

FRANKSTON BYPASS

ASSESSMENT

under

ENVIRONMENT EFFECTS ACT 1978

Minister for Planning

June 2009

Glossary

AAV	Aboriginal Affairs Victoria
AHD	Australian Height Datum
ARI	Average Recurrence Interval of rainfall events
AVW	Atlas of Victorian Wildlife
CAD	Central Activities District
CHMP	Cultural Heritage Management Plan, prepared under <i>Aboriginal Heritage Act 2006</i>
C&LP Act	<i>Catchment and Land Protection Act 1994</i>
DEWHA	Commonwealth Department of the Environment, Water, Heritage and the Arts
DPCD	Victorian Department of Planning and Community Development
DSE	Victorian Department of Sustainability and Environment
EES	Environment Effects Statement
EMP	Environmental Management Plan
EMS	Environmental Management System
EPA	Victorian Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ESD	ecologically sustainable development
EVC	Ecological Vegetation Class
FFG Act	<i>Flora and Fauna Guarantee Act 1988 (Vic.)</i>
GHG	Greenhouse Gases
GL	gigalitres
ha	hectares
hha	habitat hectares
IGAE	Inter-Governmental Agreement on the Environment
km	kilometres
LPPF	Local Planning Policy Framework
m, m ³	metres, cubic metres
MSS	Municipal Strategic Statement
MT	Mega tonne (million tonnes)
NVMF	Victoria's Native Vegetation Management Framework
P&E Act	<i>Planning and Environment Act 1987</i>
PM ₁₀	particles or "particulate matter" with equivalent aerodynamic diameter of 10 micrometers or less
SEITA	Southern and Eastern Integrated Transport Authority
SEPPs	State Environment Protection Policies
SPPF	State Planning Policy Framework
TDS	Total Dissolved Solids

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1. Introduction

1.1 Purpose of this Document

This document is the assessment of environmental effects (“Assessment”) under the *Environment Effects Act 1978* (EE Act) for the Frankston Bypass, which is proposed to link EastLink at Carrum Downs to the Mornington Peninsula Freeway at Mount Martha. It represents the final step in the Environment Effects Statement (EES) process under the EE Act by providing advice to decision-makers on the likely environmental effects of the proposal, their acceptability and how they should be addressed through statutory decisions.

This Assessment will inform the decisions required under Victorian law for the proposal to proceed, in particular approvals under the *Planning and Environment Act 1987*. It will also inform the decision by the Australian Government Minister for the Environment, Heritage and the Arts under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

1.2 Background

Planning for a Greater Mornington Peninsula Freeway (including the proposed Frankston Bypass) began in the 1960s and a route was identified in the then Metropolitan Planning Scheme. Subsequent planning schemes have made provision for a future Frankston Bypass. The proposed bypass route is currently identified by a combination of a Public Acquisition Overlay (PAO) and Road Zone - Category 1 (RDZ1) in the Frankston and Mornington Peninsula Planning Schemes.

The need for the Frankston Bypass was identified recently in the *Mornington Peninsula Access and Mobility Study – Draft Transport Plan* (October 2006). This study was prepared jointly by Frankston City Council, Mornington Peninsula Shire Council, Department of Infrastructure (now Department of Transport) and VicRoads. The study examined a number of bypass options (including upgrades of existing roads) and a base case scenario (public transport upgrades but no bypass).

On 13 March 2007, the Minister for Roads and Ports announced that the Southern and Eastern Integrated Transport Authority (SEITA) would proceed to prepare an EES for the proposed Frankston Bypass.

1.3 Project Description

The proposal is a bypass for Frankston that is:

- A freeway standard dual carriageway facility with interchanges and grade separations; or
- A limited access arterial road partly or wholly along the freeway reservation and/or the existing road network; or
- A combination of the above.

The primary objective of the Frankston Bypass, as articulated by SEITA, is to provide a continuous and balanced road network into the future with sufficient road system capacity in the Frankston-Mornington Peninsula corridor to meet the likely road travel demands resulting from implementation of *Melbourne 2030 – Planning for Sustainable Growth*, having due regard to the social, environmental and economic implications.

The secondary objectives, as articulated by SEITA, are to:

- Reduce existing road congestion through the central area in Frankston, particularly at the southern terminal of the existing Frankston Freeway (and its intersection with Cranbourne-Frankston Road), and along Moorooduc Highway.
- Assist the development of Frankston as a Transit City by providing better access and improved amenity.
- Improve access to the Mornington Peninsula thus assisting the region’s business and tourism.
- Improve road safety in particular along the Moorooduc Highway.
- Assist the Frankston and Mornington Peninsula Shire Councils achieve their long term access, mobility and planning objectives (such as reduction in traffic along the Nepean Highway).

1.4 Site and Environmental Setting

The reservation for the Frankston Bypass shown in the planning schemes has a route length of approximately 25 km from the EastLink/Frankston Freeway junction at Carrum Downs to the Mornington Peninsula Freeway (Dromana Freeway) at Mount Martha. The reservation within the City of Frankston adjoins residential and industrial areas, as well as land that is reserved as The Pines Flora and Fauna Reserve. The reservation is largely undeveloped and contains significant remnant native vegetation. The southern section of the reservation traverses mainly cleared farming land.

The reservation crosses a number of waterways including Boggy Creek and Tamarisk Creek in the north and Devil-bend Creek and Tuerong Creek in the south.

Detailed descriptions of the existing environmental conditions within and near the route are provided in the EES.

1.5 Alternatives

The preparation of the EES for the Frankston Bypass involved three phases of investigation.

In the first phase, an initial list of 20 options was identified, containing a number of different alignments, road configurations and vertical profiles. These preliminary options were evaluated using a range of traffic, social, economic and environmental criteria. A full description of the preliminary options and the screening process adopted in phase 1 is provided in *Frankston Bypass - Planning Issues Report*, which is included in EES Technical Volume 1. The outcome of the first phase was a short list of three options identified by SEITA.

In phase 2, the three short-listed options were evaluated in more detail. These options share a common alignment in the northern section of the bypass, however only option 1 utilises the entire reservation shown in the Mornington Peninsula Planning Scheme south of Baxter (see figure 1). Options 2 and 3 connect to the Moorooduc Highway south of Baxter. Option 2 involves upgrading a section of the Moorooduc Highway to a freeway standard, while option 3 involves no significant upgrade to the Moorooduc Highway. The evaluation criteria for these three options were based on the draft evaluation objectives set out on the EES scoping requirements. A full description of the screening process is provided in *Phase 2 Preliminary Assessment Report*, which is included in EES Technical Volume 1. On balance it was considered that option 1 provides the most suitable bypass option, including the highest benefit/cost ratio.

In phase 3 of the EES investigations, the detailed assessment of option 1 was undertaken and the EES was prepared.

SEITA conducted public consultation at various milestones in the EES investigations, and the outcomes are documented in the EES.

The Inquiry heard submissions from a number of community groups who supported various EES options, or modifications of those options.

The Inquiry report indicates that it is *“satisfied that the EES has considered a broad range of options, and while some refinement or further modification is warranted, no viable options were excluded from consideration”*. The Inquiry comments that various options proposed by community groups *“are not practical options”*.

The Inquiry concludes that option 1 is the most suitable. This Inquiry finding is endorsed, hence the remainder of this Assessment considers the potential effects of the final form proposed for the Frankston Bypass. In doing so, this Assessment also examines the merits of possible variations to the alignment shown in planning schemes to achieve better biodiversity outcomes.

1.6 Structure of this Assessment

Section 2 of this Assessment outlines both the EES process and statutory approvals required for the proposed Frankston Bypass.

The core part of this Assessment is found in Section 3, which assesses the environmental effects of the proposal within the context of the applicable environmental legislative and policy framework.

Section 4 provides a response to the key recommendations of the Inquiry.

The Appendix provides an assessment of the potential effects on matters of national environmental significance.

2. Statutory Processes

2.1 The EES Process

On 19 April 2007, SEITA referred the proposed Frankston Bypass to the Minister for Planning under the EE Act. The referral indicated that the Minister for Roads and Ports had requested SEITA to manage the planning and approvals processes for the proposal.

On 1 June 2007, the Minister for Planning decided that an EES was required under the EE Act to assess the potentially significant effects of the proposal.

On 29 September 2007, the Minister approved scoping requirements for the EES, which specify a range of matters to be addressed in the EES, including the investigation of relevant alternatives.

After being prepared by SEITA, the EES was exhibited from 10 November to 19 December 2008.

An Inquiry was subsequently appointed by the Minister for Planning under the EE Act to inquire into the environmental effects of the proposal, based on consideration of the EES and submissions received. The Inquiry's report was provided to the Minister for Planning on 27 April 2009.

2.2 Victorian Statutory Approvals

The primary purpose of the assessment of environmental effects under the EE Act is to inform approval decisions under the relevant legislation. After receiving this Assessment, statutory decision-makers will decide whether or not to grant approvals, potentially subject to specific conditions to prevent, minimise or mitigate environmental effects.

In order to proceed, the proposed Frankston Bypass requires the following primary statutory approvals:

- Approval of a Cultural Heritage Management Plan (CHMP), as required under section 49 of the *Aboriginal Heritage Act 2006*, prior to the approval and commencement of any works; and
- Amendments to the Frankston and Mornington Peninsula Planning Schemes where the final route varies from the reservations shown in the planning schemes.

Other approvals may be required before works can proceed.

2.3 Commonwealth Statutory Approval

On 2 July 2007, the delegate of the Australian Government Minister for the Environment, Heritage and the Arts decided that the proposal was a 'controlled action' and therefore requires assessment and approval under the EPBC Act. The Victorian EES process for the Frankston Bypass was accredited as the required assessment process under the EPBC Act.

3. Environmental Assessment

3.1 Approach to this Assessment

In assessing the environmental effects of the proposed Frankston Bypass, this Assessment under the EE Act takes into account relevant legislation and policy, including applicable provisions, objectives and standards. This legislative and policy framework underpins the identification of priority matters for assessment in order to effectively inform statutory approval decisions.

The Ministerial Guidelines made under section 10 of the EE Act specifically require the assessment of the proposal and its effects to be in the context of the principles and objectives of ecologically sustainable development (ESD). Moreover, applicable legislation, including the *Planning and Environment Act 1987* (P&E Act), *Environment Protection Act 1970* (EP Act) and EPBC Act incorporate objectives and/or principles of ESD or “sustainable development”.

To provide a coherent and integrated structure for this Assessment of environmental effects, core aspects of relevant legislation, policy and wider ESD considerations have been synthesized into a set of evaluation objectives. A draft set of objectives was included within the Scoping Requirements for this EES. These have now been refined in light of the further investigations of project issues in both the EES and the Inquiry’s report. Table 1 lists these evaluation objectives, together with the set of core legislation that underpins them. Specific aspects of applicable legislation and related policy will be highlighted in the discussion under individual evaluation objectives.

These evaluation objectives provide a set of benchmarks for assessing likely environmental outcomes of the proposed Frankston Bypass.

Table 1. Evaluation Objectives

Evaluation Objectives	Key Statute
<p>Strategic planning</p> <p>1. To augment the regional arterial road network in order to support metropolitan planning objectives.</p>	<ul style="list-style-type: none"> - <i>Transport Act 1983</i> - <i>P&E Act</i>
<p>Biodiversity, flora and fauna</p> <p>2. To avoid or minimise impacts on species and communities listed under the <i>Flora and Fauna Guarantee Act 1988 (Vic)</i> (FFG Act) and <i>Environment Protection and Biodiversity Act 1999(Cth)</i> to the extent practicable, to avoid or minimise impacts on other indigenous species and communities and habitat connectivity, and to comply with net gain requirements for biodiversity outcomes.</p>	<ul style="list-style-type: none"> - <i>P&E Act</i> - <i>FFG Act</i> - <i>EPBC Act</i>
<p>Waterways and catchments</p> <p>3. To protect waterway and floodplain function and values to the extent practicable.</p>	<ul style="list-style-type: none"> - <i>Water Act</i> - <i>EP Act</i> - <i>P&E Act</i> - <i>Catchment and Land Protection Act 1994</i>
<p>Cultural heritage</p> <p>4. To avoid or minimise impacts on Aboriginal and post-settlement cultural heritage, to the extent practicable.</p>	<ul style="list-style-type: none"> - <i>Aboriginal Heritage Act 2006</i> - <i>Heritage Act 1995</i> - <i>P&E Act</i>
<p>Social effects</p> <p>5. To protect residents' amenity and well-being, and minimise any dislocation of residents or severance of communities, to the extent practicable.</p>	<ul style="list-style-type: none"> - <i>P&E Act</i> - <i>EP Act</i>
<p>Landscape and visual</p> <p>6. To protect the character of significant landscapes, open space and recreation values, to the extent practicable.</p>	<ul style="list-style-type: none"> - <i>P&E Act</i>
<p>Economic effects</p> <p>7. To provide net economic benefits for the State, while minimising adverse effects on agriculture and other land uses and other economic activities to the extent practicable.</p>	<ul style="list-style-type: none"> - <i>P&E Act</i>
<p>Environmental Management Framework</p> <p>8. To provide a robust and transparent framework for managing environmental effects and risks.</p>	<ul style="list-style-type: none"> - <i>P&E Act</i> - <i>EP Act</i> - <i>Water Act 1989</i> - <i>Aboriginal Heritage Act 2006</i> - <i>EPBC Act</i>
<p>Ecologically Sustainable Development</p> <p>9. Overall, to enable outcomes consistent with ESD over the short- and longer-term, having regard to the likely overall economic, social and environmental implications of the proposal.</p>	<ul style="list-style-type: none"> - <i>EE Act</i> - <i>P&E Act</i> - <i>EP Act</i> - <i>EPBC Act</i>

3.2 Strategic planning

Objective 1: To augment the regional arterial road network in order to support metropolitan planning objectives.

Policy Context

The key strategic policy documents that are relevant to the consideration of the proposed Frankston Bypass are *Melbourne 2030 – Planning for Sustainable Growth* (Melbourne 2030), *Melbourne @ 5 million* and the *Victorian Transport Plan*.

Melbourne 2030 (which was released in 2002) sets out the Victorian Government's framework for managing Melbourne's future growth in a sustainable way and it incorporates transport and land use objectives to guide planning. Frankston is identified in *Melbourne 2030* as one of nine principal activity centres that is being supported through the Transit Cities Program. *Melbourne 2030* contains a number of pertinent strategic directions, including contributing to national and international efforts to reduce energy usage and greenhouse gas emissions through integrated land-use and transport planning and design.

Melbourne @ 5 million was released in 2008 to provide a planning update for *Melbourne 2030* in response to higher than expected population growth rates. A key feature of *Melbourne @ 5 million* is the shift in emphasis from one dominant Central Business District (CBD) to a number of CBD-like centres in order to reduce congestion. Frankston is one of the six Central Activities Districts (CAD) identified in *Melbourne @ 5 million*, which will be the focus of a substantial proportion of future employment growth and public investment.

The 2008 *Victorian Transport Plan* (VTP) builds on the planning framework provided by *Melbourne @ 5 million*. The VTP provides a sequential plan for major transport investment over the short, medium and long term to respond to current demands and to shape Victoria for future generations. The construction of the Frankston Bypass (Peninsula Link) is identified as an action to be implemented in the short term. The VTP notes that significant benefits from the proposal include reducing the amount of traffic that needs to travel through Frankston City and other Peninsula towns, and making those areas more attractive to pedestrians and cyclists. It would also allow the development of Frankston as a Central Activities District (CAD).

At the strategic planning level, the potential implications for the enhanced greenhouse effect are a relevant consideration. The *Victorian Greenhouse Strategy* (2002) states that Victoria's greenhouse reduction target is a 60% percent reduction in Greenhouse Gas (GHG) emissions by 2050, compared to the base year 2000. Transport constitutes a significant component in Victoria's total GHG emissions, composing 16 percent of the 2005 Greenhouse Gas Inventory¹.

Given the strategic planning context outlined above, the main issues for this Assessment are the transport efficiency, safety and greenhouse implications of the proposed Frankston Bypass.

3.2.1 Transport efficiency and safety

The EES provides a description of the current road network and traffic volumes in the Frankston Bypass study area. This demonstrates that sections of the six north-south arterial roads, as well as Frankston-Cranbourne Road and Mornington-Tyabb Road, are currently close to, or at, capacity during the morning peak on week days. Higher traffic volumes and long delays are known to occur on weekends during the summer months. The primary north-south route through the Frankston Bypass study area is the combination of the Frankston Freeway and Moorooduc Highway. This route includes nine signallised intersections, five roundabouts, a railway level crossing and direct residential and commercial property access. Although the fatal accident rate along this route appeared to be slightly lower than the Victorian average in 2003, more recent data shows a deterioration in this situation².

¹ Australian Government Department of Climate Change. (2008). Carbon Pollution Reduction Scheme Fact Sheet 4: Transport. p.1.

² The EES (page 7-6) reports that there have been five fatalities in the last 12 months along the section of the Moorooduc Highway between Wooralla Drive and the Mornington Peninsula Freeway. The source of these statistics is the Moorooduc Country Fire Authority.

Because of existing traffic congestion levels, the travel time from the EastLink interchange to the Mornington Peninsula Freeway at Mount Martha is typically about 30 minutes in the morning peak. The EES investigations included the modelling of future traffic values based on population growth expected under *Melbourne 2030*. Full details of the modelling is provided in *Strategic Transport Modelling Report* (Maunsell/AECOM, 2008), which is included in EES Technical Volume 1. This modelling shows that the comparable journey from the EastLink interchange to Mornington Peninsula Freeway would take 65 minutes in 2021 and 75 minutes in 2031, in the absence of the Frankston Bypass. An analysis of future traffic volumes shows that, by the year 2031, some sections of the following roads would have volume/capacity ratios greater than 1:

- Nepean Highway
- Moorooduc Highway
- Frankston Freeway
- EastLink
- Thompsons Road
- Seaford Road
- Cranbourne-Frankston Road
- Westernport Highway.

The traffic modelling demonstrates that the existing north-south arterial roads are not adequate to accommodate the large increase in traffic volumes that would occur as a result of population growth expected in the Mornington Peninsula consistent with *Melbourne 2030*.

With the inclusion of the Frankston Bypass, the traffic model shows that the levels of future congestion on the key north-south roads would be considerably lower relative to the base case scenario. The travel time from the EastLink interchange to the Mornington Peninsula Freeway would be in the order of 19 minutes. The modelling demonstrates that the construction of the Frankston Bypass is necessary to provide an efficient regional arterial road network.

The EES provides estimates of the number of accidents likely to occur after the Frankston Bypass is constructed relative to the base case scenario. For year 2031 traffic volumes, the bypass would result in a net annual reduction in accidents of 99.

The traffic modelling provides estimates of future traffic volumes on the arterial road network for inner Frankston. Particular attention has been given to the comparison of traffic volumes on the Moorooduc Highway near the central area of Frankston. Traffic volumes on this highway between Cranbourne and Hastings Roads are expected to increase to 59,300 vehicles per day in the absence of a bypass. The bypass would reduce this volume to 23,400 vehicles per day. The reduction of through traffic volumes in the central area of Frankston would be a key contributor to enhancing the accessibility of the Frankston CAD and would encourage its further development as envisaged under *Melbourne 2030* and *Melbourne @ 5 million*. As noted by the Inquiry, there would be additional benefits from the reduction in traffic on the Moorooduc Highway through a better level of service, amenity and safety for local residents.

The Inquiry concludes that the traffic modelling used for the Frankston Bypass is “adequate to predict future traffic demands and that there will be no detrimental impacts on the arterial road network and substantial benefits for the Moorooduc Highway”. The inquiry finds that “it is appropriate from a road hierarchy point of view that the bypass forms a continuous freeway link between the existing Frankston Freeway and the Mornington Peninsula Freeway”. Moreover the Inquiry considers that there would be no insurmountable capacity issues on the local network as a result of the Frankston Bypass.

3.2.2 Greenhouse Gas Emissions

In the EES, GHG emissions were estimated for the life-cycle of the ‘with project’ scenario for the design, construction, operational (over a 20 year time span) and decommissioning phases of the proposed bypass. The emissions for both the design and decommissioning stage were considered negligible, therefore they were excluded from the overall assessment.

Construction Emissions

Estimates for materials, quantities, construction hours, transport distances, fuel use and vegetation removal were used to calculate construction emissions³. These estimated emissions are approximately 550,000 tonnes carbon dioxide equivalent (CO₂e), and account for approximately 0.5% of total project emissions over a 20 year time span. Mitigation measures for the construction phase include using construction materials with low-embodied emissions, sourcing construction materials locally and using fuel-efficient construction equipment and transport vehicles.

SEITA proposes to explore opportunities for reuse and recycling of materials during the construction phase of the bypass.

Operational Emissions

The GHG emission calculations for the proposed bypass were based on the current vehicle fleet, with no allowances made for changes in fuel efficiency, or availability of alternative fuels. These calculations were considered conservative for both the 'no project' and 'with project' scenarios, because emissions per vehicle kilometre are decreasing⁴. Emissions were calculated based on fuel consumption, using methods derived from the *Handbook of Road Technology*.

Emissions for the 'with project' and 'no project' scenarios were calculated for the years 2011, 2021 and 2031. The EES predicts that over a 20 year time span (2011 to 2031), the GHG emissions from traffic would be reduced by about 10 million tonnes relative to the no project scenario. This would be the result of lower congestion levels and consequent lower fuel usage.

Some measures proposed in the EES to reduce GHG emissions from lighting along the bypass are: considering use of electricity from renewable energy sources; using energy efficient lamps; and efficient lighting design in the number and placement of lighting poles.

Induced traffic

There were concerns raised in public submissions that the traffic modelling undertaken in the EES did not account for "induced traffic". It was claimed that the reduction in congestion and traffic delays resulting from the bypass would encourage additional vehicle trips. Furthermore, any reduced congestion would be temporary; as the increased demand would increase GHG emissions.

Although the EES states that induced demand was not taken into account in the transport modelling, further exploration of this matter during the Inquiry hearings indicated that three of the five main sources of induced demand were included in the traffic modelling.

The Inquiry does not completely accept the EES finding that GHG emissions would be reduced by the Frankston Bypass, as the Inquiry is concerned that traffic modelling does not account for new trips that may be generated by the availability of the better travel times on the bypass.

The Inquiry's view is that *'it is at the broad metropolitan scale that the sustainability issues of land use and transport need to be addressed'*.⁵ The Inquiry report states *"We see the Bypass as part of an overall approach to managing urban growth that addresses sustainability by supporting development in existing areas, while recognising the need to provide growth outside of established areas"*.

Conclusion

Having considered the EES, public submissions and the Inquiry Report, it is my assessment that the proposed Frankston Bypass is necessary to provide an efficient regional arterial road network that would support metropolitan planning objectives under *Melbourne 2030* and *Melbourne @ 5 million*. Further the issue of GHG emissions needs to be considered at the metropolitan land use and transport planning scale, rather than on a project-by-project basis.

³ Direct and Indirect emissions were considered in this assessment. Direct emissions include factors such as fuel and energy use, whilst indirect emissions focus on the generation of electricity for lighting and traffic control, fuel used in material transportation and construction activities, and vegetation removal.

⁴ Page 109, Frankston Bypass EES Inquiry Report

⁵ Page 112, Frankston Bypass EES Inquiry Report

3.3 Biodiversity, Flora and Fauna

Objective 2: To avoid or minimise impacts on species and communities listed under the Flora and Fauna Guarantee Act 1988 (Vic) and Environment Protection and Biodiversity Conservation Act 1999 (Cth) to the extent practicable, to avoid or minimise impacts on other indigenous species and communities and habitat connectivity, and to comply with net gain requirements for biodiversity outcomes.

Statutory Context

Key statutes, policies and strategies related to the protection of native vegetation and biodiversity in Victoria are the:

- *Flora and Fauna Guarantee Act 1988 (FFG Act), Victoria's Biodiversity Strategy and the Victorian Native Vegetation Management Framework (NVMF).*
- *Planning and Environment Act 1987.*
- *Commonwealth Environment Protection and Biodiversity Conservation Act 1999.*

The purpose of the FFG Act is to enable and promote the conservation of Victoria's native flora and fauna. Its objectives include: "(c) to manage potentially threatening processes; and (e) to ensure that the genetic diversity of flora and fauna is maintained". Further to this, *Victoria's Biodiversity Strategy* made under the FFG Act includes two related goals, i.e.:

- *"the present diversity of species and ecological communities and their viability is maintained or improved across each bioregion", and*
- *"there is no further preventable decline in the viability of any rare species or of any rare ecological community".*

One of the objectives for planning in Victoria under Section 4(1) of the P&E Act is: "to provide for the protection of natural and man-made resources and the maintenance of ecological processes and genetic diversity". State Planning Policy Framework (SPPF) clause 15.09, "Conservation of native flora and fauna", complements this.

The NVMF is the principal document that sets out Victorian Government policy for the protection of native vegetation. The principles and requirements of the NVMF are implemented primarily through the P&E Act approval processes under planning schemes. The Port Phillip and Westernport Native Vegetation Plan (Port Phillip and Westernport CMA, 2006) complements the NVMF as it contains region-specific native vegetation information and objectives.

The "net gain" approach set out in the NVMF adopts a hierarchy of avoidance, minimisation and offset principles. The first priority is the avoidance of clearing and therefore losses of existing native vegetation. The NVMF also includes specific guidance on when clearance should not be permitted for different classifications of ecological vegetation classes (EVCs). In particular, for very high conservation significance EVCs, clearing would not be permitted unless exceptional circumstances apply (based on considerations of the environmental, social and economic values from a statewide perspective) and the approval of the Minister for Environment and Climate Change is given.

Key Issues

Because the proposed Frankston Bypass would involve significant clearing of native vegetation, including within The Pines Flora and Fauna Reserve, this Assessment needs to consider the potential direct and indirect effects on:

- Remnant native vegetation (including the appropriate response to the requirements of the NVMF).
- Protected species and communities of flora.
- Protected fauna species.
- The biodiversity values of The Pines Flora and Fauna Reserve and the implications for its future management.

3.3.1 Native Vegetation

General effects

The proposed alignment lies within the Gippsland Plain Bioregion. The majority of native vegetation within the study area lies north of Golf Links Road. This area includes significant native vegetation in The Pines Flora and Fauna Reserve (Pines Reserve), Willow Road Reserve and other larger patches in that area which provides linkages to surrounding reserves such as Langwarrin Flora and Fauna Reserve. South of Golf Links Road, native vegetation is largely restricted to narrow strips along road reserves.

Preliminary field surveys for the EES were conducted in March 2007, followed by more detailed flora survey and mapping of EVCs in October and November 2007. In The Pines Reserve more detailed surveys and targeted searches were undertaken over a 12 month period. A vegetation quality assessment was conducted in May 2008 using the method contained in *Vegetation Quality Assessment Manual* (DSE, 2004). A total of 75.76 ha of native vegetation was mapped within the bypass reservation.

There are 12 EVCs identified in the study area including: Damp Sands Herb-rich Woodland, Swampy Woodland, Grassy Woodland, Plains Grassy Wetland, Heathy Woodland, Swamp Scrub, Aquatic Herbland, Sand Heathland, Swampy Riparian Woodland, Damp Heathland, Damp Heathy Woodland and Plains Grassy Woodland. The Plains Grassy Wetland EVC consists of a number of floristic communities including the Herb-rich Plains Grassy Wetland, which is listed under the FFG Act.

The EES addresses the potential effects on native vegetation along the alignment generally but gives particular attention to 'hotspots': Pines Reserve, Westerfield property, Willow Road Reserve and the Interchange with EastLink. The Pines Reserve is discussed in more detail in section 3.3.4, while the other hot spots are discussed below.

In accordance with the NVMF, the loss of vegetation needs to be avoided, minimised or offset. Given the linear nature of the project, in some areas avoidance has been unachievable. This is particularly the case in areas such as the interchange with EastLink where there is a key functional requirement to traverse that area. Steps have been undertaken during the design process to minimise impacts (such as the investigation of alternative alignments) in areas such as The Pines Reserve.

A total of 53.2 ha of native vegetation will be removed. This includes: approximately 30 ha of endangered EVCs (Aquatic Herbland, Grassy Woodland, Plains Grassy Wetland, Plains Grassy Woodland, Swamp Scrub, Swampy Riparian Woodland and Swampy Woodland); 3 ha of rare EVC (Damp Heathland and Sand Heathland); and 14.5 ha of vulnerable EVC (Damp Sands Herb-rich Woodland, Damp Heathy Woodland and Heathy Woodland).

A total of 72 scattered trees of all sizes and 87 large and very large trees are proposed to be removed.

According to the EES, the removal of Plains Grassy Wetland (EastLink interchange) and the removal of Grassy Woodland (Westerfield property and The Pines Reserve) are state significant impacts.

Apart from the direct loss of vegetation, potential indirect effects include fragmentation impacts on species including genetic isolation (barriers prevent pollination/breeding) and edge effects (zone of altered conditions along the boundary of the habitat).

Given the linear nature of the project, fragmentation of existing vegetation and habitat will occur where the proposed alignment traverses intact vegetation. The areas in particular that will be affected include The Pines Reserve, adjacent remnant vegetation north-west and south of Pines Reserve and the Willow Road Reserve.

The effect of fragmentation is taken into account when calculating offsets in accordance with the NVMF, although additional mitigation measures can be used to address the effects of fragmentation.

Relevant mitigation measures include:

- Minimising disturbance of habitat through use of temporary fences during construction
- Managing the construction site so that buildings, stockpiling etc. occurs away from sensitive vegetation
- Planting indigenous species in nearby road reserves to limit weed invasion
- Post- construction management of road reserves to limit weed invasion.

Measures to reduce vegetation clearing in ecologically sensitive areas have also been proposed in the EES, such as using retaining walls (in lieu of battered slopes).

Other related mitigation measures to address impacts on fauna species are discussed in Section 3.3.3.

An assessment of offset requirements has been undertaken as part of the EES investigations. This assessment concluded that a total of 49.39 habitat hectares (hha)⁶ would be required to offset the loss of EVCs. This includes: 38.54 hha of very high conservation significance EVC; 9.26 hha of high conservation significance EVC; 0.89 hha of medium conservation significance EVC; and 0.7 hha of low conservation significance EVC. Additional offsets would be required for the loss of large older trees in the alignment. Under the NVMF, one option is to protect 27 very large older trees, 432 large older trees and 36 medium older trees as well as recruiting 3283 new plants.

According to the EES, it may be difficult to satisfy the like-for-like objective in the NVMF for offsetting losses of EVCs of very high conservation significance, because the offsets may be difficult to obtain in the bioregion. This is particularly the case for some of the rarer EVCs such as Plains Grassy Wetland.

The Department of Sustainability and Environment (DSE) submission indicates that any clearing of native vegetation will require an Offset Management Plan and the establishment of offsets to the satisfaction of the Secretary of DSE. Furthermore the clearing of very high conservation significance EVC requires the approval of the Minister for Environment and Climate Change (who must be satisfied that exceptional circumstances exist), and any offsets need to be established prior to clearing.

Westerfield Property

The proposal as described in the EES would result in the loss of 2.18 ha of Grassy Woodland EVC (endangered within the Bioregion) at the Westerfield property. No flora species listed under the EPBC Act or FFG Act has been recorded on the site, though the EES indicates that there is potential for them to occur. Biosis Research, SEITA's consultant, rated the remnant bushland on the Westerfield property as having state significance because of its high flora species diversity and vegetation quality.

There was considerable discussion at the Inquiry hearings about ways of avoiding and minimising the impacts on the native vegetation on the Westerfield property. SEITA advised the Inquiry that approximately 1.2 ha can be avoided by a modified design that includes construction of a retaining wall on the western side of the bypass. SEITA also considered the possible alteration of the full diamond interchange at Golf Links Road with a half-diamond interchange at Robinsons Road and Golf Links Road. SEITA did not support the latter option as it: did not reduce the clearance of significant vegetation on Westerfield; involved clearance of vegetation on other properties; and involved acquisition of parts of other properties including school land to the east and an existing dwelling north of Robinsons Road. It is noted that the Stony Point rail line is located further to the east, further complicating any attempts to realign the bypass in this area. Further, the technical complexity and consequential costs of tunnelling at this site was considered prohibitive.

The Inquiry concludes that further consideration of alternatives at the Westerfield property to avoid or reduce required vegetation clearing is warranted given the ecological value of the site and the priority under the NVMF of preserving vegetation of very high conservation significance.

I consider that the difficulties of realigning the bypass to avoid the Westerfield property are such that related options need not be further considered. However, there is equally a clear justification for options (other than tunnelling) to minimise native vegetation impacts within the existing bypass alignment to be investigated.

Interchange with EastLink

The project would result in the loss of 7.88 ha of native vegetation near the required connection with EastLink. The majority of this vegetation is Plains Grassy Wetland EVC, which has been classified of state significance. The floristic community (Herb-rich Plains Grassy Wetlands) is listed under the FFG Act and as such a permit to remove this vegetation is required from the Minister for Environment and Climate Change. Approximately 60 percent of the

⁶ A habitat hectare is a site-based measure of quality and quantity of native vegetation that is assessed in the context of the relevant native vegetation type under the NVMF.

community would be removed at the interchange with EastLink. This community could also be indirectly affected by changes in the hydrological regime.

Avoidance of the Plains Grassy Wetland EVC is difficult given the functional requirement and linkages with EastLink. Accordingly, the focus on this area has related to minimising the impact through the use of retaining walls in lieu of batters and restriction of the construction footprint. Furthermore, translocation of the community is proposed. According to the EES, there is some risk of translocation being unsuccessful; however wetland communities generally have the best prospect for translocation.

In order to offset the removal of the Plains Grassy Wetland EVC, an offset area of 6.88 hha would in principle be needed; however it is unlikely this would be able to be provided. Given offsets are unlikely to be available, there will be a residual impact associated with the loss of Plains Grassy Wetland.

The Inquiry concludes that if the Frankston Bypass is to proceed, the Plains Grassy Wetland EVC near the EastLink connection cannot be avoided. The Inquiry recommends that all avoidance, minimising and mitigation measures outlined by Biosis should be implemented; and that in the event that suitable offsets cannot be obtained, a positive environmental outcome could be gained by undertaking substantial works at The Pines Reserve.

Willow Road Reserve

The proposed alignment would traverse part of the Willow Road Reserve, which contains significant vegetation and wetlands. The project would result in the direct loss of 3.97 ha of native vegetation. Of the vegetation lost, 2.15 ha is of very high conservation significance, 1.12 ha of high conservation significance and 0.7 ha of medium conservation significance. A total of 4.08 hha of offsets would be required, and it appears the offsets are available. Once again, consent from the Minister for Environment and Climate Change would be required under the NVMF to clear this vegetation.

Groundwater investigations following the exhibition of the EES indicate there is little risk of hydrological impacts on the remaining wetlands outside the actual bypass alignment.

Direct and indirect impacts are proposed to be mitigated by minimisation of the construction footprint through the reserve.

The Inquiry concludes that, while the Willow Road Reserve will be significantly impacted by the project, the impacts on the wetlands and vegetation could be mitigated and offset.

3.3.2 Flora

A total of 297 native flora species and 200 introduced flora species were recorded along the proposed alignment during the ecological surveys for the Frankston Bypass.

The River Swamp Wallaby-grass, listed under the EPBC Act, has been recorded in the study area. There is potential that Clover Glycine, Maroon Leek-orchid and Swamp Fireweed, which are listed under the EPBC Act, could occur along the alignment. No flora species listed under the FFG Act was recorded during the EES surveys. There are previous records of the Purple Blown-grass and potential for the Purple Diuris (both listed under the FFG Act) to occur within the study area. (Note the Clover Glycine and Maroon Leek-orchid are also listed under the FFG Act.)

An area of 0.03 ha of River Swamp Wallaby-grass will be directly lost and could be further affected by indirect impacts such as hydrological changes to the Plains Grassy Wetland and Aquatic Herbland. Populations of Clover Glycine, Maroon Leek-orchid and Swamp Fireweed and Purple Blown-grass and Purple Diuris may also be potentially affected by the project.

Specific mitigation measures are proposed to minimise the loss of significant flora species. This includes measures such as a translocation of populations to other areas of available habitat in The Pines Reserve, additional targeted surveys, construction management techniques to minimise the construction footprint and engineering the road design to limit the final footprint of the bypass.

The mitigation proposed for remaining species is to avoid where practicable or minimise impacts on good quality remnants that are likely to contain the species, such as the interchange with EastLink and Westerfield property.

3.3.3 Fauna

The ecological investigations undertaken for the EES included searches of relevant databases and detailed fauna surveys. The fauna surveys employed a variety of techniques including active searching, spotlighting, call playback, Elliott traps, hair funnelling, anabat detectors and scat collections. The detailed surveys were conducted over five days and four nights between 29 October and 2 November 2007. Aquatic surveys were also conducted to target protected fish species (such as Dwarf Galaxias). Full details of these surveys are provided in the EES Technical Volume 1.

A total of 100 vertebrate species were recorded within the proposed alignment for the Frankston Bypass, including 65 birds (58 native), 17 mammals (11 native), five native reptiles, five native frogs and eight fish (five native).

The presence of the Southern Brown Bandicoot (SBB), which is listed under both the EPBC Act and FFG Act, was confirmed at several locations in The Pines Reserve. The implications of the proposal for this species are discussed further in the next section. The native fish species Dwarf Galaxias (also listed under the EPBC Act) was recorded in Boggy Creek and Tuerong Creek. Other species listed under the EPBC Act, which have potential to occur in the area (although not recorded), are: Growling Grass Frog, Australian Painted Snipe and Swift Parrot.

Based on the EES findings and the Inquiry report, the key species possibly affected by the proposal are the seven listed species discussed below. Table 9.3 of the EES provides a list of other significant species which may occur in the area but are unlikely to be significantly affected by the proposal.

Southern Brown Bandicoot

The potential effects on this species are discussed in detail in section 3.3.4 because of its importance and occurrence in The Pines Reserve.

Dwarf Galaxias

The Dwarf Galaxias (*Galaxiella pusilla*) is a threatened fish species that is endemic to south-eastern Australia, however its population distribution is generally disjunct and patchy because of its dependence on lowland, shallow, swampy habitat. The species appears to have become extinct in many localities in and around the south-eastern fringes of Melbourne. The survival of the species in many catchments is far from secure.

One individual was recorded during the EES investigations at Boggy Creek within The Pines Reserve. This represents a new site record for the Dwarf Galaxias. According to the EES, this individual is likely to be a vagrant from the population further upstream. In a separate study, Streamline Research (2006)⁷ reports on the presence of Dwarf Galaxias at two other sites in the upper reaches of Boggy Creek. The Streamline report considers that the Dwarf Galaxias population within Boggy Creek is possibly the last of a more widespread population that existed throughout the entire Boggy Creek catchment. The report noted that this population is under impending threat through competition with the pest fish species Eastern Gambusia, residential development, stream clearing, sedimentation and underground piping of the creek.

Dwarf Galaxias were also recorded during the EES investigations in Tuerong Creek in the vicinity of Tuerong Road. This is known as a site for a significant population of the Dwarf Galaxias.

Dwarf Galaxias were not recorded in other catchments during the EES investigations. The EES acknowledges that the species may still occur in these catchments, however its survival may be at risk given the paucity of recent records and the proliferation of the Eastern Gambusia.

The population of Dwarf Galaxias in Tuerong Creek is a critically important population in view of the decline of the species elsewhere. It is the largest known population in the Mornington Peninsula. In view of the significance of this population, SEITA proposes to modify the bypass route shown in the Mornington Planning Scheme in order to avoid removal and modification of habitat in Tuerong Creek.

⁷ A fish survey of the Mordialloc and Kananook Creek catchments – Report to Melbourne Water by Streamline Research, 2006

The EES puts forward a number of mitigation measures to enhance the survival chances of local Dwarf Galaxias populations. In particular it is proposed to create habitat favourable for the species within the Boggy Creek catchment. This would involve creating a more natural drainage regime through The Pines Reserve by diverting Tamarisk Creek near the proposed fauna underpass for the freeway and reinstating the natural overland flow through the reserve to the constructed wetland. The intended outcome would be a more permanent wetland capable of accommodating a more secure translocated population of Dwarf Galaxias within the Boggy Creek catchment. It is noted that a successful outcome would require complementary action elsewhere, including the eradication of Eastern Gambusia upstream.

I note that the Inquiry is satisfied that the impact on the Dwarf Galaxias is “*appropriately addressed*” in the EES.

Growling Grass Frog

Although the Growling Grass Frog (*Litoria raniformis*) was not recorded during the EES investigations, the EES recognises that it may occur in some farm dams and wetlands in the study area for the Frankston Bypass. The last known record was from the Willow Road Reserve in 1981. Urban development, introduced predators and lack of habitat connectivity are considered to be factors leading to the extinction of local populations of the species. It is considered that the proposal is unlikely to affect the Growling Grass Frog due to its limited occurrence.

Australian Painted Snipe

Although not recorded during the EES investigations, the Australian Painted Snipe (*Rostratula australis*) could occasionally occur in dense vegetation near wetlands in the local area, particularly in the northern section of the proposal in the vicinity of the Seaford wetlands and the Eastern Treatment Plant. It is unlikely that the proposal would significantly affect the species population, due to its occasional occurrence and the limited project effects.

Hooded Robin

The last record of the Hooded Robin (*Melanodryas cucullata*) in the study area was in 1981 in The Pines Reserve. The EES investigations recorded a Hooded Robin in the vicinity of the proposed route in The Pines Reserve. The local area is unlikely to support a significant population of the species, however it is possible that a sparse population may exist on the Mornington Peninsula from which occasional records of the species may appear. It is considered that the proposal is unlikely to significantly affect this species.

Swamp Skink

The last record of the Swamp Skink (*Egernia coventyi*) is from The Pines Reserve in 1981. However, during the EES investigations one individual was trapped in Swamp Scrub habitat within the proposed alignment. The species is likely to be present in similar Swamp Scrub habitat along Tamarisk Creek and Boggy Creek within The Pines Reserve. There is also suitable habitat at Willow Road Reserve. According to the EES, the effects on this species could be minimised by reducing the fragmentation of habitat in The Pines Reserve, avoiding Swamp Scrub patches if possible and translocation of species if avoidance is not practicable.

Swift Parrot

There are records of small numbers of the Swift Parrot (*Lathamus discolor*) foraging in the local area when the eucalypts are in flower. However the vegetation within the Frankston Bypass alignment does not appear to be an important component of their winter habitat. For this reason, the effects of the proposal are not considered to be significant.

3.3.4 The Pines Flora and Fauna Reserve

The Pines Reserve is a biosite of State significance due to the diversity of species and communities present. Its flora values include a population of River Swamp Wallaby-grass around the constructed wetland within the vicinity of the proposed bypass alignment.

The project will result in the loss of 9.15 ha of native vegetation within The Pines Reserve and of this, 8.23 ha has been classified as having very high conservation significance. Nine of the ten EVCs that occur within The Pines Reserve will be affected by the project, and of these four are endangered within the Gippsland Plains Bioregion. According to the EES, the impacts of the proposal in The Pines Reserve are of state significance.

In terms of fauna, The Pines Reserve is particularly important because it supports a small population of the SBB. Although other listed species have been recorded in The Pines Reserve (Dwarf Galaxias, Hooded Robin), the potential effects on populations of those species are relatively minor.

The area of occupancy of the SBB near Melbourne has been drastically reduced since European settlement. It has largely disappeared from previously known areas on the Bellarine Peninsula and Mornington Peninsula, including the Langwarrin Flora and Fauna Reserve. Significant local populations are now known only from The Pines Reserve and the Cranbourne Botanic Gardens. Although smaller populations are occasionally found elsewhere around Melbourne, the long-term viability of these populations is uncertain.

The EES investigations included targeted surveys for SBB in areas within The Pines Reserve that had been identified by local experts. The presence of the species was confirmed through hair tubes, diggings and scats. No evidence of SBB was detected in the "DARA Block", although past records indicate its previous presence. The location of the DARA block (and other public land near The Pines Reserve) is shown on figure 1.1 in *The Greater Pines Reserve Area Master Plan* (EDAW/AECOM, October 2008) in EES Technical Volume 1.

Based on the EES surveys, past studies and local expert knowledge, it is evident that SBBs inhabit areas in The Pines Reserve containing heathland, swamp and woodland vegetation complexes. The areas occupied by the species vary from time to time depending on factors such as time since fire, soil type, predator abundance and food availability.

It is also possible that the SBB occupies other woodland areas in the proposed alignment in the vicinity of The Pines Reserve, which may provide for movement corridors. However, the EES investigations did not record SBB evidence in these areas, suggesting that the current degradation and fragmentation of habitat have rendered these areas less suitable. Predation levels near urban areas would also be high.

The EES acknowledges that the potential effects (both direct and indirect) of the Frankston Bypass will increase the probability that the small SBB population in The Pines Reserve could become extinct. For this reason SEITA and its consultants Biosis Research have addressed measures to reduce the risk to the SBB population in The Pines Reserve.

Considerable attention has been given to finding the most suitable alignment for the bypass, which would achieve a balance between road design requirements, biodiversity effects and the future management of The Pines Reserve. Viaduct and tunnelling options were considered but were dismissed by SEITA on economic grounds, and to a lesser extent some environmental effects⁸. The EES investigated the ecological effects of two potential variations to the reservation shown in the Frankston Planning Scheme.

The first variation in The Pines Reserve, known as the "Tamarisk route", involves moving the alignment close to the boundary with the Centenary Park Golf Course (see Figure 4.6 in the EES Volume 1). Biosis Research considers that this route is superior to the planning scheme alignment because it:

- Traverses fewer EVCs
- Maintains continuity between two areas of high quality vegetation (known as the Triangle and the West Block)
- Avoids potential fragmentation that would otherwise arise from splitting the core area of The Pines Reserve into two parts of about the same size
- Retains the natural transitions of EVCs, which is one of the key ecological values of The Pines Reserve and rarely found elsewhere in the Gippsland Plain Bioregion
- Generally affects native vegetation of lower quality.

Another benefit of the Tamarisk route is that it is further removed from adjoining residential areas.

The Tamarisk route has higher effects on Tamarisk Creek. However given the current poor condition of the waterway and the proposal for creating a more natural drainage regime for the benefit of Dwarf Galaxias, the Tamarisk route is likely on balance to achieve a more superior ecological outcome.

⁸ The EES (Section 4.4.6) notes in particular the visual effects of a viaduct and the native vegetation clearing required for pylons. For a tunnel, the EES notes potential groundwater issues and construction difficulties in avoiding the South East Outfall Sewer. There have been varying cost estimates provided for a tunnel. In the EES, the cost is estimated at \$300-500 million per km. In SEITA's opening submission to the Inquiry, the tunnel costs provided were \$200-230 million per km for two lanes and \$300-320 million per km for three lanes. In contrast the cost of constructing the bypass at grade would be \$20-30 million per km. The additional project costs for tunnelling the section in The Pines Reserve would more than double the total project costs.

The second alternative alignment involves placing the bypass in the western side of the Centenary Park Golf Course. The potential benefits of a reduced footprint in The Pines Reserve were considered alongside other effects. In order to replace fairways lost through construction of the bypass within the golf course, additional public land would have to be made available from the DARA Block. The EES evaluated the potential effects (ecological, social and economic) and found that on balance there is no significant benefit from placing the route within the golf course versus keeping the route within The Pines Reserve boundary.

The Inquiry has considered the possible variations to the route alignment within and in the vicinity of The Pines Reserve. The Inquiry's conclusions are as follows:

- *There is no reasonable or practical option to avoid the Pines Flora and Fauna Reserve.*
- *The identification of the various species, and communities carried out by Biosis has been thorough and complete and there is sufficient information on individual species and EVCs.*
- *The eastern option through the Pines Flora and Fauna Reserve has less environmental effects than the original 1960s alignment. This conclusion is contingent upon significant and appropriate mitigation works associated with the realignment of Tamarisk Creek and associated wetlands.*
- *The environmental values of the Pines Flora and Fauna Reserve are very significant and every effort should be made to minimise impacts.*
- *Relocation of the Bypass into the golf course and subsequent extension of the golf course is not justified because of: the implications associated with the removal of vegetation in the southern section of the DARA land, and the implications for future revegetation of the orchard area of the DARA land.*

Concurrently with the EES investigations, Parks Victoria and SEITA worked jointly on the preparation of a draft master plan for the "Greater Pines Flora and Fauna Reserve". This draft plan included the following public land:

- the area currently reserved as The Pines Flora and Fauna Reserve and managed by Parks Victoria
- the former Keith Turnbull Research Institute (KTRI) land currently managed by the Department of Primary Industries
- the area within the road reservation for the Frankston Bypass
- the former landfill site managed by the City of Frankston.

This draft plan considered management scenarios in the future with and without the Frankston Bypass through Pines Reserve (see EES Technical Volume 1). The draft plan attempts to balance the intrinsic biodiversity values of the area with the recreational opportunities for visitors. The draft plan proposes major changes for the future of the reserve including the following:

- The preservation of large contiguous areas of high quality flora and fauna values in the western and eastern portions of The Pines Reserve.
- The establishment of a fauna and visitor connection between the western and eastern parts of The Pines Reserve through the "pinch point" (between the KTRI land and the Centenary Golf Course).
- Rehabilitation of the existing orchard area on the eastern part of The Pines Reserve.
- Transfer of high quality bushland in the KTRI land to The Pines Reserve.
- Development of a visitor node in the disturbed area off Ballarto Road on the eastern section of The Pines Reserve.
- Rationalisation of tracks for appropriate uses and to minimise impacts.

The design of the proposed Frankston Bypass through The Pines Reserve has taken into account these management objectives. The alignment of the route complements the biodiversity and park planning objective of retaining a large core area intact in the south-western area. The draft plan addresses the potential effects on fauna within The Pines Reserve and on the SBB in particular. It provides for fauna underpasses separate from a proposed pedestrian/management vehicle underpass. These fauna underpasses would facilitate movements of small fauna such as SBBs, using design techniques successfully implemented for road underpasses elsewhere. The proposed addition of other former KTRI land to The Pines Reserve and the rehabilitation of the orchards and other disturbed areas would assist the survival of SBBs.

Nevertheless there remains a residual risk to the small SBB population in The Pines Reserve. The Biosis report (EES Technical Volume 1) expresses concern that the small SBB population could be affected by a number of risks including: reduction in habitat quality due to noise, lighting and pollution; increased vehicle collision risk; increased predation risk

from disturbed areas; fragmentation; increased fire risk. Biosis concludes that the overall or combined effects of these risks would result in an increased probability that the SBB population in The Pines Reserve could become extinct.

Biosis makes specific recommendations about the measures that need to be implemented to minimise impacts on the SBB. These include a variety of project design measures for the Frankston Bypass (eg. fauna underpasses) and future park management measures (eg increasing size of The Pines Reserve, rehabilitating disturbed areas, predator control etc). Biosis also recommends a long-term monitoring program for the SBB population including, if necessary, increasing the size of the population to assure its survival.

The Inquiry report supports Biosis' recommendations in relation to the SBB.

Conclusion

Having regard to the EES and Inquiry's analysis and public submissions, it is my assessment that:

- The investigation of the potential effects on native vegetation, flora and fauna species has been adequately conducted and documented in the EES.
- There will be significant residual effects on flora and fauna, which cannot be completely avoided, given the extent of development in the vicinity of the bypass alignment since it was first reserved in the 1960s.
- The "Tamarisk alignment" through The Pines Reserve is on balance the most suitable route for the bypass.
- The mitigation measures proposed in the EES be implemented through the environmental management plan for the proposal.

Further, it is my assessment that:

- SEITA consult with DSE regarding opportunities to minimise the impact on native vegetation within both The Pines Reserve along the "Tamarisk alignment" and in the EastLink Interchange area, including the possible use of retaining walls in critical areas;
- Design proposals to minimise the footprint of bypass works within The Pines Reserve and in the EastLink Interchange area be prepared to the satisfaction of the Minister for Planning.;
- A specific plan for the protection of the Southern Brown Bandicoot (SBB) within The Pines Flora and Fauna Reserve be prepared to the satisfaction of the Secretary DSE before works proceed in this Reserve.
- This latter plan is to include a long-term monitoring program of the SBB population to assist evaluation of the effects of the bypass on its viability. This program is to be implemented to the satisfaction of the Secretary DSE.

In respect to the remnant native vegetation on the Westerfield property, it is my assessment that:

- A realignment of the bypass to avoid the Westerfield property would have an unacceptable impact on the Bayside Christian College.
- The bypass be located within the Westerfield property.
- A design proposal to minimise the footprint of bypass works within the Westerfield property be prepared to the satisfaction of the Minister for Planning.

3.4 Waterways and catchments

Objective 3: To protect waterway and floodplain function and values to the extent practicable.

Statutory Context

The primary legislative and policy context for the protection and management of water resources and associated aquatic environments is set out in the following:

- *Water Act 1989*
- *Environment Protection Act 1970*
- State Environment Protection Policies (SEPP) (Waters of Victoria) and (Groundwaters of Victoria)
- *Catchment and Land Protection Act 1994*
- *Port Phillip and Westernport Regional Health Strategy (Melbourne Water 2006) (RRHS) and Addendum 2007.*

The primary purpose of the *Water Act 1989* is to ensure that water resources are conserved and sustainably used and that values of waterway environments are protected and enhanced.

SEPPs made under the *Environment Protection Act 1970* provide for the maintenance of environmental quality in water environments (surface and groundwater), sufficient to protect existing and anticipated beneficial uses. Both the SEPP (Groundwaters of Victoria) and the SEPP (Waters of Victoria) are relevant to the assessment of impacts for this proposal.

The RRHS defines management units (based on a major waterway or group of waterways) within the region and details the importance of those waterways.

The key issues for the proposed Frankston Bypass that need to be considered in the context of applicable policy and legislation are the potential effects on:

- Flooding (through reducing hydraulic capacity of waterways)
- River health values (through erosion, pollutants etc)
- Ecological values of wetlands (in particular Ramsar-listed wetlands)
- Groundwater (through drawdown in cuts, disturbance of contaminated land etc).

3.4.1 Surface water

The EES provides a detailed description of the current condition of the waterways to be crossed by the Frankston Bypass and the existing catchment conditions (see *Surface Water Assessment Technical Report* (GHD 2008) in EES Technical Volume 1). The proposal involves about 28 waterway crossings, which are described in the EES.

The proposal affects three management units identified in the RRHS namely:

- The Kananook management unit (including Boggy Creek, Tamarisk Creek and Eel Race Drain) has a poor ranking under the RRHS. The rivers and creeks have poor water quality, good habitat and stability but very poor vegetation and water flow.
- The North Eastern Peninsula Rivers and Creeks management unit (including Watsons Creek) has a moderate ranking. The rivers and creeks have very poor water quality but good aquatic life and moderate habitat and stability, vegetation and water flow.
- The West Peninsula Rivers and Creeks management unit (which includes Balcombe, Devilbend and Tuerong Creeks) has a moderate ranking. The rivers and creeks have good water quality, excellent aquatic life and good habitat, stability and vegetation.

Local flooding risks have also been identified in the EES near Sages Road Baxter and near the Moorooduc Saddle Club.

The EES adopted a risk management approach to potential surface water issues. The main risks would occur where the bypass crosses waterways. Potential effects would result from vegetation removal, hydrological change, water quality decline, stream bed degradation and aggradation, bed and bank stability, instream barriers and changes to waterway and floodplain hydraulic conditions. The EES identifies the potential high risks and proposes additional mitigation measures to manage those risks to acceptable levels. These potential mitigation measures summarised in Tables 10.5 and 10.6 of EES Volume 1 for the various waterways.

In its submission to the EES, Melbourne Water has recommended that the design of the Frankston Bypass “*should take into account holistic and long term aspects of catchments rather than straight hydraulic engineering solutions*”. Melbourne Water made further recommendations for site environmental management plans to be prepared, implemented, reviewed and regularly reported on to its satisfaction.

It is noted that works at waterways will require the approval of Melbourne Water under the *Water Act 1989*.

The Inquiry concludes that the potentially significant impacts on waterway function and health can be managed effectively. The Inquiry highlights the need for the detailed design through Baxter to support future rehabilitation efforts and waterway initiatives by Melbourne Water and to provide any appropriate habitat links between waterway systems. The Inquiry also draws attention for the project design to carefully address ecological requirements at the Tuerong Creek crossing (Dwarf Galaxias habitat) and the Tamarisk Creek crossing within The Pines Reserve (to reinstate natural flow regimes and habitat for the Dwarf Galaxias).

The Edithvale-Seafood Wetlands are listed under the Ramsar Convention. However there is no direct hydrological connection between the waterways traversed by the Frankston Bypass and these wetlands. Given the current drainage system, it is expected that the proposed Frankston Bypass would not have a significant effect on the ecological values of the Ramsar wetlands.

3.4.2 Groundwater

The groundwater investigations included both the collation of available groundwater data and a geotechnical drilling program focused on areas where the bypass is likely to be in cut. Groundwater levels were found to be in the range of 15 m below ground level (near Frankston-Cranburne Road) to 1 m below ground level (near the Baxter-Tooradin Road). Groundwater quality was found to be generally good (less than 3,000 mg/L Total Dissolved Solids).

A risk assessment approach was adopted to identify risks to groundwater and appropriate mitigation measures. These are detailed in the *Groundwater Impact Assessment Technical Report* (GHD 2008), which is included in EES Technical Volume 1. The potential effects would be most significant at the three locations with long sections of cut. These are in the vicinity of Cranbourne-Frankston Road, in the Robinson Road-Golf Links Road area and near Lodders Road.

Table 11.6 in the EES summarises the proposed mitigation measures for each type of risk that has been identified. These mitigation measures have also been incorporated into the environmental management framework outlined in section 22 of the EES. They include the preparation of location specific groundwater management plans.

Particular attention has been given to the potential implications of the bypass for the Pobblebonk Wetlands in the Willow Road Reserve. The Inquiry notes that additional geotechnical drilling following completion of the EES has shown that placing the bypass in cut through the Willow Road Reserve is not likely to alter the hydrological regime of the part of the Pobblebonk Wetlands that is not directly within the alignment of the Frankston Bypass. The inquiry also notes that placing the alignment in cut in this area would have the additional benefit of reducing amenity effects on nearby residents.

The Inquiry concludes that the potential impact of the bypass on groundwater is appropriately dealt with in the EES and subsequent additional hydro-geological investigations.

Conclusions

Having regard to the EES and Inquiry's analysis, it is my assessment that the waterway and floodplain function and values would be adequately protected provided that the proposed mitigation measures outlined in the EES are incorporated into an environmental management plan and fully implemented.

3.5 Cultural Heritage

Objective 4: To avoid or minimise effects on Aboriginal and post-settlement cultural heritage, to the extent practicable.

Statutory Context

Aboriginal and non-Aboriginal cultural heritage are primarily protected under *Aboriginal Heritage Act 2006* and the *Heritage Act 1995* respectively.

Under the *Aboriginal Heritage Act 2006*, a proponent must not commence works on a proposal subject to an EES unless a cultural heritage management plan (CHMP) has been approved under the Act. A CHMP is based on an assessment of a proposal's impacts on Aboriginal cultural heritage values and outlines management recommendations, including contingency plans.

The main purpose of the *Heritage Act 1995* is "to provide for the protection and conservation of places and objects of cultural heritage significance...". This Act provides the statutory context for the assessment of impacts on non-Aboriginal post settlement heritage.

The most pertinent objective of planning in Victoria, under Section 4(1) of the P&E Act, is: “to conserve and enhance those buildings, areas or other places which are of scientific, aesthetic, architectural or historical interest or otherwise of special cultural value”. Clause 15.11 ‘Heritage’ of the SPPF addresses both Aboriginal and non-Aboriginal cultural heritage.

3.5.1 Aboriginal Cultural Heritage

Historical accounts indicate that Aboriginal people occupied the coastal zone adjacent to the proposed Frankton Bypass study area; however, little information is known on the pre-contact lifestyle of Aboriginal people in the region. Previous assessments undertaken in the area indicate that the Aboriginal cultural heritage of the area is dominated by artefact scatters, with occasional scarred trees in suitable areas of native vegetation.

There are twenty-three sites and places of Aboriginal heritage significance that may be affected to some degree by the proposed Frankston Bypass.

Two Aboriginal archaeological sites registered with Aboriginal Affairs Victoria are within the proposed alignment. Twenty-one additional sites were located during a field survey as part of the EES investigations. All of the sites involve stone artefacts, occurring as either isolated artefacts or as scatters. Two sites are expected to be entirely affected by the proposal, 12 sites to be partially affected and 9 sites unaffected. The majority of sites to be impacted have a moderate significance rating. One site considered to have a very high conservation significance (artefact scatter) is to be partially affected, with salvage recording to occur on the 40 percent of the site impacted. Salvage recording is proposed also on the three sites considered to be moderately significant.

3.5.2 Non-Aboriginal Cultural Heritage

European occupation of the study area dates back to 1840 with the establishment of a pastoral run around Frankston, with the township of Frankston progressing from this period. The development of pastoral properties as well as market gardens previously occurred in the area.

A total of nine historical heritage sites and places have previously been recorded within 500 m of the proposed bypass corridor. According to the EES, none of these sites are located within the proposed corridor and these sites will not be impacted.

Part of the Westerfield property is within the reservation for the Frankston Bypass. The 1920s house and grounds, but not the bypass corridor, are covered by a Heritage Overlay (HO5) under the Frankston Planning Scheme. However the recent listing on the Victorian Heritage Register covers the entire Westerfield property including the native vegetation on the land reserved for the Frankston Bypass.

While the primary issue in terms of bypass impacts on Westerfield is the loss of native vegetation, a permit under the *Heritage Act 1995* will now be needed for works on the property.

Conclusions

Having regard to the EES and Inquiry’s analysis, it is my assessment that the potential effects of the Frankston Bypass can be adequately addressed and determined through the cultural heritage management plan under the *Aboriginal Heritage Act 2006* and through the permit process under the *Heritage Act 1995* (with respect to the Westerfield property).

3.6 Social Effects

Objective 5: To protect residents' amenity and well-being, and minimise any dislocation of residents or severance of communities, to the extent practicable.

Statutory Context

Potential health, safety and amenity effects are inherent aspects of environmental effects to be considered as part of the assessment process under the EE Act. One specific legislative basis for considering these type of effects of development is an the objective of the P&E Act: "to secure a pleasant, efficient and safe working, living and recreational environment for all Victorians and visitors to Victoria"⁹.

The EP Act provides a framework for the protection and maintenance of environmental quality sufficient to protect existing and anticipated beneficial uses of the environment, including ambient air. SEPP (Ambient Air Quality) and SEPP (Air Quality Management) (SEPP (AQM)) provide for the protection of beneficial uses dependent on air quality, in particular public health.

While there is no SEPP that addresses traffic noise, the relevant policy with respect to new arterial roads is set out in a VicRoads document *Traffic Noise Reduction Policy* (VicRoads, 2005). Guidance on construction noise is provided in *Best Practice Environmental Guidelines for Major Construction Sites* (EPA, 1996). In October 2008 EPA published the *Noise Control Guidelines EPA Publication 1254* (EPA, 2008); it provides some guidance for noise from construction sites and replaces the former noise control guidelines *EPA Publication TG302/92* (1992).

The key issues to be considered in this statutory context are:

- Potential impacts on the local community from a reduction in air quality as well as noise generated from the construction and operation of the bypass.
- Potential dislocation of residents, severance of communities or reduction of accessibility of services.

3.6.1 Air Quality

The areas surrounding the proposed Frankston Bypass generally experience better air quality and less exposure to other sources of air emissions than most other suburbs of Melbourne. Two factors account for this: land-uses in the region generally produce fewer emissions, and as the majority of the proposed alignment is within 10km of either Port Phillip Bay or Westernport Bay, it is more exposed to sea-breezes and other on-shore winds. Residential areas dominate the northern sector of the bypass, and semi-rural areas dominate the southern sector.

Based on the risk assessment undertaken in the EES air quality assessment, the key issues for air quality are:

- Construction works creating dust that potentially exceeds the SEPP (AQM) intervention level for fine particulate matter (PM_{2.5} and PM₁₀)¹⁰; and,
- Air emissions generated from traffic on the bypass during operation potentially exceeding the SEPP (AQM) intervention levels.

Air quality impacts from construction activities.

Construction of the proposed bypass will involve extensive earthworks that will generate dust, which has the potential to adversely effect air quality in the surrounding areas. Some submitters raised concerns about potential health impacts for residents in the vicinity of the proposed alignment due to dust and reduced air quality.

The proponent's expert witness¹¹ did consider reduced air quality from dust to have some potential to cause health impacts, albeit minor, but only for those more susceptible to these conditions. While the EES did not include any

⁹ Under s.4(1)(c) of the P&E Act.

¹⁰ PM₁₀ and PM_{2.5} are particles or 'particulate matter' with equivalent aerodynamic diameter of 10 and 2.5 micrometers or less respectively

¹¹ Mr Barry Cook, GHG

modelling or predictions of dust levels likely to be generated from the construction, it emphasised that the short term nature of the construction phase would restrict emissions to a local scale that would not be likely to exceed intervention levels for PM_{2.5}. The EES air quality assessment concluded that dust is only likely to pose some minor risk on a very localised scale (to less than 100 individuals) during the whole construction phase. However, effective dust control will need to be an environmental management priority.

The EES notes that the project's Construction Environmental Management Plan would adopt approaches from EPA's *Best Practice Environmental Guidelines for Major Construction Sites* (EPA, 1996) to manage the risk to air quality from construction activities, such as the implementation of the dust suppression measures below:

- Prompt remedial strategies implemented in the event of visible dust emissions;
- The application of water (non-potable) and/or a suitable dust suppression agent;
- Re-vegetation of disturbed areas to minimise potential for wind blown dust;
- Limits on vehicle speeds travelling in unsealed areas; and
- All haulage vehicles to have covered loads when transporting material to and from the work areas.

The Inquiry concluded that *'The Bypass will potentially impact on air quality from construction dust but these impacts are broadly typical of other construction projects and the mitigation measures identified are appropriate'*¹²

Air quality impacts from operational activities

The Air Quality Impact Assessment conducted by GHD for the Frankston Bypass EES did include a quantitative regional assessment that compared the base case (no project) to project years 2011 and 2021. It also entailed a hot-spot assessment (i.e. of worst case traffic conditions) on high impact zones for project years 2011 and 2021. Emissions were assessed for both the regional and localised scale (i.e. within 100-200m of the proposed bypass), so two types of modelling were undertaken. Due to an absence of data for background air quality in the study area, information from the most southern region of the EPA Victoria Air Quality monitoring network (Dandenong) was used.

The regional modelling was undertaken for the whole area of Mornington Peninsula in the area of the proposed bypass. This modelling predicted that across this wider study area, levels of all SEPP air quality indicators decreased under the 'project-build' scenario, as compared to the 'no-project' scenario, with an estimated 10 percent reduction in formaldehyde, and a 6 percent decrease in carbon monoxide emissions. All emissions are predicted to reduce further by 2021, largely due to control technology on vehicles continuing to improve emissions generated. Therefore, the EES concluded that an overall improvement in regional air quality was likely to occur in the short and long term as a consequence of the proposal going ahead, as summarised by the Inquiry: *'for regional air quality modelling, the models predicted pollutant loads to the atmosphere in 2011 would be reduced with the Bypass, ..., as the traffic flow on the Bypass is smoother than stop start traffic'*¹³.

The EES modelling of air quality impacts at a local scale considered the generation of air emissions from vehicular traffic, exhaust emissions, and re-entrained road dust. The local air quality modelling focused on seven 'hotspots': sites within 100-200m of the proposed alignment, which were identified as having the highest total daily air emissions for the 2011 'with project' scenario. These hotspots included residential areas, hospitals, schools, caravan parks and other similar uses involving the presence of people for extended periods. Monitoring was conducted at each 'hotspot' using the line-source model AUSROADS, with the outcomes compared to the identified air quality criteria as listed in the SEPP (AQM).

The SEPP (AQM) specifies intervention levels for key pollutants that have the potential to impact upon health and amenity. If a particular pollutant exceeds the specified intervention level outlined in the SEPP (AQM), this may trigger further action to be taken. Intervention levels for four of the primary indicators are below in µg/m³ (hourly based unless stated otherwise):

- PM₁₀ – 60 (24 hourly);
- PM_{2.5} – 36 (24 hourly);
- NO₂ – 266;
- CO – 33640

¹² Page 108, Frankston Bypass EES Inquiry Report

¹³ Page 106, Frankston Bypass EES Inquiry Report

Localised modelling concluded that at all seven hotspots, none of the indicators exceeded the intervention levels based on the 2011 'project-build' scenario. The modelling estimated the predicted percentage of the individual intervention levels that each indicator would reach at each site. Hotspot 4 (Frankston-Flinders Road) had the highest percentage of NO₂, PM₁₀ and PM_{2.5}, however these percentages were respectively 60 percent, 37.6 percent and 27.1 per cent of the intervention levels. CO levels at each hotspot ranged from 3.2-5.4 percent of exceedance levels.

Therefore, based on the results of the modelling for this scenario, the EES predicted that all pollutants would be below the SEPP (AQM) intervention levels, indicating that it is unlikely there would be significant adverse effects on air quality and its beneficial uses (e.g. human health) as a result of the existence and operation of the proposed bypass.

An additional issue addressed by the proponent's expert witness was impact of fall-out from emissions accumulating on local residential properties, specifically on roof-water run-off used to supply water for domestic and other purposes. The southern sections of the proposed bypass are through rural areas without reticulated water supply, so housing in these areas are reliant on domestic rainwater tanks. The emissions from the proposed bypass are principally gaseous, so deposits are not predicted to occur. Consequently, the proponent's expert witness considered this to be a negligible risk.

In conclusion, it is considered unlikely that any significant air quality impacts on a regional or local scale would occur due to the construction or operation of the proposed bypass. In the case of regional air quality, modelling predicted that pollutant loads to the atmosphere in 2011 would be reduced due to the construction of the bypass, when compared to the 'no project' scenario. Air quality impacts at a local are likely to be minor and are not expected to be exceed the SEPP (AQM) intervention levels in adjacent residential areas.

The generation of construction dust will need to be addressed through the development and implementation of a sound control and mitigation measures incorporated within the EMP. Although construction of the proposed bypass is unlikely to generate any air quality that has the potential to create adverse health impacts.

3.6.2 Noise

The traffic noise assessment undertaken for the EES assessed the potential changes in the noise environment along the proposed bypass corridor, in light of the existing acoustic environmental conditions of this area. Existing noise levels were measured in accordance with the *Traffic Noise Measurement Requirements for Acoustic Consultants* (VicRoads, 2005c) and noise modelling was undertaken to assess the impact that both construction activity and operational noise would have on residences in the vicinity of the proposed bypass.

Traffic noise testing was undertaken at 16 sites in close proximity to the proposed bypass¹⁴. These measurement sites were selected through the review of proposed alignment plans, consultation with community members and consideration of locations where potential noise impacts may occur. In order to assess the impacts of possible construction and operational noise, existing background noise levels were measured from Monday to Friday between 6.00pm until 10.00pm, using environmental noise loggers at each measurement site, for a period of seven or more days.

Noise impacts were considered with respect to both construction activities and the operation of the bypass. The key issues considered in the assessment were:

- Whether the construction of the bypass would increase noise disturbance within areas adjacent to the construction zone; and
- Whether an increase in operational noise would affect approximately 1,250 noise sensitive buildings adjacent to the Bypass.

Construction Noise

When the EES was written, potential construction noise had not been modelled due to lack of specifications regarding a construction plan and equipment. However, the EES noted that all construction noise would be managed in accordance with EPA *Technical Guidelines TG302/92*¹⁵. TG302/92 does not include specific noise limits for construction during normal working hours (i.e. 7.00am - 6.00pm Monday to Friday, and 7.00am - 1.00pm Saturdays). Outside of these

¹⁴ Page 13-9, Frankston Bypass Project EES – Volume 1

¹⁵ TG 302/92 has been replaced by EPA *Publication 1254, Noise Control Guidelines* (EPA, 2008)

hours, specific construction noise limits do exist for the hours from 6.00pm - 10.00pm Monday to Friday, 1.00pm - 10.00pm Saturdays, and 7.00am - 10.00pm on Sundays and public holidays.

SEITA has acknowledged the possibility that various construction activities may have to be undertaken outside of normal working hours over the two and half year construction timeframe, due to the necessity of road closures not impacting significantly on current traffic. In these circumstances, SEITA is proposing to establish a community relations protocol that outlines community consultation measures to address noise and other potential impacts on amenity.

The noise modelling undertaken indicates that noise levels are likely to increase by 10 dB(A) above background noise levels at locations within 50 m of construction activities. Noise caused by construction activities are not considered to pose any impact on amenity 200 m or more from the construction zones.

Both the the EPA *Environmental Guidelines for Major Construction Sites* and the more recent *EPA Noise Control Guidelines* (EPA, 2008) require construction noise mitigation measures, including the routing of construction vehicles, to be addressed in an environmental management plan (EMP) or noise management plan that is developed by the proponent prior to commencement of construction. It needs to specify working practices and mitigation requirements for construction activities that minimise noise levels, as well as identify the sensitive areas in close proximity to the site. In this case the Peninsula Hospital would be included as a sensitive location. The EMP (or noise management plan) is proposed to be developed in consultation with the EPA, local councils and local community.

The EES proposed the following mitigation approaches for inclusion in the EMP include, *inter alia*:

- Identification of noise sensitive areas;
- Where possible, limiting construction activities to the normal working hours outlined in the *Technical Guidelines TG302/92*;
- Community consultation plans be developed and implemented if it is necessary to undertake noise construction activities outside of these hours;
- Equipment to be operated and maintained in the correct manner, with pneumatic tools fitted with silencers or mufflers; and,
- Noise monitoring at sensitive locations to be undertaken if noise complaints are received.

The Inquiry highlighted that noise impacts at Bayside Christian College need to be addressed through further minimisation and/or avoidance of impacts, via the limitation of excessively noisy construction activities to times outside of school hours.

In conclusion, it is anticipated that during the entire construction period of two and half years, construction works would not extend for more than 18 months at most sections of the bypass. Due to the largely transient nature of these works and the proponent's stated adherence to the policy requirements (now addressed in *EPA Publication 1254, Noise Control Guidelines*) through the EMP, the impacts from construction noise of the proposed bypass should be minimised and are considered to be largely minor.

Operational Noise

In regards to Operational Noise generated by the proposed bypass, SEITA has adopted the traffic noise objective outlined in VicRoad's *Traffic Noise Reduction Policy*. This policy sets the following objectives for new arterial roads:

Where arterial roads and freeways are built on new alignments,, the traffic noise level will be limited to the objectives set out below or the level that would have prevailed if the road improvements had not occurred, whichever is the greater.

- I. *Category A – For residential dwellings, aged persons homes, hospitals, motels, caravan parks and other buildings of a residential nature, the noise level objective will be 63 dB(A) L_{10, 18hr} measured between 6am and midnight;*
- II. *Category B – For schools, kindergartens, libraries and other noise-sensitive community buildings the noise level objective will be 63 dB(A) L_{10, 12hr} measured between 6am and 6pm; and,*
- III. *Where the noise level adjacent to Category A or B buildings prior to road improvements is less than 50 dB(A) L_{10, 18hr}, consideration will be given to limiting the external noise level increase to 12 dB(A).¹⁶*

¹⁶ VicRoads *Traffic Noise Reduction Policy*

SEITA is intending to comply with these objectives, although has not committed to the application of the limit of a 12 dB(A) increase. The Inquiry also considered that achieving this lower level is not warranted. In order to reduce the impact on residences and buildings in the vicinity of the study area, SEITA proposed to adopt the first two specifications outlined above.

The amelioration of the proposed bypass traffic noise is to be achieved through the use of noise barriers, though consideration will be given to noise mounds during the detailed design stage. The EES states that beyond 2021, if the noise levels exceed 63 dB(A), the bypass will be retrofitted to achieve this level, as the *Road Design Note 6-1b: (Interpretation of VicRoads Traffic Noise Reduction Policy)* require the noise level objective for a specific road to be achieved for at least ten years after completion of the project.

The height of the noise barriers are anticipated to be between 3 and 7 m, though the detailed design of the final route will determine the placement and height of noise barriers along the bypass. The final design of the noise barriers would also consider visual impacts on adjacent properties, including issues such as privacy and overshadowing. Additionally, 5 m and 6 m noise barriers to the east and west sides of the bypass respectively are proposed to achieve the traffic noise criteria at The Pines Reserve. The Inquiry recognised that there is limited research on traffic noise impacts on wildlife populations in Australia, although the mitigation measures are considered necessary to lessen the noise impact on wildlife in the reserve.

At locations where noise barriers are not a cost effective attenuation measure, off-reservation attenuation measures are able to be undertaken, subject to practicability testing and agreement with key stakeholders. Suitable off-reservation treatments include sound insulation treatments to building facades typically consisting of glazing treatments.

According to the EES, it was found that the anticipated increase in noise levels due to construction activities and the ongoing operation of the proposed bypass will not have a significant impact on the amenity of residents in the vicinity of the proposed alignment.

Due to the localised and largely transient nature of the construction activities, it is not considered that noise generated from these works will pose a significant impact upon the amenity at local residences and buildings. Construction noise mitigation measures would be addressed through the EMP, to be developed by the proponent in consultation with authorities prior to commencement of construction activities. Furthermore, noisy construction activities outside of normal working hours would need to be scheduled to minimise noise impacts.

In addition, the likelihood of noise impacts from the operation of the proposed bypass are considered to be low. By adhering to the traffic noise objective of 63 dB(A) L10, 18hr or 12hr, and providing amelioration measures such as noise barriers at applicable sections of the bypass, the amenity of residents and buildings in close proximity to the bypass will not be significantly impacted. The Inquiry accepts that the evidence presented in the EES and as part of the hearings show that the noise levels under the policy are capable of being achieved, and that the mitigation measures identified in the EES are appropriate to manage any impacts involved, including impacts on wildlife and other animals.

3.6.3 Community effects

The EES investigations included a variety of social research techniques to understand existing social conditions. These included workshops, interviews, telephone surveys, focus groups and literature review. The detailed investigations and findings are documented in *Social Impact Assessment Technical Report* (Maunsell AECOM 2008), which is included in EES Technical Volume 2. This describes the social conditions and community values in four distinct areas (Carrum Downs /Seaford, Frankston/Frankston North/ Langwarrin, Baxter/Langwarrin South and Moorooduc/Mount Eliza/Mornington).

A risk assessment methodology was applied to a number of issues including:

- Short-term disruption to access at some locations during construction
- Short-term changes to amenity during construction
- Loss of informal open space
- Displacement of residents through property acquisition
- Reduction in mobility due to severance

- Reduced access to community facilities and services.

The EES concluded that the proposed Frankston Bypass would increase social accessibility, mobility and community safety relative to the no project scenario. There would be a regional level positive impact on access to social and cultural infrastructure.

Nevertheless there would be minor, local-level community severance impacts in some locations particularly from increased difficulty in accessing public open space. The EES identifies severance effects at Carrum Downs (links to Seaford affected), Frankston North (severance from The Pines Reserve) and Baxter (internal links). However no adverse impacts on vulnerable groups are expected. There would be some loss of informal walking space, which would be offset by proposed new shared use paths. There could be an impact on some recreational facilities, which could be ameliorated through appropriate bypass design and recreational planning.

The areas where residual high impacts were identified as follows:

- Langwarrin (dislocation of community near Golf Links Road overpass, loss of informal open space and severance effect)
- Baxter (reduced amenity, increased traffic and severance impact)
- Moorooduc (perception of change to rural character).

Some of the high impacts could be minimised through careful project design and community consultation.

The Inquiry considers that the proposed Frankston Bypass will have an overall positive social impact. The Inquiry notes that it is not proposed to close any roads and does not consider that there would be social severance on the basis of increased traffic on rural roads. The Inquiry expresses some concern about potential visual severance near Baxter and recommends that the design of the overpass on the Baxter-Tooradin Road should maintain good sight lines and a consistent treatment along the road and under the bypass.

Conclusions

Having regard to the Inquiry's analysis and in light of the above considerations, it is my assessment that the proposed Frankston Bypass would have an overall positive social effect (because of increased accessibility to social and cultural infrastructure), and that localised adverse effects would be acceptable, having regard to the mitigation measures proposed in the EES. Careful project design responding to feedback from the proposed community and stakeholder consultation plan will be important to reduce the higher-order residual community effects to the extent practicable.

3.7 Visual and Landscape Character

Objective 6: To protect the character of significant landscapes, open space and recreation values, to the extent practicable.

The key statutory and policy context is derived from the objectives of planning as stated in the *Planning and Environment Act 1987* and through the local planning policy frameworks (LPPF) in the Frankston and Mornington Peninsula Planning Schemes.

Local policies in the planning schemes highlight the importance of protecting landscape character in the municipalities. In the case of Frankston City, the proposed alignment traverses an area that is subject to the Significant Landscape Overlay (SLO) 1 Langwarrin Hinterland and Baxter – Mt Eliza Escarpment. The schedule to the SLO recognises that remnant vegetation makes a significant contribution to the landscape character of the area and requires development to respond and maintain the landscape quality of the Baxter – Mt Eliza escarpment.

The evaluation of the potential landscape and visual effects of the proposed bypass is detailed in *Landscape and Visual Impact Assessment Technical Report* (EDAW, 2008) in EES Technical Volume 2. In rating the extent of visual impact, the degree of visual modification and the viewer sensitivity (based on land use) were taken into account. The analysis of impacts was undertaken for 31 viewpoints along the alignment containing a mix of land uses.

The EES used a risk management approach to assess the level of potential visual/landscape impacts and to identify the appropriate responses to reduce those impacts to the extent practicable. In particular the risk analysis concentrated on the effects that were rated high.

The EES outlines mitigation measures comprising general design guidelines and more site-specific landscape concept plan. EES Technical Volume 3 outlines proposed landscape treatments along the entire length of the bypass alignment.

The visual/landscape analysis demonstrates that potentially high visual impacts will be confined mainly to the local setting (less than 1 km) of the proposal, largely due to the relatively flat topography along the alignment and the relatively low elevation of the road profile. In residential areas, impacts would be experienced generally by the abutting row of houses only. In most areas these houses face away from the alignment rather than towards it.

In rural areas in the southern section of the bypass, there would be potentially moderate to high visual impacts on residences within 500 metres of the alignment; however these impacts would be reduced (generally to a low level) by the implementation of the proposed landscape concept plan.

The main areas where the impacts would remain high are within The Pines Reserve (due to elevation of the roadway to provide for fauna and pedestrian underpasses) and at the residential estate abutting the alignment south of Golf Links Road (due to the lack of buffer distance to housing).

The visual/landscape analysis demonstrates that impacts would be experienced beyond the local setting only in elevated residential areas on the Mt Eliza escarpment. However, the visual analysis also indicates that the impact is likely to be low due to the low degree of modification within the views from this location.

The visual analysis also took into account the potential impacts from proposed night lighting along the bypass. It is proposed that within The Pines Reserve and rural areas there would be minimal illumination in order to maintain the rural setting. Lighting of the bypass within industrial and residential areas is not likely to have a significant effect since these areas are already well-lit through street and building lighting.

The inquiry concludes that “ *the Bypass will have a range of visual impacts but these impacts are broadly typical of other Freeways and the mitigation measures identified are appropriate.*”

Conclusion

It is my assessment that the potential visual and landscape effects of the proposed Frankston Bypass are generally capable of being managed to an acceptable level through the project design measures and the landscape concept plan detailed in the EES. There would however be residual effects of a higher order within The Pines Reserve and in some residential areas.

3.8 Economic Effects

Objective 7: To provide net economic benefits for the State, while minimising adverse effects on agriculture and other land uses and other economic activities to the extent practicable.

Statutory Context

Relevant objectives of planning in Victoria under section 4(1) of the P&E Act include providing for the “*fair, orderly, economic and sustainable use, and development of land*”.

Policy relevant to agriculture is contained in Clause 17.05 -1 of the SPPF of planning schemes which includes the objective of protection of productive farmland which is of strategic significance in the local or regional context. Additionally Clause 22.07 of the LPPF in the Mornington Peninsula Planning Scheme includes an objective: “*To maintain permanent non-urban areas of high landscape value for a variety of recreational activities and experiences and to support sustainable agricultural use of rural land.*”

In relation to tourism, Clause 17.04 of the Mornington Peninsula Planning Scheme includes the objective: “*To encourage tourism development to maximise the employment and long-term economic, social and cultural benefits of developing the State as a competitive domestic and international tourist destination*”.

The key issues to be considered in this context are:

- The potential effects on agricultural productivity in rural areas affected by the bypass.
- The potential effects on tourism, adjoining land use and other commercial enterprises that could be affected.
- The overall economic benefits for the region and State.

3.8.1 Agriculture

The potential effects of the proposal on agriculture are evaluated in detail in *Agriculture Report* (Phillips Agribusiness 2008), which is included in EES Technical Volume 2. Information on existing conditions has been obtained through desktop analysis, field inspections and land holder interviews.

The focus of the agriculture assessment has been in the southern section of the proposed alignment, as this is the area along the proposed alignment where agricultural land uses are significant.

According to the EES, livestock is the dominant agricultural use. Cattle are the main livestock though there is also equine activity. Productivity in the area is moderate, mainly owing to the small farm sizes (8-18 ha) and high land values based on urban rather than rural expectations. Cropping is less dominant along the bypass alignment but exists where suitable soils and an adequate supply of irrigation water occur. These enterprises include the production of vegetables, grapes and fruit.

Land is generally fragmented and most tenements within the study area are relatively small (and generally below the size required to support commercial farms).

The majority of land owners represent a mix of rural living, part-time farming and absentee land owners. Some commercial farming is practised, however this is mostly in the equine industry and intensive agriculture.

The potential effects of the proposal on agriculture include: direct loss of agricultural land; loss of productivity due to severance; and loss of farm infrastructure.

Construction of the bypass will result in the direct loss of an estimated 155 ha of agricultural land. The resultant annual loss in productivity has been estimated in the EES at \$81,500 (assuming a gross margin of \$525/ha). This estimated loss is based on the assumption that the affected land is associated with cattle and beef production, and that no land involved in intensive agriculture is affected.

Severance of farming properties can lead to a loss of productivity through reduced access, isolation of facilities and increased labour costs associated with management of the property. According to the EES, there are three farming properties adjacent to the proposed alignment which would be significantly impacted by severance. Land affected by severance as a result of the project is estimated at 107 ha, leading to an estimated annual loss in productivity of \$22,500.

In order to mitigate the impacts of severance the following measures can be taken: negotiating suitable access arrangements, supplying additional facilities such as cattle yards and encouraging the consolidation of severed properties to assist with economies of scale.

The construction of the project would result in the loss of minor agricultural infrastructure. Affected infrastructure will include buildings, fences, gates, irrigation water supply, drainage and access roads. A provisional estimate of the cost of these losses is \$1.5 million. The impacts are likely to be relatively minor as the presence of the reservation has influenced the development and placing of infrastructure along the proposed alignment.

The estimated total annual productivity loss on farming operations as a result of direct loss and severance is \$104,000. When this amount is discounted at a rate of 5 percent this represents a capital value of \$2.1 million.

The Inquiry has considered the impacts on agriculture, noting that there was some dispute in relation to the number and nature of farming operations that would be affected. The Inquiry concludes that the impacts would be isolated to individual operations and would not be significant in a wider context.

3.8.2 Tourism and other commercial enterprise

The potential effects of the proposal on commercial enterprises are evaluated in the Economic Impact Assessment Technical Report (Matters More Consulting et al 2008) which is included in EES Technical Volume 2.

The study area included City of Frankston and Mornington Peninsula Shire Local Government Areas (LGAs). Information regarding the existing conditions was obtained through site visits and desktop assessment.

The majority of tourist attractions occur on the southern section of the Mornington Peninsula. The Mornington Peninsula is a holiday and retirement destination; tourist attractions include food, wine, beaches, holiday homes, golf, heritage and natural landscapes.

The key issues in relation to tourism are the direct displacement of tourism related businesses and the implications of changes in travel patterns.

In brief, the EES findings in respect to business impacts are that:

- There would be a small number of businesses displaced that are currently using State owned land that is part of the reservation for the bypass.
- There would be a loss of trade for businesses on the Moorooduc Highway between Golf Links Road and the Mornington Peninsula Freeway, consequent job losses and business closures.
- There would be an increased accessibility for the Carrum Downs industrial area.
- Tourism operators and businesses reliant on the tourism would benefit from because of the lower travel times to the Mornington Peninsula.
- There would be increased competitiveness for businesses that provide conference facilities.

The Frankston Golf Driving Range and the Centenary Park Golf Course practice fairways operate within the reservation for the proposed bypass alignment. The project would have a direct impact by displacing these uses. The land is leased on a short term basis and the operators of the businesses are aware of the tenure arrangements.

The businesses that are most likely to be affected by a reduction in passing trade are those such as service station and fast food outlets. In order to mitigate disruptions to existing businesses, it is proposed to implement a communication strategy to keep business operators abreast of the program for development works.

In relation to the impact on businesses which rely upon passing trade, the Inquiry found that service stations and fast food outlets are likely to experience a decrease in custom. However, this custom will create other business opportunities along the route. Furthermore the reservation of land for the proposed alignment has been in place for a long time, therefore this should have been considered in by the operators of the businesses.

The inquiry considers that there would be positive long term impacts on the Frankston Central Activity District and that adverse impacts on local businesses would be relatively minor.

3.8.3 State economic effects

The overall economic benefits and costs from the construction of the bypass have been calculated using the conventional approach for public infrastructure projects. This demonstrates that the benefits of the project to the Victorian community outweigh the costs by 2.2 to 3.0 times.

The employment generated during the construction period is estimated to be 4,230 full time equivalent (FTE) jobs with the flow on effects to the wider economy being approximately 9,740 FTE jobs. There would be a relatively small workforce required for operation and maintenance of the bypass.

Conclusions

Having regard to both the EES and Inquiry's analysis, it is my assessment that there would be substantial net positive economic effects from the project at a regional and state level, although there would be local minor economic impacts on businesses which rely on passing trade.

3.9 Environmental Management Framework

Objective 8: To provide a robust and transparent framework for managing environmental effects and risks.

The EES outlines the environmental management framework (EMF) which will guide the management of the potential environmental effects of the proposed Frankston Bypass. The EMF brings together the various commitments on environmental mitigation measures for the specific environmental risks. The proposal would be constructed and operated under an environmental management system (EMS) consistent with AS/NZS ISO 14001.

A detailed environmental management plan (EMP) would provide the performance objectives and criteria to be applied in the construction and operation of the Frankston Bypass. These are detailed in Table 22.1 of the EES.

The EMF brings together the mitigation measures required to reduce risks to acceptable levels. These are summarised in Table 22.2 of the EES. For example the specific commitment to prepare a management plan for the SBB is identified (including the commitments to monitor the effectiveness of habitat connectivity structures and to increase the size of the local population). The EMP which would be based on the EMF commitments would more fully document the necessary monitoring programs and the roles and responsibilities of the proponent.

The preceding sections of this Assessment have outlined the more significant environmental issues arising from the Frankston Bypass. There are other potential effects that can be effectively managed through routine environmental management practices. For example, there are potential risks from erosion, acid sulphate soils (ASS) and contamination from nearby landfill sites or other sites containing agricultural chemicals. These are discussed briefly below.

Acid Sulphate Soils

In order to mitigate against the risk associated with disturbing ASS, the EMP would include a section that outlines the management measures if ASS are encountered.

Contaminated Land

The specific risk mitigation measures needed to limit exposure of receptors to contaminated soil or water will depend on the construction approach adopted for the project. However, generally the mitigation that is proposed to be adopted includes the use of personal protection equipment for site workers, barriers under stockpiles of impacted soils, barriers around excavated areas and stockpiles to prevent migration into the environment and storage of impacted groundwater in suitable tanks with bunding prior to treatment. The EMP is proposed to incorporate a contaminated soil management plan to manage these potential risks.

Soil erosion

The EMP would include erosion and sedimentation control plan in accordance with EPA standards and guidelines.

The Inquiry concludes that the above issues are not fatal flaws for the project. The Inquiry states that as the design is progressed, geological and soil issues could be fully resolved and adequately managed.

Conclusion

It is my assessment that the EMF outlined in the EES provides a suitable framework for preparing the detailed EMP that would be necessary to ensure that the Frankston Bypass can proceed with adequate mitigation and management of potential environmental effects.

3.10 Ecologically Sustainable Development

Objective 10: To enable outcomes consistent with ecologically sustainable development over the short- and longer-term, having regard to the likely overall economic, social and environmental implications of the proposal.

This section focuses on the acceptability of the environmental effects of the proposed Frankston Bypass, in the context of ESD and relevant legislation and policy, as well as the adequacy of the proposed environmental management measures to address residual effects. The Ministerial Guidelines made under section 10 of the EE Act specifically require the assessment of the proposal and its effects to be in the context of the principles and objectives of ESD.

This Assessment accepts that the direct and indirect economic benefits for the Frankston Bypass for metropolitan Melbourne and the State are likely to be significant. The preceding sections of this Assessment have also established that the proposal would give rise to local minor adverse effects, although there could be some moderate and higher order environmental effects:

- Residual effects on the local population of SBB may be significant, although these effects should be minimal if a specific management plan is prepared for the species and implemented to the satisfaction of the Secretary DSE.
- Some areas of very high conservation significance EVCs would be lost, but this would be acceptable in the context of the state significance of the economic benefits of the proposal as well as the provision of suitable offsets.
- Disruption to local agriculture, current land-holders and residents would occur, although this should be minimised through the mitigation and consultation proposed by the proponent.
- Impacts on some identified Aboriginal cultural heritage sites will occur, although these have been minimised and would be acceptable if undertaken in accordance with an approved CHMP.
- Traffic noise currently predicted to be generated by vehicles on the bypass would impact on the amenity of a number of residences within the vicinity of the alignment during day, evening and night, as well as during construction. However, additional options for reducing noise levels at dwellings, together with appropriate noise barriers, should enable the proposal to achieve an acceptable level of amenity protection at dwellings.
- The proposal would result in significant visual and severance impacts in a limited number of locations.

The implementation of identified management and mitigation measures should enable the proposal to be implemented in an overall environmentally acceptable manner.

The proposal's overall consistency with ESD needs to be considered in the context of the relevant ESD objectives and principles, in particular the following:

- To protect biological diversity and maintain essential ecological processes and life-support systems.
- The need to consider the global dimension of environmental impacts of actions and policies.
- Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equity considerations.
- The need to facilitate community involvement in decisions and actions on issues that affect the community.

The proposed alignment and mitigation measures have been developed to minimise significant ecological impacts, particularly in relation to species and communities protected under the State and Commonwealth legislation.

The assessment of the proposal has incorporated community input and submissions during key phases, including the public Inquiry hearing.

This Assessment further integrates the consideration of relevant economic, social and environmental factors that were investigated and assessed through the EES and Inquiry Report. These factors include both short and long term considerations, for example the potential impacts on the survival of threatened species and the proposal's contribution to achieving the objectives of *Melbourne 2030*.

Conclusions

Having regard to the EES and Inquiry's analysis, it is my assessment that:

- The potential environmental effects of the Frankston Bypass would generally be of low to moderate significance and can be readily addressed through identified management and mitigation measures, are therefore acceptable.
- The Project would provide a net benefit to the State of Victoria, having regard to both long-term and short-term economic, environmental and social considerations.
- The Frankston Bypass should proceed in a manner consistent with this Assessment including the following responses to the Inquiry's recommendations.

4 Response to Inquiry Recommendations

The Inquiry's recommendations are reproduced in italics with the response by the Minister for Planning in normal type font below.

Overall Recommendation

Overall design

1. *Place the Bypass in cut in the area south of Cranbourne–Frankston Road*
2. *Investigate further options for avoiding and or reducing the need for vegetation removal at Westerfield (Patch 46a) including:*
 - *Realignment to the east to varying degrees including total avoidance of Westerfield land.*
 - *Rerouting of the shared path between Robinsons Road and Golf Links Road to reduce native vegetation removal.*
 - *Significant reduction of the construction footprint including the use of retaining walls on both sides of the Bypass, replacement of the central median by traffic barriers, shortening of ramps and any other feasible measure.*
3. *Delete the link underneath the Bypass for vehicular traffic on Derril Road and do not re-grade Derril Road south of the Bypass route but terminate it at the Moorooduc Saddle Club entrance.*
4. *Provide a horse trail linking Derril Road South to Derril Road North underneath the major waterway opening adjacent to Devil Bend Creek.*

Minister's Response:

It is my assessment that above design recommendations (1) and (4) be adopted.

In respect to recommendation (2) above, it is my assessment that:

- a realignment of the bypass to avoid the Westerfield property would have an unacceptable impact on the Bayside Christian College;
- the bypass be located within the Westerfield property;
- SEITA consult with DSE regarding opportunities to minimise the impact on native vegetation within the Westerfield property;
- a design proposal to minimise the footprint of bypass works within the Westerfield property be prepared to the satisfaction of the Minister for Planning.

In respect to recommendation (3) above, it is my assessment that SEITA consult with the Department of Transport and Mornington Peninsula Shire Council regarding the need to maintain vehicular access under Derril Road and that a final proposal be submitted for endorsement by the Minister for Planning:

Possible rail link and shared path

1. *SEITA, in collaboration with the Department of Transport, review the detailed design of the Bypass alignment as to its suitability for a rail connection.*
2. *SEITA, in collaboration with the Department of Transport, review the detailed design of the connections of a rail link between the Bypass and the Stony Point Rail line north of Robinsons Road.*
3. *Refine the location and detailed design of the shared path.*

Minister's Response:

It is my assessment that SEITA continue to collaborate with the Department of Transport regarding the possible concept of a rail line within the Frankston Bypass corridor. It should be noted that the potential effects of such a future proposal have not been the subject of the EES process for the Frankston Bypass.

In regard to recommendation (3), it is my assessment that the detailed design of the shared bypass within the reservation for the Frankston Bypass be refined along with the road design. Any parts of the shared path that are not within the Frankston Bypass reservation and are not documented in the EES will need to be subject to the relevant statutory processes.

Minimise footprint

1. *Reduce the footprint of the Bypass throughout the Pines Flora and Fauna Reserve by the use of retaining walls in place of batters.*
2. *Minimise the Bypass footprint in the EastLink Interchange area by use of retaining walls through all of the area of Grassy Plains Wetland.*

Minister's Response:

It is my assessment that:

- SEITA consult with DSE regarding opportunities to minimise the impact on native vegetation within both The Pines Flora and Fauna Reserve along the adopted alignment and in the EastLink Interchange area, including the possible use of retaining walls in critical areas;
- design proposals to minimise the footprint of bypass works within The Pines Reserve and in the EastLink Interchange area be prepared to the satisfaction of the Minister for Planning.

Habitat connectivity

1. *Identify any potential for maintaining habitat connectivity along the Bypass as part of the detailed design process.*

Minister's Response:

It is my assessment that the proponent:

- identify and implement measures to maintain habitat connectivity along the bypass to the satisfaction of the Secretary DSE
- consult with and implement Melbourne Water requirements in respect to habitat connectivity at waterway crossings.

Baxter

1. *Refine the detailed design through Baxter to support future rehabilitation efforts and waterway health initiatives by Melbourne Water, and provide any appropriate habitat links between waterway systems.*

Minister's Response:

It is my assessment that this recommendation be adopted.

Waterways

1. *Design waterway crossings of Balcombe Creek to meet Melbourne Water requirements.*
2. *Design the overpass on the Baxter–Tooradin Road to maintain good sight [sight] lines and a consistent treatment along the road and under the Bypass.*
3. *Subject to agreement of Melbourne Water and DSE, review the detailed design of the Belvedere Reserve and Boggy Creek.*

Minister's Response:

It is my assessment that the Inquiry's recommendations regarding the detailed design in (1), (2) and (3) above be implemented by the proponent.

Pines Flora and Fauna Reserve

1. *Carry out substantial works within the Pines Flora and Fauna Reserve, well in excess of those minimum requirements associated with improving habitat for the Southern Brown Bandicoot, to gain a positive outcome for the environment in the context of allowing the Bypass to proceed.*

2. *Implement all other mitigation measures proposed in the EES relating to flora and fauna issues subject to approval of details with DSE.*

Minister's Response:

It is my assessment that a specific plan for the protection of the Southern Brown Bandicoot (SBB) within The Pines Flora and Fauna Reserve be prepared to the satisfaction of the Secretary DSE before works proceed in this Reserve. This is to include a long-term monitoring program of the SBB population to assist evaluation of the effects of the bypass on its viability. This program is to be implemented to the satisfaction of the Secretary DSE. This matter is discussed further in section 3.3 of this Assessment.

It is my assessment that the other mitigation measures proposed in the EES relating to flora and fauna issues be detailed in the EMP for the project and be implemented to the satisfaction of the Secretary DSE.

Frankston Freeway–EastLink–Bypass Interchange

1. *Carry out all of the avoidance, minimising and mitigation measures recommended by Biosis for the interchange area.*
2. *In the event of an appropriate like-for-like offset not being available for vegetation losses at the interchange a with EastLink, gain a positive outcome for the environment by undertaking substantial works within the Pines Flora and Fauna Reserve.*

Minister's Response:

It is my assessment that the proposed mitigation measures in the EES in respect to the Plains Grassy Wetlands EVC in the vicinity of the connection of the Frankston Bypass to EastLink should be implemented to the satisfaction of the Secretary DSE, consistent with the Victorian Native Vegetation Management Framework.

Westerfield (Patch 46a)

1. *In the event that destruction of vegetation at Westerfield (Patch 46a) cannot be avoided, carry out detailed targeted surveys for flora and fauna prior to commencing works and implement appropriate relocation of significant flora species.*
2. *Implement all other mitigation measures at Westerfield (Patch 46a) recommended in the Biosis Technical Report.*
3. *In the event that destruction of vegetation at Westerfield (Patch 46a) cannot be avoided, initiate all measures necessary to obtain the appropriate offsets including acquisition or protection of whole properties.*

Minister's Response:

It is my assessment that a report on opportunities for reducing the effects on the native vegetation of the Westerfield property be prepared by the proponent to the satisfaction of the Secretary DSE before works commence on that property. This report is to be taken into account in finalising the bypass design and the component of the EMP covering the mitigation measures for the Westerfield property.

Habitat connectivity

1. *Frankston and Mornington Peninsula Councils, DSE, Melbourne Water, Parks Victoria and relevant Catchment Management Authorities work together to identify a potential network of habitat links across the Mornington Peninsula.*

Minister's Response:

It is my assessment that the Inquiry recommendation be noted by the relevant authorities.

Fog

1. *Take fog mitigation measures into account in the detailed design.*

Minister's Response:

It is my assessment that it is appropriate for the potential safety risks of fog to be considered in the detailed design for the Frankston Bypass.

Waterways

1. *The EMP address the issue of spill containment to protect waterways*
2. *Act in a preventative manner in relation to the risks associated with site management at Boggy Creek.*
3. *Fully quantify and qualify the potential risks related to the downstream connection of Watsons Creek with Yaringa National Park as part of the detailed design and construction of the Bypass.*

Minister's Response:

It is my assessment that the above Inquiry recommendations in relation to waterways be taken into account in:

- the detailed project design
- the preparation and implementation of the EMP for the Frankston Bypass to the satisfaction of Melbourne Water.



JUSTIN MADDEN MLC
Minister for Planning

15 JUN 2009

Appendix – Matters of National Environmental Significance

1.1. Introduction

On 2 July 2007, the delegate of the Australian Government Minister for the Environment and Water Resources determined that the proposed Frankston Bypass is a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The “controlling provisions” for the proposal are:

- Wetlands of international importance (sections 16 and 17B)
- Listed threatened species and communities (sections 18 and 18A)
- Listed migratory species (sections 20 and 20A)

The Victorian EES process for the Frankston Bypass was accredited as the required assessment approach under the EPBC Act.

This appendix summarises the potential effects of the proposal with respect to the controlling provisions. These impacts are also discussed elsewhere in this Assessment, integrated with other flora and fauna matters.

The EES (Chapter 21) provides the findings of the EES investigations in respect to these matters, which were also subject to consideration by the Inquiry.

1.2. Wetlands of international importance

The wetlands of international importance (Ramsar) wetlands that are closest to the Frankston Bypass are the Edithvale Seaford Wetlands and the Western Port Wetlands. The bypass alignment does not traverse or directly affect either wetland. The only potential effects would arise indirectly from the occurrence of the bypass within the catchments for the wetlands.

The Edithvale component of the Edithvale-Seaford Wetlands is in a highly urbanised setting. The Seaford component is closer to the Frankston Bypass, about 1 km to the west. However there is no direct hydrological connection between the waterways traversed by the Frankston Bypass and the wetlands. The drainage system servicing the Patterson Lakes area has separated the Seaford Wetlands from the natural drainage of the Boggy Creek catchment. Boggy Creek now flows into Eel Race Drain, which begins at the Eastern Treatment Plant at Carrum Downs. Eel Race Drain carries flows directly into Kananook Creek. Overflow from the drain into the wetlands would only occur under storm conditions. Given the current drainage system and mitigation measures proposed to reduce impacts on waterways and catchments, it is expected that the proposed Frankston Bypass would not have a significant effect on the ecological values of the Ramsar wetlands.

The Frankston Bypass would cross some upper drainage lines of the Watson Creek catchment about 10 km distant from the Western Port Ramsar Wetlands. There is limited connection between these upper drainage lines and the wetlands. These drainage lines are poorly defined, highly disturbed and flow only during rainfall events. The EES proposes a range of measures to reduce the effects of the bypass on waterways. With these measures and the current location and condition of the catchment, it is not expected that the proposal would have a significant effect on the ecological values of the Western Port Ramsar Wetlands.

1.3. Listed threatened species and communities

1.3.1 Flora

The River Swamp Wallaby-grass (*Amphibromus fluitans*) is the only flora species listed as threatened under the EPBC Act that was recorded along the alignment of the Frankston Bypass during the EES investigations. A population of River Swamp Wallaby-grass was identified around the constructed wetland within The Pine Flora and Fauna Reserve. About 0.03 ha of a total 0.76 ha River Swamp Wallaby-grass habitat would be directly lost and there is the potential for indirect impacts through fragmentation and hydrological changes.

In order to reduce the project footprint and its indirect impacts, it is proposed to: use a retaining wall adjacent to the River Swamp Wallaby-grass habitat; fence off the population before works commence; and to reinstate a more natural flow regime through the realignment of Tamarisk Creek within The Pines Reserve. Translocation of individuals directly affected to other suitable habitat would be considered if practicable.

Clover Glycine, Maroon Leek-orchid and Swamp Fireweed (listed as threatened species under the EPBC Act) were not recorded during the EES investigations, however the EES acknowledges that there is suitable habitat for the species in the vicinity of the bypass alignment. It is proposed to undertake targeted surveys for these species in likely habitat areas during detailed project design and avoid/minimise impacts to the extent practicable.

1.3.2 Fauna

The key species listed as threatened under the EPBC Act potentially affected by the Frankston Bypass are: the Southern Brown Bandicoot (*Isodon obesulus obesulus*), Dwarf Galaxias (*Galaxiella pusilla*), Growling Grass Frog (*Litoria raniformis*), Australian Painted Snipe (*Rostratula australis*), and Swift Parrot (*Lathamus discolor*).

Southern Brown Bandicoot

The presence of the Southern Brown Bandicoot (SBB) was confirmed by the EES investigations at several locations in The Pines Reserve. Based on the EES surveys, past studies and local expert knowledge, it is evident that SBBs inhabit areas in The Pines Reserve containing heathland, swamp and woodland vegetation complexes. The areas occupied by the species vary from time to time depending on factors such as time since fire, soil type, predator abundance and food availability.

Considerable attention has been given to finding the most suitable alignment for the bypass, which would achieve a balance between road design requirements, biodiversity effects (particularly on SBB) and the future management of The Pines Reserve. This work is discussed in section 3.3.4 of this Assessment. The outcome is a proposed alignment for the bypass, project design measures and a draft plan for the management of The Pines Reserve that would provide the most favourable outcome for the SBB.

The draft management plan provides for fauna underpasses separate from a proposed pedestrian/management vehicle underpass. These fauna underpasses would facilitate movements of small fauna such as SBBs, using design techniques successfully implemented for road underpasses elsewhere. The proposed addition of other former KTRI land to The Pines Reserve and the rehabilitation of the orchards and other disturbed areas would assist the survival of SBBs.

Nevertheless there remains a residual risk to the small SBB population in The Pines Reserve. The Biosis report (EES Technical Volume 1) expresses concern that the small SBB population could be affected by a number of risks including: reduction in habitat quality due to noise, lighting and pollution; increased vehicle collision risk; increased predation risk from disturbed areas; fragmentation; increased fire risk. Biosis concludes that the overall or combined effect of these risks would result in an increased probability that the SBB population in The Pines Reserve could become extinct.

Biosis makes specific recommendations about the measures that need to be implemented to minimise impacts on the SBB. These include a variety of project design measures for the Frankston Bypass (eg fauna underpasses) and future park management measures (eg. increasing size of The Pines Reserve, rehabilitating disturbed areas, predator control). However these measures may not be enough to ensure the survival of the SBB population in The Pines Reserve. It will be necessary to conduct long-term monitoring of the SBB population to evaluate the effects of the Frankston Bypass and if necessary to guide remedial action (including introducing SBBs from other areas to increase the resilience of The Pines Reserve population). This program would need to be prepared and implemented to the satisfaction of the Secretary of the Department of Sustainability and Environment.

Dwarf Galaxias

One individual of Dwarf Galaxias was recorded during the EES investigations at Boggy Creek within The Pines Reserve. This represents a new site record for the Dwarf Galaxias. Dwarf Galaxias were also recorded during the EES investigations in Tuerong Creek in the vicinity of Tuerong Road. This is known as a site for a significant population of Dwarf Galaxias.

Dwarf Galaxias were not recorded in other catchments during the EES investigations. The EES acknowledges that the species may still occur in these catchments, however its survival would be at risk given the paucity of recent records and the proliferation of the Eastern Gambusia.

The population in Tuerong Creek is an important population in view of the decline of the species elsewhere. It is the largest known population in the Mornington Peninsula. In view of the significance of this population, SEITA proposes to modify the bypass route shown in the Mornington Planning Scheme in order to avoid removal and modification of habitat in Tuerong Creek.

The EES also puts forward a number of mitigation measures to enhance the survival chances of local Dwarf Galaxias populations. In particular it is proposed to create habitat favourable for the species within the Boggy Creek catchment. This would involve creating a more natural drainage regime through The Pines Reserve by diverting Tamarisk Creek near the proposed fauna underpass for the freeway and to reinstate the natural overland flow through the reserve to the constructed wetland. The intended outcome would be a more permanent wetland capable of accommodating a more secure translocated population of Dwarf Galaxias within the Boggy Creek catchment. It is noted that a successful outcome would require complementary action elsewhere, including the eradication of Eastern Gambusia upstream.

Growling Grass Frog

Although the Growling Grass Frog was not recorded during the EES investigations, the EES recognises that it may occur in some farm dams and wetlands in the study area for the Frankston Bypass. The last known record was from the Willow Road Reserve in 1981. Urban development, introduced predators and lack of habitat connectivity are considered to be factors leading to the extinction of local populations of the species. It is considered that the proposal is unlikely to affect the Growling Grass Frog.

Australian Painted Snipe

Although not recorded during the EES investigations, the Australian Painted Snipe could occasionally occur on dense vegetation near wetlands in the local area, particularly in the northern section of the proposal in the vicinity of the Seaford wetlands and the Eastern Treatment Plant. It is unlikely that the proposal would significantly affect the species population.

Swift Parrot

There are past records of small numbers of the Swift Parrot foraging in the local area when the eucalypts are in flower. However the vegetation within the Frankston Bypass alignment does not appear to be an important component of their winter habitat. For this reason, the effects of the proposal are not considered to be significant.

1.4. Listed migratory species

The EES provides an analysis of the potential for the proposed Frankston Bypass to affect migratory species. Although the search of relevant databases has shown that 59 listed migratory species have been recorded or have the potential to occur within 5 km of the Frankston Bypass alignment, only the vast majority of these species¹⁷ are unlikely to be affected by the proposal.

The Flora and Fauna Technical Report in EES Volume 1 provides a complete list of these species and a comment on why they would not be affected by the proposed Frankston Bypass.

¹⁷ Sixteen of these species live in open oceans, while most of the remainder are waterbirds or waders that have been recorded at the Edithvale-Seaford Wetlands (which would not be affected by the bypass).

1.5. Conclusion

It is my assessment that the proposed Frankston Bypass would not have a significant effect on the relevant controlling provisions under the EPBC Act, provided the mitigation measures specified in the EES are fully and effectively implemented.

Further, it is my assessment that a specific plan for the protection of the Southern Brown Bandicoot (SBB) within The Pines Flora and Fauna Reserve be prepared to the satisfaction of the Secretary DSE before works proceed in this Reserve. This plan is to include a long-term monitoring program of the SBB population to assist evaluation of the effects of the bypass on its viability. This program is to be implemented to the satisfaction of the Secretary DSE.

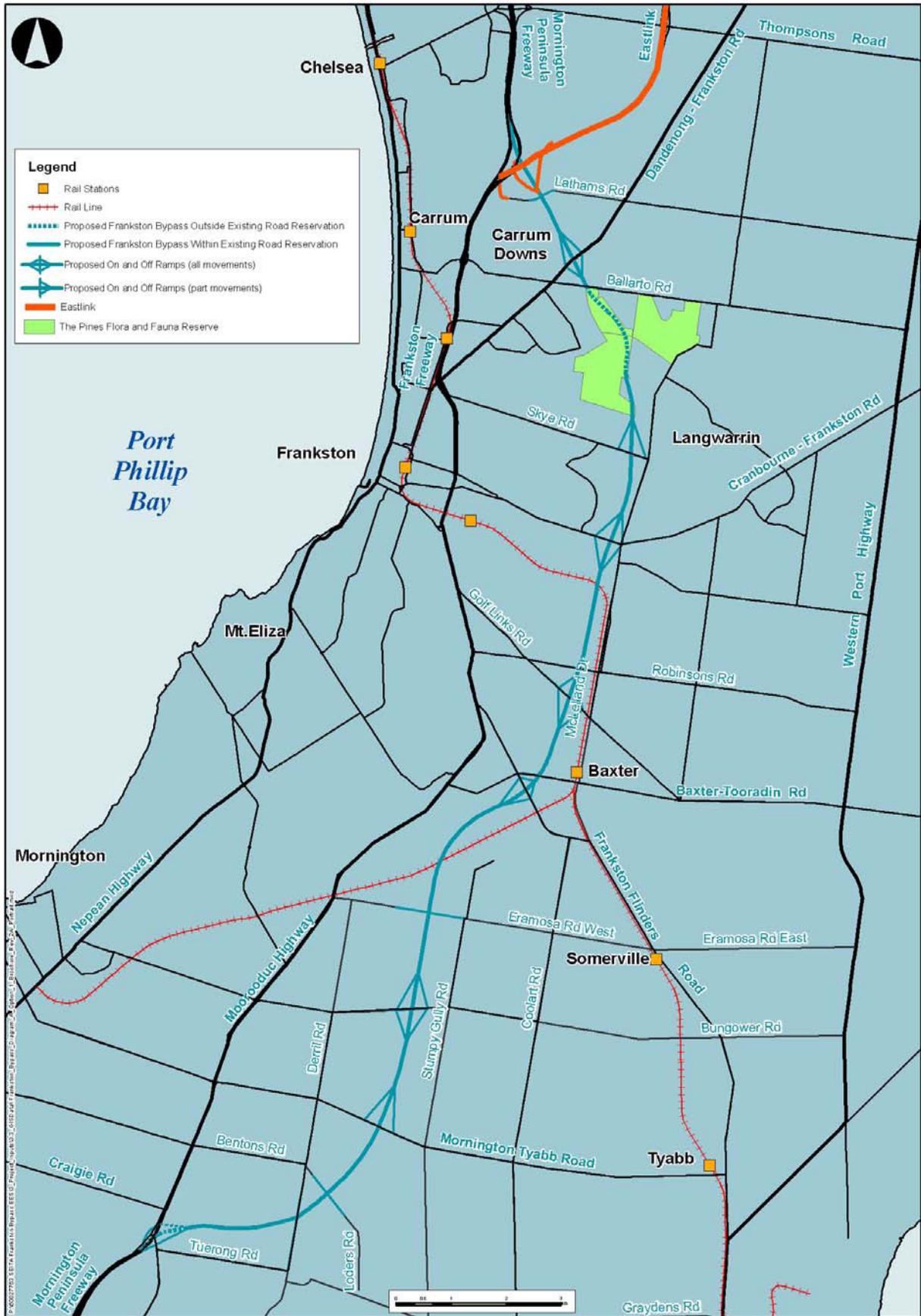


Figure 1 Proposed route for Frankston Bypass