed by VicRoads.

The Inquiry recommends approval for the bypass include the requirement that:

VicRoads prepare an Offset Management Strategy to satisfy requirements under the *Permitted clearing of native vegetation, Biodiversity Assessment Guidelines* (DEPI 2013).

(iv) Permits under the Flora and Fauna Guarantee Act 1988 and Wildlife Act 1975

A Flora and Fauna Guarantee Act permit would be sought to remove listed flora species.

The Inquiry recommends approval for the bypass include the requirement that:

The Environment Management Plan for the Project:

- **include a salvage and translocation program and post-translocation monitoring plan for *Flora and Fauna Guarantee Act 1988* listed species that may be impacted, approved by the Department of Environment and Primary Industries before construction begins.**

Any persons engaged to conduct salvage and translocation or general handling of terrestrial fauna species must hold a current Management Authorisation under the *Wildlife Act 1975*.

VicRoads would arrange for an appropriately qualified ecologist to prepare the salvage and translocation program and post-translocation monitoring plan.

Any conditions or requirements of the plan or permits would be incorporated into the VicRoads Project Environment Protection Strategy and addressed by either VicRoads or through the construction contracts as appropriate.

(v) Licence to construct works on a waterway or to construct a bore under the Water Act 1989

A permit for works on waterways would be sought from the issuing authority Goulburn Broken Catchment Management Authority (CMA) and/or Port Phillip and Westernport CMA (western option only).

Any conditions or requirements would be incorporated into the VicRoads Project Environment Protection Strategy and addressed by either VicRoads or through the construction contracts as appropriate.

(vi) Licence to take or use water from a waterway or groundwater under the Water Act 1989

A licence to take or use water from a waterway or groundwater would be sought from the issuing authorities: Goulburn-Murray Water (GMW) (all options) and Southern Rural Water.

Any conditions or requirements would be incorporated into the VicRoads Project Environment Protection Strategy and addressed by either VicRoads or through the construction contracts as appropriate.

(vii) Consent to disturb historical archaeology sites and permits to carry out works to a heritage place under the Heritage Act 1995

Consents and permits would be sought from the issuing authority Heritage Victoria.

Any conditions or requirements would be incorporated into the VicRoads Project Environment Protection Strategy and addressed by either VicRoads or through the construction contracts as appropriate.

(viii) Consent under the Road Management Act 2004

Consents to undertake road works would be sought from the issuing authorities, VicRoads (arterial roads and freeways) and Mitchell Shire Council (municipal roads).

Any conditions or requirements would be incorporated into the VicRoads Project Environment Protection Strategy and addressed by either VicRoads or through the construction contracts as appropriate.

(ix) Work in a Rail Reserve

Works will be undertaken in accordance with the terms of, and the principles in, the Memorandum of Understanding between VicRoads and Public Transport Victoria dated 10 May 2007.

Any conditions or requirements would be incorporated into the VicRoads Project Environment Protection Strategy and addressed by either VicRoads or through the construction contracts as appropriate.

13 Response to Terms of Reference

The Terms of Reference state that the Inquiry must produce a written report for the Minister for Planning presenting findings, conclusions and recommendations. The Inquiry's response to this requirement is shown below.

Figure 13-1: Response to the Terms of Reference

Terms of reference requirement	Section of report that addresses this requirement
26a. Findings on the likelihood and significance of environmental effects (impacts) of the different alignment options documented in the EES, including impacts on matters of NES protected under relevant controlling provisions of the EPBC Act.	Part 3: Chapters 6 to 10 summarised in Chapter 11
26b. Conclusions on the feasibility of the project achieving acceptable environmental outcomes in the context of applicable legislation, related policy, relevant best practice, and the principles and objectives of ecologically sustainable development.	Section 11.3.3
26c. Recommendation on the most suitable alignment option for the project that will substantially meet project objectives and deliver an appropriate balance of environmental, economic and social outcomes, having regard to the evaluation objectives in the EES Scoping Requirements, the Inquiry's conclusions on the effects of the project and public submissions.	Section 11.3.3
26d. Recommendations on any modifications to the project, including in relation to alignment and design and/or specific measures that are needed to prevent, minimise or compensate for adverse effects, including on relevant matters of NES, in the context of relevant standards, objectives and guidelines established under relevant legislation.	Consolidated recommendations in Executive Summary based on recommendations in Chapters 6 to 12
26e. Statement of appropriate approval conditions under Victorian and Commonwealth law, necessary to achieve acceptable environmental outcomes in the context of applicable legislation and policy, including advice on the planning scheme amendment for the relevant alignment and design of the project.	Consolidated recommendations in Executive Summary based on recommendations in Chapters 6 to 12
26f. Recommendations on the framework for environmental management for the project, including in relation to the necessary Environment Management Plan(s) required in association with approvals.	Consolidated recommendations in Executive Summary based on Chapter 12
26g. Relevant information and analysis in support of the Inquiry's conclusions and recommendations.	Chapters 6 to 12 with Integrated assessment presented in Chapter 11
26h. Description of the proceedings conducted by the Inquiry and a list of those consulted and heard by the Inquiry.	Section 2.4 and Appendix B

Appendix A Terms of Reference

A joint Inquiry appointed pursuant to section 9(1) of the *Environment Effects Act 1978* and Advisory Committee appointed pursuant to Part 7, Section 151 of the *Planning and Environment Act 1987* to report on the Kilmore Wallan Bypass Project.

Name

1. The combined Inquiry and Advisory Committee is to be known as the 'Kilmore Wallan Bypass Inquiry and Advisory Committee' (the Inquiry).
2. The Inquiry members have the following skills:
 - a. Land use planning
 - b. Traffic and transport
 - c. Social assessment
 - d. Landscape and visual assessment
 - e. Heritage.

Purpose

3. The Inquiry's purpose is to inquire into and provide an integrated assessment of the potential effects of the proposed Kilmore Wallan Bypass Project (the project).
4. The Inquiry is to produce a report to inform the Minister for Planning's Assessment of the project under the *Environment Effects Act 1978* (the EE Act) and will also assist the Minister to make decisions about the proposed amendments to the Mitchell Planning Scheme to facilitate the project.
5. In overview, the Inquiry is to:
 - a. Consider and report on the potential effects of the three alignment options for the project investigated in the Environment Effects Statement (EES), taking into account the procedures and requirements of the Minister for the preparation of the EES under section 8B(5) of the EE Act (**Attachment 1**) and the controlling provisions under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Commonwealth) as outlined in paragraph 14 below.
 - b. Recommend the most suitable alignment option for the project that will substantially meet project objectives and deliver an appropriate balance of environmental, economic and social outcomes, having regard to the evaluation objectives in the EES Scoping Requirements, the Inquiry's conclusions on the effects of the project and public submissions.
 - c. Advise on the draft planning scheme amendment for the relevant alignment and design of the project prepared by VicRoads.

Background

Project

6. VicRoads proposes to construct a Northern Highway bypass of the Kilmore and Wallan townships. The bypass would connect the Hume Freeway at Wandong with the Northern Highway at the intersection with the Broadford – Kilmore Road.
7. Three options have been investigated by VicRoads in the EES it has prepared for the project:
 - a. The Dry Creek Option
 - b. The Quinns Road Option
 - c. The Western Option.
8. VicRoads proposes to construct the road as a two lane (one lane in each direction) regional arterial road with a design speed generally of 100 kilometres per hour. Enough land would be reserved for development to a four lane road, however, VicRoads traffic modelling currently indicates four lanes would not be required in the short or medium term.
9. Each of the options requires the reservation of a new road alignment and the construction of a new road on private and public land.
10. Construction would involve excavation, cutting, erecting of new bridges and elevated structures, and laying base and foundations for the new road and new road infrastructure, such as lighting.

EES decision

11. On 15 April 2013, the Minister for Planning determined that an EES was required for the project under the EE Act and issued the decision with procedures and requirements for the preparation of the EES under section 8B(5) of the EE Act.
12. The EES has been prepared by the proponent in response to the Minister's decision and Scoping Requirements issued for the proposal in October 2013.
13. The EES was placed on public exhibition, together with draft amendments to the Mitchell Planning Scheme, from 10 June 2014 to 21 July 2014.

Commonwealth decision

14. The project was determined to be a controlled action that requires assessment and approval under the EPBC Act on 16 April 2013 because of its potential impacts on matters of national environmental significance (NES). The controlling provisions under that Act relate to listed threatened species and communities (sections 18 and 18A).
15. The EES process is being applied as the accredited assessment process under the Commonwealth-Victorian Bilateral Agreement for Environmental Impact Assessment⁸, to provide for the assessment of matters of NES required under the EPBC Act. The Victorian Minister for Planning's Assessment under the EE Act will be provided to the Commonwealth to inform the EPBC Act approval decision, in accordance with Schedule 1 Part B of the Agreement.

⁸ The agreement came into operation on 25 June 2009 and provides for the accreditation of specified Victorian statutory processes to ensure an integrated and coordinated assessment of actions requiring Commonwealth approval.

16. The Inquiry report should address impacts on matters of NES to inform the Victorian Minister for Planning's Assessment, as set out in paragraph 26.

Planning approval process

17. VicRoads has prepared draft planning scheme amendments (Amendment C97 to the Mitchell Planning Scheme) for each of the proposed options. The Inquiry is to provide advice on the draft planning scheme amendment. The draft amendments would amend the planning scheme to:
 - a. Include land required for the project in a Public Acquisition Overlay
 - b. Exempt the project from requiring a planning permit, subject to conditions set out in an 'Incorporated Document' that would become a project specific planning control in the Mitchell Planning Scheme.

Other approvals

18. Under Victorian law, the project requires a number of other approvals and consents, as outlined in the EES, including an approved Cultural Heritage Management Plan under the *Aboriginal Heritage Act 2006* to manage works in areas of cultural heritage sensitivity and a Permit to remove listed flora under the *Flora and Fauna Guarantee Act 1988*.

Method

19. The Inquiry may apply to vary these Terms of Reference in writing, prior to submission of its report.
20. The Inquiry may inform itself in any way it sees fit, but must consider:
 - a. The exhibited EES and draft planning scheme amendments
 - b. Any submissions and evidence provided by the proponent, State agencies, and the public
 - c. Information provided by the proponent which addresses, to the extent practicable, the submissions provided by the public
 - d. Other relevant information provided to, or obtained by, the Inquiry, having regard to relevant statutory provisions, policies and plans.
21. The Inquiry must conduct a public hearing and may make other such enquiries as are relevant to its consideration of the potential environmental effects of the project.
22. The Inquiry must conduct its hearings in accordance with the following principles:
 - a. The hearings will be conducted in an open, orderly and equitable manner, in accordance with the rules of natural justice, with a minimum of formality and without the necessity for legal representation.
 - b. The Inquiry process will aim to be exploratory and constructive and adversarial behaviour should be minimised.
 - c. Parties without legal representation will not be disadvantaged – cross-examination will be strictly controlled and prohibited where deemed not to be relevant by the Inquiry Chair.
23. The Inquiry will meet and conduct hearings when there is a quorum of at least two of its members present including the Inquiry Chair.

Submissions are public documents

24. The Inquiry must retain a library of any written submissions or other supporting documentation provided to it directly until a decision has been made on its report or five years has passed from the time of its appointment.
25. Any written submissions or other supporting documentation provided to the Inquiry must be available for public inspection until the submission of its report, unless the Inquiry specifically directs that the material is to remain 'in camera'.

Report

26. The Inquiry must produce a written report for the Minister for Planning presenting the Inquiry's:
 - a. Findings on the likelihood and significance of environmental effects (impacts) of the different alignment options documented in the EES, including impacts on matters of NES protected under relevant controlling provisions of the EPBC Act.
 - b. Conclusions on the feasibility of the project achieving acceptable environmental outcomes in the context of applicable legislation, related policy, relevant best practice, and the principles and objectives of ecologically sustainable development.
 - c. Recommendation on the most suitable alignment option for the project that will substantially meet project objectives and deliver an appropriate balance of environmental, economic and social outcomes, having regard to the evaluation objectives in the EES Scoping Requirements, the Inquiry's conclusions on the effects of the project and public submissions.
 - d. Recommendations on any modifications to the project, including in relation to alignment and design and/or specific measures that are needed to prevent, minimise or compensate for adverse effects, including on relevant matters of NES, in the context of relevant standards, objectives and guidelines established under relevant legislation.
 - e. Statement of appropriate approval conditions under Victorian and Commonwealth law, necessary to achieve acceptable environmental outcomes in the context of applicable legislation and policy, including advice on the planning scheme amendment for the relevant alignment and design of the project.
 - f. Recommendations on the framework for environmental management for the project, including in relation to the necessary Environment Management Plan(s) required in association with approvals.
 - g. Relevant information and analysis in support of the Inquiry's conclusions and recommendations.
 - h. Description of the proceedings conducted by the Inquiry and a list of those consulted and heard by the Inquiry.

Timing


27. The Inquiry is required to submit its report in writing to the Minister for Planning within 40 business days from its last hearing date.

Fee

28. The members of the Inquiry will receive the same fees and allowances as a panel appointed under Division 1 of Part 8 of the *Planning and Environment Act 1987*.
29. The costs of the Inquiry will be met by VicRoads.

Project Manager

30. Day to day liaison for matters about this Inquiry process can be made to Greta Grivas, Senior Project Officer, Planning Panels Victoria, on ph. (03) 8392 6393 or greta.grivas@dtpli.vic.gov.au.



Matthew Guy MLC
Minister for Planning

Date:

15-7/14

Attachment 1

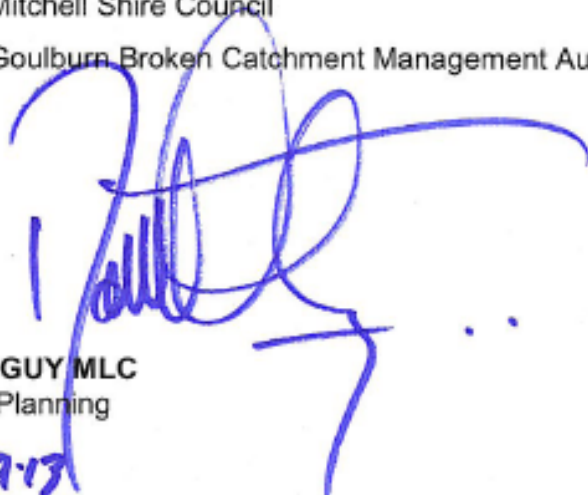
DECISION ON PROJECT: Kilmore Wallan Bypass Project

Under section 8B(3)(a) of the Environment Effects Act 1978

1. Assessment though an Environment Effects Statement (EES) under the *Environment Effects Act 1978* **is required** for the reasons set out in the attached Notice of Reasons for Decision.
2. The procedures and requirements applying to the preparation of the EES, in accordance with section 8B(5) of the *Environment Effects Act 1978* and the *Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978*, are as follows:
 - i. The EES is to investigate the potential environmental effects of the proposed project including any relevant alternatives, as well as associated environmental and management measures with a particular focus on:
 - a. Assessment of the potential environmental effects of those project route alternatives that would: (a) substantially meet priority transport objectives, in terms of improving road safety and functionality and removing through traffic from Kilmore and Wallan; and (b) have the potential to deliver an appropriate balance of social, environmental and economic outcomes. A justification of the elimination of any alternatives as well as comparative assessment of the transport and environmental performance of relevant alternatives is to be provided.
 - b. Effects on biodiversity including native vegetation, listed flora and fauna and ecological communities.
 - c. Impacts on waterways including Dry Creek and Broadhurst Creek.
 - d. Visual and landscape effects including on Monument Hill and ridgelines to the east of Kilmore.
 - e. Displacement and severance of residential land uses and community assets including Monument Hill and Kilmore Racecourse.
 - f. Noise increases for residents and community assets including Monument Hill and the equestrian precinct including Kilmore Racecourse.
 - ii. The matters to be investigated and documented in the EES will be set out in detail in scoping requirements to be prepared by the Minister for Planning. Draft scoping requirements will be exhibited for 15 business days for public comment, before being finalised and issued to the proponent.

- iii. The proponent is to prepare and submit to the Department of Planning and Community Development (DPCD) a draft EES study program, describing planned investigations of relevant issues, to inform the initial preparation of the scoping requirements.
 - iv. The proponent is also to prepare and submit to DPCD a proposed schedule for the preparation of the EES, following preparation of the draft scoping requirements.
 - v. DPCD will convene an inter-agency Technical Reference Group (TRG) to advise DPCD and the proponent, as appropriate, on scoping and the study program, the adequacy of draft EES studies, as well as coordination with statutory approval processes.
 - vi. The proponent is to prepare and implement an EES Consultation Plan for informing the public and consulting with stakeholders during the preparation of the EES, having regard to advice from DPCD and the TRG.
 - vii. The level of detail of investigation for the EES studies should be consistent with the scoping requirements and be adequate to inform an assessment of acceptability of its potential environmental effects, in the context of the Ministerial Guidelines.
 - viii. The proponent is to apply appropriate peer review procedures to enable the completion of EES studies to a satisfactory standard.
 - ix. The EES is to be exhibited for a minimum period of 30 business days for public comment, unless the exhibition spans the Christmas-New Year period, in which case 40 business days will apply.
 - x. An inquiry will be appointed under the *Environment Effects Act 1978* to consider environmental effects of the proposal.
3. The following parties (proponent and relevant decision-makers) are to be notified of this decision:
- VicRoads (proponent)
 - Minister for Environment and Climate Change
 - Minister for Roads

- Mitchell Shire Council
- Goulburn Broken Catchment Management Authority

A large, stylized handwritten signature in blue ink, appearing to read 'Matthew Guy', is written over the list of organizations and extends down towards the date.

MATTHEW GUY MLC
Minister for Planning

Date: 15.9.13

Appendix B Submitters and parties

Table 1 List of Submitters

No.	Submitter	No.	Submitter	No.	Submitter
1	Heather Milner	31	Jeffrey Eberach	61	Marist Brothers
2	Michael Alan Brown	32	Glenn Roberts	62	Dorothy and Norman Rose
3	Karen Brown	33	Thomas Caelli	63	Peter Reynolds
4	Eileen Roks	34	Peter O'Connor	64	Frank and Kim Keen
5	Lisa Hurley	35	Scott Ryan	65	Diane Butt
6	Lesley Dalziel	36	Andrew Prosser	66	Catherine Payne
7	Ross Lee	37	John Barton	67	John Quinert
8	Maryanne Laffan	38	Peter Fleming	68	Emily Payne
9	Jack White	39	VicRoads	69	Neil Harcus
10	Ray Lilkie	40	Michael Hammond	70	Christine Cerasin
11	Noelle Vine	41	Goulburn Valley Region Water Corporation	71	Linda Martin-Chew
12	Andrew Ryan	42	Samantha Pate	72	Sarah Payne
13	Jessica Gidman	43	Ian Crawshaw	73	Malcolm Perkins
14	Josefine Gabauer	44	Dayle Whitmore	74	Local Resident (name withheld)
15	Terry Mace	45	Douglas Payne	75	Kevin Butler
16	Adrian Bosco	46	Gail and Henry Piechowiak	76	Bernadette Melvaine
17	Local Resident	47	Louisa Payne	77	Anthony Byrne
18	David Hosking	48	Peter Mitchell	78	Brian Mawhinney
19	Graham Vine	49	Kilmore Racehorse Trainers Association	79	Kate Mancini
20	Richard Murphy	50	Victorian National Parks Association	80	Vyvienne Whitehurst
21	Rupert Hussey	51	Brian Wilkinson	81	Lawrence Boyd
22	Joe Cataldo	52	Dean Adams	82	Kilmore Racing Club Inc.
23	Nerrida Prosser	53	John Payne	83	Helen Begley
24	Local Resident (name withheld)	54	CFA	84	Vicki McKiterick
25	Maria Benson	55	Steven Scroggi	85	Norm Stimson
26	Ian Nagle A.S.M.	56	Susan Frisch	86	Helen Fatchen
27	Judith Rutter	57	Garry Sleeman	87	Dr Victor Hurley
28	Paul Dorrington	58	Henrika Schrama	88	Jim Lowden
29	Neva Gladman	59	Bill Schrama	89	Erica and Wayne Nuske
30	Garron Leslie	60	Ian Aberdeen	90	Wilma Hammond

No.	Submitter	No.	Submitter	No.	Submitter
91	Michael and Mandy Ryan	106	Les Thompson	121	Michael Scandolera
92	Charlie and Frances Stimson	107	Rodney Flanagan	122	Jim Whitehurst
93	Kilmore Mechanics Institute and Free Lending Library	108	James Brown	123	Andrea Mitchell
94	R Histock and Sons	109	Kilmore Cricket and Recreation Reserve Inc	124	Heather Muir
95	Debra Roberts	110	David Law	125	Martin Muir
96	Ian Bourne	111	Lynette Boyd	126	Matthew Muir
97	Hayden Wing	112	Save Monument Hill Community Group	127	Emily Muir
98	Lisa McKay	113	Denise Worthington	128	Trevor Thomas
99	Barry Love	114	Mitchell Shire Council	129	Wandong Heathcote Junction Community Group Inc.
100	Richard Mosedale	115	Nora Davison	130	Wandong History Group
101	Gayle Morgan	116	Russell Taylor		
102	Adam Gladman	117	Margaret Taylor		
103	MW Hamilton-Bayly	118	Zeus Quarter Horses		
104	John Urly	119	Mick Cassar		
105	Peter Wood	120	Ronald Woodyard		

Table 2 Parties to the Inquiry Hearing

Submitter	Represented by
VicRoads	<p>Ms Susan Brennan SC instructed by Ms Jess Kaczmarek and Ms Courtney Winter of Rigby Cooke Lawyers with Mr Mal Kersting and Mr Len Hall of VicRoads, who called the following expert witnesses:</p> <ul style="list-style-type: none"> • Mr Jeff Smith of URS Australia Pty Ltd in land use planning • Mr Glenn Weston of Public Places Pty Ltd in social impact • Mr Fotios Spiridonos of Interfleet in peer review of transport modelling • Dr Harry Grynberg of URS Australia Pty Ltd on odour impacts • Mr Ricky Feldman of Andrew Long & Associates in Aboriginal cultural heritage • Mr Aaron Organ of Ecology and Heritage Partners in flora and fauna • Mr David Ife of URS Australia Pty Ltd on landfill issues • Ms Wendy Davies of AECOM in landscape and visual impact • Mr Rob Brown of Renzo Tonin & Associates in noise • Mr Christian Bodé of AECOM in transport modelling • Mr John Patrick of John Patrick Pty Ltd in heritage in relation to the Kilmore Outdoor Recreation Heritage Precinct • Mr Rob Milner of 10 Consulting Group in planning • Ms Marianne Stoettrup of Matters More Consulting in economics <p>Written evidence was presented from:</p> <ul style="list-style-type: none"> • Dr Shaun Canning of Australian Cultural Heritage Management in heritage.
Mitchell Shire Council	<p>Michael Ballock, Consultant with Jeff Saker and James Kelly who called the following expert witnesses:</p> <ul style="list-style-type: none"> • Dr Rob Gordon on social impacts of displacement • Mr Geoff Carr and Mr Jake Urlus of Ecology Australia on biodiversity and habitat • Ms Ruth Davies of Aikin Planning on social impacts.

Submitter	Represented by
Goulburn Valley Region Water Corporation	Mr Stefan Fiedler of Russell Kennedy Lawyers who called expert evidence from: <ul style="list-style-type: none"> • Mr Allan Campbell of Beca Pty Ltd in design of wastewater facilities
Department of Transport, Planning and Local Infrastructure, Environment Assessment Unit	Mr Adam Mitchell
Department of Environment and Primary Industries	Mr James Stewart
Mr Douglass Payne	Mr Frank Dawson, Dawson Planning Services
Mr Jim Lowden	
Kilmore Mechanics Institute and Free Lending Library	Mrs Wilma Hammond
Mrs Wilma Hammond	
Kilmore Racehorse Trainers Association	Mr Norman Thompson
Kilmore Racing Club Inc.	Mr Ben Murphy
Mrs Erica and Mr Wayne Nuske	
Mr Peter Mitchell	
Ms Nora Mary Davison	
Mr Rodney Flanagan and Ms Morgan	
Save Monument Hill Community Group and individual submissions	Ms Anne Louise Goble Mr Brian Mawhinney Ms Vyvienne Whitehurst Mr Lawrence Boyd Mr Norm Stimson
Ms Anne Louise Goble	
Ms Vyvienne Whitehurst	
Mr Lawrence Boyd	
Mr Norm Stimson	
Mr Thomas Caelli	
Mr Andrew Ryan	
Mr Paul Dorrington	
Willowmavin Primary School Council	Ms Nerrida Prosser
Ms Nerrida Prosser	
Mr Andrew Prosser	

Submitter	Represented by
Mr Malcolm Perkins	
Mr Anthony Byrne	
Mr Ian Crawshaw	
Mr Kevin Butler	
Mr Ross Lee	
Wandong Heathcote Junction Community Group	Mr Brian Dove
Wandong History Group	Dr Geoff Hewitt
