

Echuca Moama Bridge Project Minister's Assessment under the *Environment Effects Act 1978*

Minister for Planning

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Photo 1: Murray River near boat ramp at Echuca

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Abbreviations

AH Act	<i>Aboriginal Heritage Act 2006</i>
CaLP Act	<i>Catchment and Land Protection Act 1994</i>
CEMP	Construction Environmental Management Plan
CHMP	Cultural Heritage Management Plan
CLR	<i>Crown Land (Reserves) Act 1978</i>
DELWP	Department of Environment, Land, Water and Planning
EE Act	<i>Environment Effects Act 1978</i>
EES	Environment Effects Statement
EMF	Environmental Management Framework
EMS	Environmental Management System
EP&A Act	New South Wales <i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	Commonwealth <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</i>
Ha	Hectares
Hha	Habitat Hectares
Kms	Kilometres
LOTs	Large Old Trees
Mid West Option	Mid West Option
MW2A Option	Mid West 2A Option
MW2B Option	Mid West 2B Option
NSW	New South Wales
PAO	Public Acquisition Overlay
P&E Act	<i>Victoria Planning and Environment Act 1987</i>
PD	Preliminary Documentation
REF	Review of Environmental Factors
TRG	Technical Reference Group
YYNAC	Yorta Yorta Nation Aboriginal Corporation

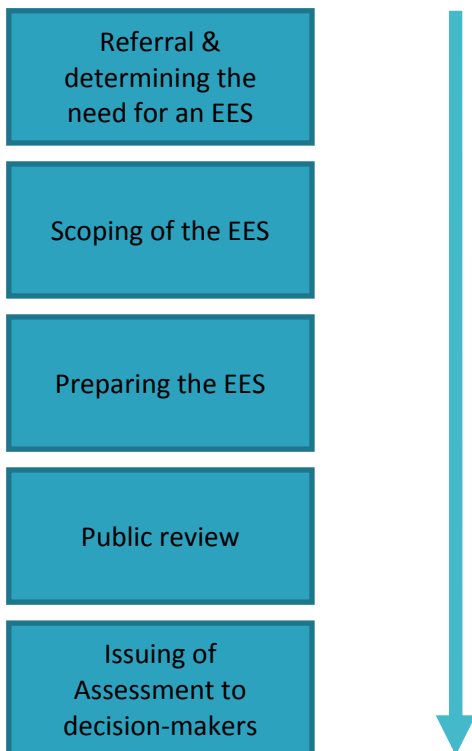
1. Introduction

1.1. Purpose of this document

This document is the assessment of potential environmental effects (“Assessment”) for the Echuca Moama Bridge Project (the project) under the *Environment Effects Act 1978* (EE Act). The release of my assessment represents the final step in the Environment Effects Statement (EES) process under the EE Act.

The key steps in the EES process are set out below in **Figure 1**.

Figure 1 The EES process



This Assessment provides authoritative statutory advice to decision-makers on the likely environmental effects of the project, their acceptability and how the effects should be addressed in relevant statutory decisions.

The Assessment has considered the EES, the submissions, the proponents’ response to submissions, the report of the joint inquiry and advisory committee (the inquiry), other information provided at the request of the inquiry, as well as the objectives and principles of ecologically sustainable development (ESD), in the context of relevant legislation, policy, strategy and guidelines.

The purpose of this document is to inform decisions required under Victorian law for the project to proceed, in particular the decision required under the *Planning and Environment Act 1987* (the P&E Act). Relevant decision makers are required to consider the Minister’s Assessment however, any decision-maker proposing not to adopt part of the Minister’s Assessment should advise and consult with the Minister, as set out under the *Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978* (‘Ministerial Guidelines’).

This document can be viewed on the department’s website at:
www.delwp.vic.gov.au/planning/environmental-assessment.

1.2. Structure of this Assessment

Section 1 of this Assessment outlines the EES process, statutory approvals and context for the proposed development. Section 2 describes the project assessed through the EES. Section 3 outlines the Inquiry process, submissions and the integrated framework applied to assessment of effects within both the Inquiry report and this Assessment.

The core part of this Assessment is found in Section 4, which provides findings on the environmental effects of the project and an assessment of these effects and their acceptability, based on relevant evaluation objectives drawn from the applicable legislation and statutory policy.

Section 5 address VicRoads draft planning scheme amendment, which was examined by the Inquiry.

Appendix 3 to this Assessment provides specific responses to the recommendations of the Inquiry.

1.3. Project proponents

The Roads Corporation (trading as VicRoads) and New South Wales (NSW) Roads and Maritime Services (Roads and Maritime) are the proponents for the project. VicRoads is responsible for preparing the EES and obtaining the necessary decisions required under Victorian law for the project to proceed.

1.4. Environment Effects Act 1978

On 14 June 2013, the former Minister for Planning determined that an EES was required for the project under the EE Act. The EE Act provides for the assessment of proposed projects (works) that are capable of having a significant effect on the environment. In this context, the 'environment' includes the physical, biological, heritage, cultural, social, health, safety and economic aspects of human surroundings, including the wider ecological and physical systems within which humans live.¹

The EES has been prepared by VicRoads, with input and advice from a Technical Reference Group (TRG) and the Department of Environment, Land, Water and Planning (DELWP), and in response to Scoping Requirements for the project issued by the Minister for Planning on 30 June 2014.

1.5. Victorian statutory approvals

Other statutory approvals required for the project to proceed include:

- An amendment to the Campaspe Planning Scheme under the *Planning and Environment Act 1987* (P&E Act).
- Approval of a cultural heritage management plan under the *Aboriginal Heritage Act 2006* (AH Act).
- A licence to construct works on a waterway under the *Water Act 1989*.
- A licence to take or use water from a waterway or groundwater under the *Water Act 1989*.
- A permit to remove protected flora from public land under the *Flora and Fauna Guarantee Act 1988* (FFG Act).
- A permit to remove trees containing habitat or other fauna habitat areas or fauna salvage and translocation under the *Wildlife Act 1975*.
- Consent for works on public land under the *Crown Land (Reserves) Act 1978* (CLR Act).

¹ Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978 page 2

1.6. Commonwealth and NSW statutory approvals

The project (action) requires approval under the EPBC Act because of its potentially significant impact on matters of national environmental significance. On 11 July 2013, a decision was made that the project was a controlled action (under the controlling provisions of sections 18 and 18A - threatened species and ecological communities). Of particular concern to the Commonwealth was the presence (or otherwise) of the South-eastern Long-eared Bat. The project requires assessed via Preliminary Documentation (PD).

This EES process was unable to be accredited for this project under the *Commonwealth-Victorian Bilateral Agreement* as it falls within two jurisdictions and the EES process only applies to the Victorian component of the project.

Nevertheless, the department has sought to align the different State and Commonwealth processes to increase efficiency and minimise duplication, wherever possible. Both the Commonwealth Department of the Environment and New South Wales (NSW) Roads and Maritime participated in the TRG and reviewed relevant technical documents and relevant parts of the draft EES.

The NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) provides the statutory basis for planning and environmental assessment in NSW, under which the NSW Minister for Planning, statutory authorities and local councils are responsible for implementing the EP&A Act. The Review of Environmental Factors (REF) has been prepared under the EP&A Act to assess the NSW component's impact on the environment.

It is understood that NSW Roads and Maritime will prepare a 'submissions report' to respond to the relevant submissions received. The report prepared by the Inquiry will also be treated as a submission and any relevant matters raised will be considered in the submission report. The submission report will then be released to the public when the final NSW decision on the proposal is made.

1.7. Background and previous statutory processes

The proposal to construct a new crossing at Echuca-Moama has a long history and VicRoads in conjunction with Roads and Maritime has been considering options for a new crossing since around 1965.

The proposal was subject to a previous Victorian EES/NSW Environment Impact Statement process during 1999-2003. Three options were considered, namely the W1 Option on the western fringe of Echuca-Moama and two central options known as C1 and C3. A Panel recommended that the W1 Option be adopted as the most appropriate route for the new crossing. This recommendation was supported by the former Minister for Planning in her assessment released in March 2003 and endorsed by the former Minister for Transport in August 2003.

The proposal did not proceed due to cultural heritage issues. On 3 May 2005, the former Minister for Transport advised Parliament that other options other than W1 Option would need to be examined.

In late 2007, a decision was made to close the former Echuca Secondary College and relocate the school. This decision enabled the Mid West Corridor to be considered for the first time. In December 2007, an in-principle agreement by key stakeholders was announced for the location of a new crossing of the Murray River on the Mid West Corridor.

An EES referral for this proposal was made and in April 2010, the Minister for Planning determined that an EES would not be required subject to a number of conditions, including the preparation of an environment report. However, the report was not completed or exhibited ahead of the 2010 State election.

In November 2010, the then Minister for Roads announced that a planning investigation would commence on another potential alignment known as the Mid West 2 Corridor. Planning investigation works on this alignment occurred during 2011-2013, which led to a new referral and the conclusion that an EES would be required to assess the Mid West 2 Corridor Options 2A and 2B, as well as alternative alignments available in the previously identified Mid West Corridor.

2. Project description

2.1. Overview

The EES includes a preliminary assessment of three options and an integrated detailed assessment of VicRoads' preferred alignment. The options investigated by VicRoads include:

- The Mid West Option (the preferred alignment);
- The Mid West 2A Option; and
- The Mid West 2B Option.

The preferred alignment was also assessed against the project not proceeding, the 'no project' scenario.

The three options are shown on **Figure 2**.

Figure 2 Project options



2.2. Project objectives

The objectives for the project as developed by VicRoads are as follows:

- To improve accessibility and connectivity for the community of Echuca-Moama and the wider region.
- To provide security of access between Echuca and Moama.
- To enable cross border access for high productivity vehicles and oversized vehicles.
- To improve emergency services access between Echuca and Moama during emergency situations and major tourist and flood events.
- To provide road infrastructure that supports:
 - The Victorian and NSW state and national economies through improved connectivity of goods and services; and
 - The local and regional economy of Echuca-Moama.
 - The state and national economies.

2.3. Road design

VicRoads proposes to construct an initial alignment of a single lane in each direction to a rural highway standard with a design speed of 80 kilometres (kms) per hour to connect the Murray Valley Highway in Echuca with the Cobb Highway in Moama. Sufficient land is to be reserved to enable the construction of a four lane road (two lanes in each direction). The timing of the ultimate duplication to four lanes is unknown and dependant on future growth and traffic needs of Echuca-Moama.

The Mid West Option has a length of approximately 4.3 kms and a carriageway width of 33 metres. The alignment starts at the intersection of the Murray Valley Highway with Warren Street in Echuca where a large, three-leg roundabout will be constructed. It then extends north-east along Warren Street for approximately 1.5 kms to a second roundabout. New roadworks will also occur along Warren Street between this roundabout and the existing bridge over the Campaspe River to provide a flood free crossing into Echuca above the 100-year average recurrence interval flood.

The alignment then veers south-west at Campaspe Esplanade, crosses the Campaspe River near Crofton Street and heads north-east passing through the former Echuca Secondary College site and part of the Echuca Lawn Tennis Club site. It then passes through Victoria Park, skirts the western end of the Echuca Holiday Park and crosses the Murray River near the existing boat ramp.

The alignment then heads north across the floodplain in NSW, passes between the Madison Spa Motel Resort and the Woolworths Supermarket and connects with the Cobb Highway. Upgrades to the Cobb Highway at the intersections of Meninya Street, Peericoota Road and Francis Street are also proposed.

3. Submissions and Inquiry

3.1. Overview

VicRoads was authorised to exhibit the EES on 25 August 2015. The EES, together with the REF and PD were exhibited for public comment between 27 August 2015 and 9 October 2015 and only attracted twelve submissions. Seven submissions directly related to Victoria.

The type and number of submissions received are set out in **Table 1**.

Type of submitter	Number of submissions
Municipal council	2
Government body	3
Registered Aboriginal Party	1
Community organisation	2
Statutory organisation	1
Individuals	2
Health facility	1

Table 1: Type and number of submissions

None of the submissions objected to VicRoads' preferred alignment.

3.2. Key issues raised

Key issues raised in the submissions relevant to Victoria are summarised below in **Table 2** and categorised using the relevant evaluation objective used within this assessment (refer to section 4.1).

Evaluation objective	Issue
Road safety and capacity	Reliance on Victorian services and facilities by NSW residents Traffic congestion and poor access due to existing single crossing The need for safe access to Homan Street and the cemetery
Economic	The existing situation is detrimental to local businesses and travel industries Potential employment opportunities and benefit to the community
Catchment values	Whether the risk rating for floodplain impacts should be 'negligible' The extent of flood impact of the new crossing and impact on the upstream gauging station Whether significant advancements and the 2010-2011 floods might change the assessment of flood risk Whether some sensitivity assessment and examination of floods rarer than 100 year ARI would be prudent
Biodiversity and habitat	Support peer review for the for South-eastern Long-eared Bat Include a missing threatening process under the FFG Act relating to the infection of amphibians Revise the status of the Yellow-bellied Sheathtail Bat and Pale Flax-lily

Whether the timing of noisy works could avoid the breeding season of threatened fauna and aquatic fauna to minimise impacts

Include additional mitigation measures to protect remaining native vegetation and 221 potentially hollow-bearing trees

Table 2: Summary of issues raised

Photo 2: The existing bridge



3.3. Council's submission

Campaspe Shire Council endorsed the Mid West Option as the new crossing of the Murray River at Echuca-Moama. Other issues raised by council included:

- The need for a complete link between the Northern Highway and Cobb Highway.
- That all consultants' recommendations contained in the technical reports be included in approvals.
- The need for a construction management plan for the project.
- That mitigation measures for noise impacts be implemented as soon as practicable.
- That the new tennis courts for the Echuca Lawn Tennis Club be established prior to the decommissioning of the existing courts.
- That project approvals include the need for the proponents to plan and construct a minimum of six tennis courts and pedestrian and cycling infrastructure.
- That all recommendations relating to impacts to the Echuca Holiday Park are implemented.
- That the State Government fund a revised masterplan for Victoria Park Recreation Reserve to guide existing and future recreational facilities and associated works and a management plan for the Victoria Park Nature Reserve.

In relation to a lack of submissions on the EES from the community, council indicated at the inquiry hearing *that there is a general fatigue across the community due to the protracted nature of the project and .. that overwhelming the community just wants a bridge ..*².

3.4. Inquiry process

The Minister for Planning appointed an inquiry under the EE Act on 27 September 2015 to consider and hear submissions and provide an integrated assessment of the potential effects of the project on the environment³, in accordance with terms of reference issued on 15 September 2015. The members of the

² Shire of Campaspe Submission in Response to Inquiry Directions, 17 November 2015

inquiry were also appointed as an advisory committee under section 151 of the P&E Act to consider the draft planning scheme amendment (PSA) and related matters raised in submissions.

The inquiry held a directions hearing on 28 October 2015, followed by its public hearing on 16 and 17 November 2015. The inquiry provided its report to the Minister on 20 January 2016. The report has largely informed the preparation of this Assessment of the environmental effects of the project under the EE Act.

³ In this context, 'environment' is to include the physical, biological, heritage, cultural, social, health, safety and economic aspects of human surroundings, including the wider ecological and physical systems in which humans live.

4. Integrated assessment of environmental effects

4.1. Selection of preferred option

The EES outlines a three phase assessment process VicRoads used to consider three alignment options (Mid West 2A, Mid West 2B and Mid West) (refer to section 2.1). Phase 1 involved a preliminary review of the three alignment options as outlined in section 4.4 of the EES, which concluded that the options would have significantly different impacts on some key matters: biodiversity and habitat, Aboriginal and historic cultural heritage and social considerations.

Phase 2 involved a formal options assessment of the three alignment options as outlined in section 4.6 of the EES. The options assessment compared each option against a number of specific criteria for the key differentiating matters mentioned above. VicRoads' project objectives, the draft evaluation objectives in the scoping requirements and relevant legislation, policies and guidelines were used to establish the criteria. Both the preliminary review and options assessment supported the selection of the Mid West Option (Mid West Option) as the preferred alignment.

Phase 3 included a detailed assessment of the preferred alignment, which is presented in the bulk of the EES. The methodology used in the detailed assessment is described in chapter 5 of the EES. A risk assessment process that considered likelihood categories and consequence criteria was used to develop a risk rating matrix, which was applied to all impact themes except for social, economics, planning, land use, landscape and visual.

The conclusion of VicRoads' analysis was that the risks and impacts associated with the preferred alignment were more acceptable and can be more readily managed via mitigation measures.

The inquiry considered the three options presented in the EES and concluded that, on balance, VicRoads' preferred Mid West Option represents the best project alignment in the context of environmental effects.

It is my assessment that the Mid West 2A Option (MW2A Option) is unacceptable because:

- It would potentially remove 25.97 ha of native vegetation.
- It would potentially remove good quality habitat for listed threatened fauna species and impact on more significant wildlife corridors.
- The specific offsets required for the option would be difficult and costly to secure.
- Implementing the MW2A Option would sever and intrude into the 'sandhill', an area of very high Aboriginal cultural heritage sensitivity with potential to contain buried ancestral remains and/or sub-surface Aboriginal cultural heritage.
- It divides Victoria Park into three sections and would be detrimental to the passive recreational users of the park in terms of useability and amenity.

It is my assessment that the Mid West 2B Option (MW2B Option) is unacceptable because:

- It would potentially remove 24.71 ha of native vegetation.
- It would potentially remove good quality habitat for listed threatened fauna species and impact on more significant wildlife corridors.
- The specific offsets required for the option would be difficult and costly to secure.
- The MW2B Option effectively squeezes the Warren Street residential area between two roads and would be detrimental to the amenity of residents.
- It would traverse an old tip site with significant potential for exposure of contaminated materials.

It is my assessment that the Mid West Option represents the best alignment option in the context of respective environmental effects of the three options considered by VicRoads in the EES. Therefore, the

remainder of this assessment considers in detail the environmental effects of the Mid West Option for the project, based on the EES and the inquiry report.

4.2. Framework for assessment of Mid West Option’s effects

Ten evaluation objectives have been used in this assessment to provide a framework to guide an integrated assessment of potential environmental effects of the project (i.e. Mid West Option). Key aspects of relevant legislation, statutory policy and the principles and objectives of ESD have been used to create the set of evaluation objectives. A draft set of evaluation objectives was included in the Scoping Requirements for this EES, which were used by the proponents’ investigations of effects within the EES. The inquiry found that the evaluation objectives adopted by VicRoads in the EES were satisfactory. Slight modifications to the set of draft evaluation objectives have occurred in this assessment.

Table 3 outlines the final set of evaluation objectives and the underpinning legislation.

Evaluation objectives	Key legislation
Road safety and capacity - To improve accessibility and connectivity for the people of Echuca-Moama and the wider region by providing for existing and future traffic capacity and safety needs	<i>Transport Integration Act 2010</i> (TI Act) RM Act P&E Act
Biodiversity and habitat - To avoid or minimise adverse effects on native vegetation and listed flora and fauna species and ecological communities, and address offsetting for potential losses consistent with relevant policy	EPBC Act FFG Act Wildlife Act Fisheries Act P&E Act
Cultural heritage - To avoid or minimise adverse effects on Aboriginal and historic cultural heritage values	AH Act Heritage Act P&E Act
Landscape and visual amenity - To minimise adverse effects on landscape values, including the Murray and Campaspe Rivers and floodplains, and on residents’ visual amenity, to the extent practicable	P&E Act
Social and land use - To minimise adverse social and land use effects, including impacts on the existing uses of Crown land, to the extent practicable	P&E Act CLR Act
Catchment values - To maintain floodplain functions, hydrology, and other protected beneficial uses of surface and groundwater, as well as geomorphic stability of proximate sections of the lower Campaspe and Murray Rivers	Water Act <i>Commonwealth Water Act 2007</i> P&E Act CaLP Act EP Act
Noise and air quality - To minimise adverse noise and air quality effects to the extent practicable	<i>Environment Protection Act 1970</i> P&E Act
Economic - To provide road infrastructure that fosters a viable level of economic performance for the local and regional economy of Echuca-Moama	P&E Act

Environmental management framework - To provide a transparent framework with clear accountabilities for managing environmental effects and hazards associated with construction and operation phases for the project, in order to achieve acceptable environmental outcomes

P&E Act
EP Act
AH Act
EE Act

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

TI Act
EE Act
P&E Act

Table 3. Evaluation objectives used in this Assessment

4.3. Road safety and capacity

Evaluation objective - To improve accessibility and connectivity for the people of Echuca-Moama and the wider region by providing for existing and future traffic capacity and safety needs.

Key issues

The key issues for road safety and capacity are:

- Whether the Mid West Option would improve the accessibility and connectivity for the people of Echuca-Moama and the wider region.
- Whether the Mid West Option would improve the capacity requirements and road safety needs of Echuca-Moama and the wider region.

Discussion and finding

A traffic model for the project was developed in 2008-2010 and updated in 2012 and again in 2014 to determine predicted traffic volumes based on two scenarios - the 'No Project' scenario and the Mid West Option scenario. In 2014, the average two-way traffic volume for the bridge was approximately 18,800 vehicles per day⁴. During peak periods and annual events, the traffic volumes can increase to over 25,000 vehicles per day⁵. The model forecasts that average traffic volumes would increase to 22,900 by 2029 and 25,000 by 2044⁶ without the Mid West Option.

Traffic modelling also indicates that the majority of all traffic movements crossing the river are 'local' with only 3-4 percent bypassing Echuca-Moama. Eight percent of the traffic volume consists of truck movements⁷.

The EES outlines that the existing bridge can carry loads up to a certain limit - larger freight transports from NSW are often forced to separate part of their load before crossing into Victoria and over-dimensional loads that need to cross are restricted to off-peak times⁸. The number of heavy vehicles using the crossing can significantly increase during the grain and tomato harvest season (mid-November to mid-February for grain and February to early April for tomatoes)⁹. The Mid West Option would improve river crossing access for heavy and oversized vehicles and provide a higher mass limit compliant crossing.

⁴ Refer to EES August 2015 page 8-11

⁵ Refer to EES August 2015 page 8-8

⁶ Refer to EES August 2015 page 8-11

⁷ Refer to EES August 2015 page 8-8

⁸ Refer to EES August 2015 page 8-7

⁹ Refer to EES August 2015 page 8-8

The volume to capacity ratio¹⁰ indicates that the existing bridge is reaching capacity (0.88 at 2014 on an average winter weekday) and is anticipated to rise to 1.07 by 2029 and 1.17 by 2044¹¹. Once operational, the EES anticipates that the Mid West Option would reduce traffic volumes on the existing bridge to approximately 13,700 by 2029 and 15,000 by 2044 and decrease the number of vehicles by around 40 percent by 2044 for the 'No Project' scenario¹². The volume to capacity ratio would also decrease to 0.64 in 2029 and 0.70 by 2044¹³, which would ensure the existing bridge was operating well within capacity.

The EES predicts that the Mid West Option would be mainly used by traffic accessing the western areas of Echuca and Moama and the Northern and Murray Valley Highways. Most traffic travelling between the town centres of Echuca and Moama would continue to use the existing bridge.

The reduction in traffic volumes through Echuca town centre of Echuca would improve access and amenity for local traffic and pedestrians and provide increased road safety. In particular, the traffic model indicates that the Mid West Option would remove 42 percent of through traffic from High Street and the historic Port of Echuca area by 2044.

However, the EES expects that traffic volumes along Warren Street would increase by around 54 percent by 2044. The inquiry also recognised that the additional traffic on Warren Street generated by the Mid West Option was a disadvantage but was satisfied that the negative impacts could be mitigated by providing controlling access points and creating service roads as required¹⁴.

The Mid West Option would also result in the truncation of Campaspe Esplanade on the north-west side of Warren Street near the new roundabout and a realignment of Scenic Drive. A new 400 metre right-turn lane would also be provided along Warren Street to enable funeral traffic to turn right into Homan Street from Echuca. Access would be retained for properties fronting Warren Street on the north-west side via a new two-way service road between Homan and Redman Streets.

The Mid West Option would also result in improved cycling and pedestrian connections within Echuca and between Echuca and Moama. A new off-road cycling/pedestrian path would be provided along Warren Street and cycling/pedestrian access would also be provided along the new link connection and across the two new bridges of the Murray and Campaspe Rivers.

Construction impacts would be short-term and include increased truck movements, potential road safety issues and potential for increased crashes in the construction zone. At its peak, construction of the Mid West Option would generate approximately 250 vehicle movements per day, including 150 heavy vehicle movements¹⁵. VicRoads proposes to prepare a road safety audit and a traffic management plan to minimise impacts and maintain the traffic flow on the road network during construction of the Mid West Option.

The inquiry concluded that each of the three options provides substantial benefits in terms of local traffic improvements and broader benefits to the road network and that the Mid West Option is marginally preferred¹⁶.

Conclusion for road safety and capacity

Having regard to the EES, submissions and the inquiry report, **it is my assessment that:**

- The Mid West Option would improve accessibility and connectivity for residents, businesses and visitors of Echuca-Moama and the wider region.
- Further, the Mid West Option would improve the capacity requirements and road safety needs of Echuca-Moama and the wider region. In particular, the Mid West Option would enable the efficient

¹⁰ A volume to capacity ratio between 0.8 and 1.0 is experiencing congestion

¹¹ Refer to EES August 2015 page 8-11

¹² Refer to EES August 2015 page 8-11

¹³ Refer to EES August 2015 page 8-11

¹⁴ Refer to Inquiry Report page 22

¹⁵ Refer to EES August 2015 page 8-16

¹⁶ Refer to Inquiry Report 19 January 2016 page 22

movement of freight between southern NSW into Victoria providing added support to the national freight network.

- The potential negative traffic and transport effects would be largely confined to the construction of the Mid West Option, are of local significance and would be acceptable subject to mitigation measures outlined in chapter 8 of the EES, including a traffic management plan, being implemented along with consultation with affected landowners and council.

4.4. Biodiversity and habitat

Evaluation objective - To avoid or minimise adverse effects on native vegetation and listed flora and fauna species and ecological communities, and address offsetting for potential losses consistent with relevant policy.

Key issues

The key issues for biodiversity and habitat are:

- Whether the potential effects on native vegetation are significant and/or acceptable, including the removal of ecological vegetation classes (EVCs) in the context of the requirements of the *Permitted clearing of native vegetation - biodiversity assessment guidelines* (BAG) September 2013.
- Whether the potential direct or indirect effects on threatened species of flora and fauna and ecological communities in particular those listed under the FFG Act and their habitat are significant and/or acceptable.
- Where impacts are considered to be acceptable, whether appropriate and adequate offsets have been identified and can be secured in accordance with relevant policy.
- Whether potential effects on aquatic flora and fauna are likely and acceptable.

Discussion and findings

The Mid West Option in Victoria crosses two bioregions, the Victorian Riverina Bioregion south of the Campaspe River and the Murray Fans Bioregion between the Campaspe and the Murray Rivers¹⁷. Four EVCs are affected by the Mid West Option as described in **Table 4** along with their conservation status.

The risk-based assessment pathway under the BAG for the Mid West Option is moderate risk. The pathway has been determined following consideration of the extent risk and location risk in relation to the native vegetation proposed to be removed. The extent risk is determined after considering the area (in hectares) of any remnant patches of native vegetation and the number of scattered trees to be removed. The location risk is Location A, as is the majority of Victoria.

The Mid West Option would result in the removal of a total extent of 14.147 hectares (ha) of native vegetation in Victoria, consisting of 13.655 ha of remnant patches and 0.492 ha for the seven scattered trees. The general offset amount is 4.568 general units. No specific offset amount is required for the Mid West Option.¹⁸

A key reason for the selection of the Mid West Option was due to its avoidance and minimisation of native vegetation removal in comparison to the MW2A and MW2B Options¹⁹. The native vegetation losses for the Mid West Option are summarised on the next page in **Table 4**²⁰.

¹⁷ Refer EES August 2015 Figure 9-2 page 9-10

¹⁸ Refer to the DELWP Biodiversity impact and offset requirement report dated 16 March 2015

¹⁹ Refer EES August 2015 page 9-21

²⁰ Based on EES August 2015 Table 9-6

Table 4: Summary of native vegetation losses for Mid West Option

EVC	Description and conservation status	Extent (ha)	Habitat hectare (Hha)
EVC97 ²¹	Semi-arid Woodland (Vulnerable)	0.349	0.209
EVC103	Riverine Chenopod Woodland (Vulnerable in the Victorian Riverina Bioregion)	7.343	1.755
EVC103	Riverine Chenopod Woodland (Endangered in the Murray Fans Bioregion)	1.603	2.895
EVC106	Grassy Riverine Forest (Depleted)	2.074	0.738
EVC295	Riverine Grassy Woodland (vulnerable)	2.289	1.105

In addition, some 221 large old trees (LOTs) would also be removed due to the Mid West Option²², which is potentially a moderate impact. The EES identified that in Victoria many of the LOTs are considered to be hollow-bearing trees due to their age. DELWP noted that both categories of native vegetation (remnant patches and scattered trees) contain hollow-bearing trees and advised that the loss of hollow-bearing trees from Victorian native forests and woodlands is identified as a threatening process in Victoria²³. Whilst DELWP commented that the removal of 221 potentially hollow-bearing trees cannot be completely mitigated against, there are additional mitigation measures that can be included to mitigate the impacts such as erection of appropriate-sized nesting boxes, and placing hollow-bearing trunks on the ground adjacent to remnant vegetation so hollow-dependent fauna can continue to use them as habitat²⁴. The EES anticipates that further refinements to the design of the Mid West Option would reduce the likelihood of removing so many LOTs.

VicRoads proposes to source offsets for the native vegetation removal from the VicRoads offset bank and from other sources²⁵. DELWP has indicated that an offset strategy that details how offsets will be secured must be provided for the removal of native vegetation in the moderate risk-based pathway. The inquiry accepted that an offset had been secured by VicRoads and that VicRoads and its contractors will endeavour to protect as many hollow-bearing trees and LOTs as possible²⁶.

Listed flora species

The EES notes that database searches identified the presence or potential presence of 38 rare or threatened flora species within 10kms of the study area²⁷. Nine of these 38 species were listed under the EPBC Act, 13 species under the FFG Act and 35 species on the DELWP Advisory List for Rare and Threatened Flora Species 2014.

Suitable habitat was confirmed for seven threatened flora species within areas of high quality Black Box dominated woodland in Victoria as listed in **Table 5**.

²¹ Refer to Biodiversity and habitat impact assessment July 2015 page 36. EVC97 may well be EVC264 Sand Ridge Woodland

²² Refer EES August 2015 Table 5-3 page 5-7

²³ Refer to DELWP Submission dated 11 November 2015

²⁴ Refer to DELWP Submission dated 9 October 2015

²⁵ Refer EES August 2015 page 9-27

²⁶ Refer to Inquiry Report 19 January 2016 page 32

²⁷ Refer EES August 2015 page 9-9

Table 5: Significant flora species potentially impacted by the Mid West Option

Flora species	EPBC Act	FFG Act	DELWP List	Recorded
Blue-Burr-daisy	-	-	r	Yes
Chariot Wheels	VU	-	-	No
Hairy Tails	-	L	-	No
Pale Flax-lily	-	-	v	Yes
River Swamp Wallaby-grass	VU	-	-	No
Silky Swainson-pea	-	L	-	No
Slender Darling-pea	-	L	-	No
Small Scurf-pea	-	L	-	No
Western Water Starwort	VU	-	-	No

VU = Vulnerable under the EPBC Act, L = listed as threatened under the FFG Act, r = considered Rare under DELWP Advisory List, v = considered Vulnerable under DELWP Advisory List

Targeted surveys occurred in January 2009 and November 2011 in areas identified as suitable habitat within the study area and in an additional investigation area however none of the above seven threatened flora species were recorded. The EES technical report concludes that the seven flora species were considered unlikely to occur.

The Weeping Myall (*Acacia pendula*) listed as threatened under the FFG Act was initially considered to be present within the study area but was later confirmed to be the Willow Wattle (*Acacia salicina*).

However, two flora species listed on DELWP's Advisory List were recorded during the field surveys across the study area. Two Blue Burr-daisy plants (considered rare) were recorded towards the banks of the Murray River and an unknown number of Pale Flax-lily plants (considered vulnerable) were recorded as sparsely scattered individuals in several locations throughout the Victoria section of the study area and are potentially impacted by the Mid West Option²⁸. It is possible that more than one species of *Dianella* could be present within the final Mid West alignment and as a precautionary approach VicRoads has included the listed Pale Flax-lily species.

DELWP advises that the removal of the Pale Flax-lily species would be a loss to the Riverina population and should be avoided; if possible, however the overall impact on the species will be negligible²⁹. VicRoads proposes to undertake salvage and translocation of the Pale Flax-lily species and any other similar flora species³⁰. The impacts on these two species are expected to be minor given the ability to successfully salvage and translocation them³¹.

The inquiry also noted that there is unlikely to be any significant impact on the Pale Flax-lily given that this species is present in numbers too numerous to record throughout the study area. The inquiry commented that the Riverina is a large region where substantial areas of habitat for this species will remain and that the DELWP Advisory List has no statutory implications³². Overall, the inquiry concluded that the impacts on terrestrial flora are not expected to be significant³³.

²⁸ Refer to Biodiversity and habitat impact assessment July 2015 pages 50-51

²⁹ Refer to DELWP Submission dated 11 November 2015

³⁰ Refer to EES August 2015 Table 9-8 page 9-29

³¹ Refer EES August 2015 Table 5-3 page 5-7

³² Refer to Inquiry Report 19 January 2016 pages 32-33

³³ Refer to Inquiry Report 19 January 2016 page 33

Declared noxious weeds and pathogens

The EES indicates that five noxious weed species listed under the CaLP Act were recorded in the study area and include African Box-thorn, Horehound, Patterson’s Curse, Prickly Pear and Bridal Creeper³⁴. All of these weeds are listed as regionally controlled except for the Bridal Creeper, which is listed as a restricted weed under the Victorian noxious weeds list 2014.

No aquatic weed species were identified during any of the site surveys however Willow trees and Arrowhead are known to occur in the wider region. There is also potential for another ten aquatic weed species to occur in the study area.

A potential impact during the construction of the project is the movement of weeds and other pathogens to and around the study area. If not appropriately managed, weeds and pathogens could potentially impact on the quality of habitat for native flora and fauna species. VicRoads proposes to prepare a weed management plan for the project to minimise the spread of any weeds and pathogens.

A potential threat to frog populations on the floodplain and in river channels is *Chytrid fungus*. A threatening process under the FFG Act is “infection of amphibians within *Chytrid fungus*, resulting in chytridiomycosis”. In order to address this potential effect, the construction environmental management plan should include specific measures to prevent the introduction of this fungal pathogen into local frog populations.

Listed fauna species

Key potential impacts associated with the Mid West Option on fauna include the removal of native vegetation (habitat), in particular LOTS, and further fragmentation to wildlife corridors within the region. There is also potential for reduced water quality, increased noise and lighting and obstruction to the movement of fauna.

A number of significant fauna species are known to occur either in or within the vicinity of the Mid West Option. Those of national and/or state significance are listed in **Table 6**.

Table 6: Significant fauna species occurring or potentially occurring in project area³⁵

Fauna species	EPBC Act	FFG Act	Presence (EES)	Comment
Barking Owl	-	L	Not recorded	Suitable habitat. Unlikely to occur regularly
Bush Stone-curlew	-	L	Not recorded	Suitable habitat. Unlikely to occur regularly
Diamond Firetail	-	L	Not recorded	Suitable habitat. Unlikely to occur regularly
Eastern Great Egret	M	L	Not recorded	Limited suitable habitat. Likely to be used for foraging
Fork-tailed Swift	M	-	Not recorded	Suitable habitat. Potential to occur
Grey-crowned Babbler	-	L	Not recorded	Suitable habitat. Unlikely to occur regularly
Growling Grass Frog	VU	-	Not recorded	Suitable habitat (in NSW). Unlikely to occur
Hooded Robin	-	L	Not recorded	Suitable habitat. Unlikely to occur

³⁴ Refer EES August 2015 page 9-14

³⁵ Refer to EES Technical Appendix C - Biodiversity & Habitat Impact Assessment, 2015, Table 6 pages 62-70

				regularly
Intermediate Egret	-	L	Not recorded	Limited suitable habitat. Likely to be used for foraging
Masked Owl	-	L	Recorded (in NSW)	Suitable habitat. Likely to occur in low numbers in the region
Rainbow Bee-eater	M	-	Recorded	A summer visitor to the region. Widespread in Australia
Speckled Warbler	-	L	Not recorded	Suitable habitat. Unlikely to occur regularly
Squirrel Glider	-	L	Recorded	Suitable habitat and known resident
Superb Parrot	VU	L	Not recorded	Suitable habitat. May occasionally occur
Swift Parrot	EN	L	Not recorded	Suitable habitat. Unlikely to occur regularly
Turquoise Parrot	-	L	Not recorded	Suitable habitat. Unlikely to occur regularly
White-bellied Sea-Eagle	M	L	Recorded	Suitable habitat. Likely to occur
White-throated Needletail	M	-	Not recorded	Suitable habitat. Potential to occur
Yellow-bellied Sheathtail Bat	-	L*	Recorded	Suitable habitat. May occur infrequently in the region

EN = Endangered, M = listed migratory species, and VU = Vulnerable under the EPBC Act, L = listed as threatened under the FFG Act
 * Data Deficient and does not have a threatened status

Of the above fauna species, the Eastern Great Egret, Fork-tailed Swift, Intermediate Egret, Masked Owl, Rainbow Bee-eater, Squirrel Glider, Superb Parrot, White-bellied Sea-Eagle and White-throated Needletail are most likely to occur within the study area. All of these species except for the Fork-tailed Swift, Rainbow Bee-eater and White-throated Needletail are listed under the FFG Act.

The **South-eastern Long-eared Bat** listed under both the EPBC Act and the FFG Act was initially considered to be present within the study area. A peer review commissioned by Roads and Maritime determined that the habitat present in the study area was not suitable, the nearest record of the species was 50kms to the west and the recorded bat calls could not be attributed to this species³⁶. DELWP supported the peer review and agrees with the conclusion it is highly unlikely that the bat was present within the study area³⁷.

The inquiry also accepted the peer review's conclusion that the South Eastern Long-eared Bat is unlikely to be present³⁸.

The **Eastern Great Egret** and the **Intermediate Egret** have been recorded in the study area in the past but not during the field surveys for this project. The EES notes that habitat is limited for waterbirds and would be used for foraging rather than breeding. The EES concludes that the potential impacts to these species are considered minor³⁹.

The **Masked Owl** was recorded in the NSW component of the Mid West Option. The species occurs in open woodlands and forests that provide dense cover. The Masked Owl is dependent on hollow-bearing trees for roosting and breeding and could be potentially affected by the removal of the proposed 221 LOTs.

³⁶ Refer to Gratton, R. (2015) Echuca Bat Call Peer Review.

³⁷ Refer to DELWP Submission dated 9 October 2015

³⁸ Refer Inquiry Report 19 January 2016 page 33

³⁹ Refer to EES August 2015 page 9-22

However, the EES notes that the species has a wide home range of 400 to 1,100ha and the recorded individual was thought to be a visitor to the study area. The potential removal of breeding and foraging habitat is considered to represent a small portion of the overall home range. The EES concludes that the potential impacts to this species are considered minor⁴⁰.

The inquiry noted that there was a moderate to high risk that the study area was used for breeding for the Masked Owl. While the inquiry accepted that the recorded species could have been a floater rather than a territorial pair⁴¹, it recommended that a pre-construction survey for the Masked Owl be undertaken to determine if the species is breeding in the study area⁴².

Squirrel Glider

Roads and Maritime commissioned a targeted survey of the *Squirrel Glider* within the vicinity of the Mid West Option, which included the Victorian component. Two of the recorded seven Squirrel Gliders were captured near the Victorian section. The survey concluded that Squirrel Gliders were resident within the area, the population size was low but probably more widespread and abundant than the trapping data suggested and that the quality of the habitat was extremely variable⁴³.

Photo 3: Squirrel Glider



Source: Museum Victoria website (<http://museumvictoria.com.au/melbournmuseum/discoverycentre/wild/victorian-environments/dry-forest/squirrel-glider/>)

This species is considered susceptible to potential impacts associated with the Mid West Option, which include loss of habitat, in particular LOTS and hollow-bearing trees, barriers to movement, increased collision with vehicles, mortality during clearing of native vegetation, road noise and lighting and entanglement with fences.

While the number of hollow-bearing trees within the Victoria section of the project area has not been mapped⁴⁴, many of the proposed 221 LOTS to be removed are considered to be potentially hollow-bearing trees due to their age. Whilst the EES states that the removal of hollow-bearing trees would be confined to a comparatively small portion of the treed habitat on the Murray and Campaspe floodplains, there is concern that even the removal of a small area of habitat and LOTS could tip the local population past

⁴⁰ Refer to the EES August 2015 page 9-24

⁴¹ Refer to Inquiry Report 19 January 2016 page 32

⁴² Refer to Inquiry Report 19 January 2016 page 34

⁴³ Refer to Australian Research Centre for Urban Ecology, Final Report of Targeted Squirrel Glider Surveys for Second Murray River Bridge Crossing – Mid West Alignment, June 2015 pages 19-20

⁴⁴ Refer to BL&A, Echuca Moama Bridge Project Biodiversity and Habitat Impact Assessment EES Report, July 2015 page 122

recovery⁴⁵. As mentioned above, DELWP supports the inclusion of additional mitigation measures to mitigate impacts associated with loss of habitat and LOTs. While there is some potential for a significant impact on the local population, it is considered that the potential impact on the Squirrel Glider across the region is minor and acceptable.

Indeed the EES concludes that the impact on the Squirrel Glider species is considered minor, subject to mitigation measures, including design refinements, salvage and translocation measures and the implementation of the crossing zones⁴⁶. However, in order to address connectivity impacts, the EES also contains a Squirrel Glider Habitat Linkage Strategy, July 2015, which recommends five crossing zones within the Mid West Option, each with rope bridges linking areas of high quality habitat, and an additional crossing across the Murray River linking Victorian and NSW habitat. DELWP supports the proposed crossing zones in Victoria, in particular Crossing C⁴⁷.

VicRoads is also proposing to engage a suitably qualified and skilled ecologist to prepare a management plan for the Victoria Park to ensure any threats arising from edge effects, reduced area etc. are appropriately managed. Council's submission also requests that the State Government prepare a management plan for the Victoria Park Nature Reserve and fund this work.

VicRoads clarified that the intended management plan relates to fauna species and not to an overall management plan as suggested by council. I agree that the preparation of a threatened species management plan, in particular for the Squirrel Glider, would be appropriate for the Mid West Option. An overall management plan for the Victoria Park Nature Reserve would be a prudent, future step following a decision on this project, although it should be led by the land manager and DELWP with appropriate assistance from VicRoads in the context of potential effects stemming from the new road infrastructure.

The **Superb Parrot** occurs in mature healthy River Red-gum forests growing on river flats. It is possible that this species may occasionally use the study area given the presence of suitable foraging habitat. The EES concluded that the potential impacts to this species are considered minor⁴⁸.

The **White-bellied Sea-Eagle** is a migratory species (as are the Fork-tailed Swift, Rainbow Bee-eater and White-throated Needletail) and may occur in and forage along the Murray River. No nests were found during the surveys. The EES concluded that the species is unlikely to be a regular resident and the potential impacts to this species are considered minor⁴⁹.

The results of the EES surveys suggest that the **Yellow-bellied Sheathtail Bat** may infrequently occur in the region, although it is unlikely to be a permanent resident there considering its dispersive characteristics. Further, it is also unlikely that the species breeds in the region⁵⁰. The Yellow-bellied Sheathtail Bat is listed under the FFG Act, although it is listed under the DELWP Advisory List of Threatened Vertebrate Fauna in Victoria (2013) only due to data deficiency - the species is considered to occur in Victoria only as a vagrant, i.e. rarely, irregularly and in small numbers⁵¹. The removal of hollow-bearing trees is an adverse impact on this species, although an impact of any significance due to the Mid West Option is considered unlikely.

A number of other species on the DELWP Advisory List also occur or may occur. In particular, the **Azure Kingfisher, Black-chinned Honeyeater, Brown Quail, Brown Treecreeper** and **Nankeen Night Heron** were all recorded in the study area. Even though the removal of native vegetation is likely to impact on suitable habitat for several of these species; the potential impact is expected to be minor due to connectivity with habitat areas in the wider region.

⁴⁵ Refer to Australian Research Centre for Urban Ecology, Final Report of Targeted Squirrel Glider Surveys for Second Murray River Bridge Crossing – Mid West Alignment, June 2015 page 20

⁴⁶ Refer to EES August 2015 page 9-24

⁴⁷ Refer to DELWP Submission dated 9 October 2015

⁴⁸ Refer to EES August 2015 page 9-22

⁴⁹ Refer to EES August 2015 Table 9-5 and page 9-22

⁵⁰ Refer to EES Technical Appendix C (Biodiversity & Habitat Impact Assessment), page 102

⁵¹ Refer to DELWP Advisory List of Threatened Vertebrate Fauna in Victoria, 2013, page 2

DELWP advised that it is preferable that the timing of noisy works avoid the breeding season of threatened fauna to minimise impacts. VicRoads supported this recommendation where feasible but was concerned that strict adherence had the potential to affect the project's success.

The inquiry concluded that the project would not contribute significantly at the regional level to fragmentation of this wildlife corridor as habitat is already fragmented by historical land uses⁵². Overall, the inquiry concluded that the impacts on terrestrial fauna are not expected to be significant⁵³.

The majority of the listed species recorded in the study area are hollow-bearing tree dependent – the removal of such habitat is considered to be the key biodiversity impact associated with the project, as discussed above. I support the inquiry's recommendation that the additional measures identified by DELWP (already noted on page 14 of this Assessment) are implemented to mitigate the impact of removing hollow-bearing trees⁵⁴.

Aquatic flora and fauna species

The EES identifies 16 rare or threatened aquatic flora and fauna species as potentially occurring within the study area as highlighted in **Table 7**.

Table 7: Significant aquatic flora and fauna species potentially impacted by the Mid West Option

Fauna species	EPBC Act	FFG Act	DELWP List	Comment
Flat-headed Galaxias	-	-	v	Possibly occurring
Freshwater (eel-tailed) Catfish	-	L	en	Possibly occurring
Golden Perch	-	-	nt	Likely to occur
Macquarie Perch	EN	L	en	Unlikely to occur
Murray Cod	VU	L	v	Likely to occur
Murray Hardyhead	EN	L	ce	Unlikely to occur
Murray River Turtle	-	-	v	Possibly occurring
Murray Spiny Cray	-	L	nt	Likely to occur
River Snail	-	L	ce	Unlikely to occur
Silver Perch	CE	L	v	Likely to occur
Southern Pygmy Perch	-	-	v	Unlikely to occur
Striped Gudgeon	-	-	nt	Unlikely to occur
Trout Cod	EN	L	ce	Possibly occurring
Flora species	EPBC Act	FFG Act	DELWP List	Comment
Ridged Water-milfoil	VU	L	v	Unlikely to occur
River Swamp Wallaby Grass	VU	-	-	Unlikely to occur
Western Water-Starwort	VU	-	-	Unlikely to occur

EN = Endangered, CE = Critically Endangered, and VU = Vulnerable under the EPBC Act, L = listed as threatened under the FFG Act, ce = Critically Endangered, en = Endangered, v = Vulnerable and nt = Near Threatened under the DELWP Advisory List

⁵² Refer to Inquiry Report 19 January 2016 page 33

⁵³ Refer to Inquiry Report 19 January 2016 page 33

⁵⁴ Refer to Inquiry Report 19 January 2016 page 34

Six fish species, one crustacean and one reptile were identified in the EES as likely to occur or possibly occurring within the study area. Of these species, the Murray Cod, Silver Perch, Murray Spiny Cray, Trout Cod and Freshwater (eel-tailed) Catfish are listed as threatened under the FFG Act.

DELWP advised that it is preferable that the timing of noisy works avoid the breeding season of aquatic fauna to minimise impacts. As mentioned above, VicRoads supported this recommendation where practicable and feasible. The inquiry also supported the inclusion of the DELWP recommendation⁵⁵.

The inquiry agreed that the impacts to the four species likely to occur within the study area will be minimal and that the proposed mitigation measures to reduce potential impacts are satisfactory⁵⁶.

The inquiry also noted the submission from the NSW Office of the Environment and Heritage, which raised issues regarding the potential impacts on the Sloane's Froglet and noted that this species had been recorded 4kms along the Murray River to the north-west of the project site and across the river in Echuca⁵⁷. The inquiry suggested that any potential impacts to Sloane's Froglet in the Victorian component of the project be assessed prior to construction. However, DELWP has advised that this species is not listed under the EPBC Act, FFG Act or the DELWP advisory list and based on this advice, further assessment is not considered necessary.

Listed ecological communities

The EES recorded no threatened ecological communities listed under the EPBC Act or the FFG Act within the Victorian component of the Mid West Option.

Conclusion for biodiversity and habitat

Having regard to the EES, submissions and the inquiry report, **it is my assessment that:**

- The Mid West Option would result in the removal of a total extent of up to 14.147 ha of native vegetation, of four EVCs, a majority of which is in the Riverine Chenopod Woodland EVC which is vulnerable in the Victorian Riverina Bioregion. However, VicRoads has appropriately avoided and minimised native vegetation removal where possible, including through the selection of the Mid West Option, so subject to appropriate offsets these losses are considered to be acceptable.
- An offset strategy detailing how required offsets will be secured, is to be prepared for the Mid West Option, and then be submitted to and endorsed by the Secretary of DELWP (as constituted under Part 2 of the *Conservation, Forests and Lands Act 1987*).
- The Mid West Option would also result in the loss of 221 LOTs, which is considered to be a moderate effect. This is considered acceptable providing: offsets are implemented to the satisfaction of the Secretary of DELWP; the final design avoids additional LOTs; and further mitigation measures are implemented (including additional measures identified by DELWP to mitigate the impact of removing hollow-bearing trees).
- The Mid West Option would not have a significant effect on listed flora species, including Hairy Tails, Silky Swainson-pea, Slender Darling-pea, Small Scurf-pea and Ridged Water-milfoil. Whilst none of these species were recorded within the Mid West Option, a precautionary approach should be implemented and mitigation measures outlined in Appendix O included in the environmental management framework and construction environmental management plan.
- The removal of two Blue Burr-daisy plants and numerous Pale Flax-lily plants is also not considered significant and would be acceptable subject to the mitigation measures proposed by VicRoads⁵⁸.
- A weed management plan for the Mid West Option to minimise the spread of any weeds and pathogens be prepared forming part of the construction environmental management plan.

⁵⁵ Refer to Inquiry Report 19 January 2016 page 38

⁵⁶ Refer to Inquiry Report 19 January 2016 page 38

⁵⁷ Refer to Inquiry Report 19 January 2016 page 38

⁵⁸ Refer to the EES, August 2015, chapter 9.

- Specific mitigation measures to address potential impacts to frog populations on the floodplains and in the river channels and prevent the introduction of *Chytrid fungus* be included in the construction environmental management plan.
- A pre-construction survey for the Masked Owl is to be undertaken to the satisfaction of DELWP, to determine if the species is breeding in the study area.
- The Mid West Option's impacts on the Squirrel Glider species are considered minor and the potential impact on the local population would be acceptable provided measures are appropriately implemented to mitigate impacts associated with loss of habitat and LOTs, including crossing zones. The threatened species management plan to be prepared for the project needs to encompass the Squirrel Glider to address the viability of the local population in light of potential impacts – this Plan needs to be submitted to and endorsed by the Secretary of DELWP.
- The potential impacts on other listed fauna species, including aquatic fauna, are not expected to be significant and would be acceptable provided the mitigation measures specified in chapter 9 and Appendix O of the EES are implemented, along with the additional mitigation measure identified by DELWP to mitigate the impact of noisy works on aquatic fauna.
- The Mid West Option does not affect any threatened ecological communities listed on the FFG Act within Victoria.
- The mitigation measures outlined in chapter 9 and Appendix O of the EES for managing potential impacts on flora, fauna and native vegetation be implemented along with the additional mitigation measures identified by DELWP in its submission and in the consolidated list of mitigation measures included in Appendix E of the inquiry report.
- A management plan for the Victoria Park should be prepared by DELWP and the land manager, Campaspe Shire Council, with the assistance of VicRoads, to help protect its' biodiversity values and minimise any potential impacts associated with the Mid West Option.

4.5. Cultural heritage

Evaluation objective - To avoid or minimise adverse effects on Aboriginal and historic cultural heritage values.

Key issues

The key issue for this section is whether the Mid West Option would have a significant effect on Aboriginal and historic cultural heritage values, and if so, whether that is to be appropriately mitigated.

Discussion and findings

Aboriginal cultural heritage

The EES indicates that the Echuca-Moama region is rich in Aboriginal cultural heritage; a reflection of occupation by people for at least 30,000 years⁵⁹. Past surveys associated with the project have identified 59 Aboriginal cultural places. 54 of these places consist of scarred trees and five consist of shell middens⁶⁰.

The Mid West Option would impact a large sandhill of approximately 25 hectares, which extends from near the Campaspe River, across the former Echuca Secondary College site, to Reflection Bend on the Murray River⁶¹. The sandhill is considered to be an area of high Aboriginal cultural heritage sensitivity with potential to contain sub-surface Aboriginal cultural heritage values, including buried ancestral remains⁶².

⁵⁹ Refer EES August 2015 page 11-7

⁶⁰ Refer EES August 2015 page 11-7

⁶¹ Refer EES August 2015 page 11-6

⁶² Refer EES August 2015 page 11-10

VicRoads proposes to minimise the impact of the Mid West Option on the sandhill by constructing a rigid pavement, which evenly distributes the weight of the road structure, to reduce potential compression of the underlying sand deposits⁶³ and thus maintain the integrity of this cultural heritage place. This approach has been developed in consultation with the Registered Aboriginal Party (RAP). Some other works to the sandhill relating to access, vegetation, rubbish and topsoil removal would also be required.

Six previously recorded scarred trees were identified within the Mid West Option⁶⁴. Two scarred trees would be directly impacted, a third near the Murray River bridge would require lopping and the remaining three would be retained in the road reserve or Murray Valley Highway roundabout⁶⁵. The EES assessed five of the scarred trees as having high aesthetic, historical, scientific and social value and one as having moderate scientific value given that the scar was located on a stump, which was largely rotted out at the base⁶⁶.

Another three scarred trees were recorded during survey work along Warren Street near the Mid West Option but are not directly affected⁶⁷.

Two other Aboriginal cultural heritage places potentially impacted were also recorded during survey work near the locations of the proposed bridge piers on the north bank of the Campaspe River⁶⁸. One of the deposits of stone artefacts was assessed as having high cultural and scientific value because the place contained intact material remains of past Aboriginal campsites potentially dating to the early Holocene period⁶⁹, although contingency measures have been developed with the RAP to address this. The other deposit of stone artefacts was assessed as having low cultural and scientific value⁷⁰.

Land to the north and south of Warren Street, where families of the Yorta Yorta and Wemba Wemba people settled when they walked off the Cummeragunja in 1939, was also identified as having historic value⁷¹.

The EES also recognises that there is potential for other unknown places of Aboriginal cultural heritage to be discovered during construction, which could have a moderate impact or a significant impact if ancestral remains are discovered⁷².

The EES assessed the overall impact from the project as minor to moderate⁷³.

During the development of the EES, the Office of Aboriginal Affairs Victoria had highlighted the potential significance of impacts on Aboriginal cultural heritage and the importance of obtaining confirmation of whether or not they were acceptable and/or an impediment to proceeding. Prior to the inquiry hearing on 28 October 2015, a cultural heritage management plan (CHMP) for the Mid West Option was approved by the RAP, the Yorta Yorta Nation Aboriginal Corporation (YYNAC)⁷⁴. The CHMP includes the management and contingency recommendations for each potentially affected place from the EES technical report. The recommendations include cease work and contingencies to manage potential impacts on any unknown places of Aboriginal cultural heritage value, including buried ancestral remains.

Council's submission supports the preparation and approval of the CHMP as the appropriate process to address matters of significance to the local Aboriginal community in relation to the second river crossing⁷⁵.

⁶³ Refer EES August 2015 page 11-10

⁶⁴ Refer EES August 2015 Table 11-2

⁶⁵ Refer EES August 2015 page 11-9

⁶⁶ Refer EES August 2015 page 11-7

⁶⁷ Refer EES August 2015 page 11-8

⁶⁸ Refer EES August 2015 page 11-8

⁶⁹ Refer to Expert Witness Statement of David Rhodes page 25

⁷⁰ Refer to the approved cultural heritage management plan page 123

⁷¹ Refer to the approved cultural heritage management plan page 123

⁷² See EES August 2015 page 11-13

⁷³ See EES August 2015 page 11-13

⁷⁴ Refer to Expert Witness Statement of David Rhodes pages 19-20

⁷⁵ Refer to Campaspe Shire Council Submission page 29

The inquiry found that comprehensive consultation had occurred with the YYNAC in preparing the Aboriginal cultural heritage assessment and the CHMP for the Mid West Option. The inquiry concluded that the EES objective of 'avoid or minimise adverse effects on Aboriginal cultural heritage values' had been demonstrated for the Mid West Option⁷⁶.

Historic (post-settlement) cultural heritage

A total of 13 places of historic cultural heritage were identified either within or near the Mid West Option⁷⁷. No registered or listed places were recorded within the Mid West Option⁷⁸.

Three potential places of local significance are within the Mid West Option and may be directly impacted. Amendment C101 to the Campaspe Planning Scheme proposes to extend the Heritage Overlay relating to HO41 St Leonards Homestead and HO79 Murray Pines, which if approved, would encroach into the Mid West Option⁷⁹. The Mid West Option will not impact on the main dwelling, any other structures or vegetation affected by HO41⁸⁰. However, 13 of the 77 Murray Pines⁸¹ remaining on the sandhill will be impacted by the Mid West Option.

The inquiry concluded that the impact of the project on the historic cultural heritage values of the Murray Pines would be minor in the context of the locality and the number and extent of the pines within the area of the sandhill⁸².

Two of the three palm trees located near the entrance to the former Echuca Secondary College site are also impacted by the Mid West Option⁸³. During the preparation of the EES, Heritage Victoria suggested that the significance of the three Canary Island Date Palms be assessed. Heritage Victoria was of the view that the three palms had aesthetic and historical significance⁸⁴. The EES indicates that there is no evidence to suggest that the palm trees have heritage significance. Regardless, VicRoads proposes to minimise the impact by relocating the two palm trees to an alternative location in consultation with the Campaspe Shire Council⁸⁵.

In addition, two other places of local significance, HO68 Dwelling and the Echuca Cemetery, are located adjacent the Mid West Option. Only the gates at the Echuca Cemetery (HO43) are listed in the Schedule to Heritage Overlay. The EES recognises that the Echuca Cemetery, as a whole, has very high historical and social value⁸⁶. It concludes that there would be no indirect impacts to these places.

Conclusion for cultural heritage

Having regard to the EES, submissions and the inquiry report, **it is my assessment that:**

- The known effects on Aboriginal cultural heritage are moderate and of significance, although they are considered acceptable, provided the approved management and contingency recommendations are implemented to the satisfaction of the RAP, consistent with the approved CHMP.
- The known effects on historic cultural heritage are minor, of local significance and would be acceptable. Any potential effects on unknown places of historic cultural heritage can be adequately managed via the mitigation measures in the environmental management framework and construction environmental management plan.

⁷⁶ Refer to Inquiry Report 19 January 2016 page 45

⁷⁷ See EES August 2015 Table 12-2 and Figure 12-3 pages 12-7 to 12-9

⁷⁸ Refer to EES August 2015 page 12-11

⁷⁹ Refer to EES August 2015 page 12-11

⁸⁰ Refer to EES August 2015 page 12-11

⁸¹ Refer to EES August 2015 page 12-11

⁸² Refer to Inquiry Report 19 January 2016 page 47

⁸³ Refer to EES August 2015 page 12-12

⁸⁴ Refer to email from Heritage Victoria to DELWP dated 15 December 2014

⁸⁵ Refer to EES August 2015 page 12-12

⁸⁶ Refer to EES August 2015 page 12-12

4.6. Social and land use

Evaluation objective - To minimise adverse social and land use effects, including impacts on the existing uses of Crown land, to the extent practicable.

Key issues

The key issues for social and land use values are:

- Whether the Mid West Option is compatible with land use planning strategies and policy including the Campaspe Planning Scheme and other planning strategies.
- Whether the severance of land and displacement of land uses are acceptable.
- Whether the Mid West Option unreasonably impacts on existing active and passive recreational uses and other non-recreational activities or events in Victoria Park.

Discussion and findings

Planning policy

The inquiry acknowledged that there is undoubted strategic support⁸⁷ for the Mid West Option and cited the Loddon Mallee Growth Plan and the Campaspe Planning Scheme in particular.

At the State level, the Mid West Option would implement several objectives of planning in Victoria as outlined in section 4 of the P&E Act and supports a number of State Planning Policies in the Campaspe Planning Scheme as outlined in **Appendix 1**.

At the regional level, the Mid West Option is also consistent with the Loddon Mallee North Regional Growth Plan, which identifies the existing bridge as a key transport linkage and recognises that Echuca is an important industrial, community, health, recreational, transport and tourism hub for northern Victoria and southern NSW and is a significant tourist destination⁸⁸. The plan also acknowledges that cross-border communities rely on access to goods, services, education and employment on both sides of the river and that crossings are important for supporting the national freight network⁸⁹. The plan also notes that planning is underway for upgrades to Murray River crossings and construction of a new bridge at Echuca is the initial priority⁹⁰.

At the local level, Clause 21.04 of the Campaspe Planning Scheme identifies that the growth of Echuca-Moama will eventually lead to the need for an additional crossing of the Murray River to the north west of the town centre as an extension of the Murray Valley Highway. The investigation area is also noted on the Echuca Structure Plan.

I agree that the Mid West Option is consistent with State, regional and local planning policies.

Social and land use

Overall, the Mid West Option in both Victoria and NSW affects approximately 19ha of land of which almost 10ha is Crown land⁹¹. Given that a substantial amount of the Crown land is in Victoria, only a small amount of private land would be required for acquisition.

The Mid West Option would result in 27 Victorian properties (51 titles) being affected to varying degrees consisting of 15 freehold properties and 12 Crown land properties⁹². Only one of these 15 properties is a residential property, however acquisition would not affect the dwelling. Three properties are along the south side of Warren Street and the remaining 11 are along the north side of Warren Street near the

⁸⁷ Refer to Inquiry Report 19 January 2016 page 53

⁸⁸ Refer to Loddon Mallee North Regional Growth Plan, May 2014 page 39

⁸⁹ Refer to Loddon Mallee North Regional Growth Plan, May 2014 page 47

⁹⁰ Refer to Loddon Mallee North Regional Growth Plan, May 2014 page 47

⁹¹ Refer to EES August 2015 page 13-18

⁹² Refer to Planning and Land Use Impact Assessment Report Appendix B

proposed roundabout at the intersection with Payne Street. One of these properties contains a number of sheds, which would require demolition.

No opposing submissions regarding acquisition were made. I agree with the inquiry that this is unusual⁹³. Landowners would be compensated for any land acquisition in accordance with the requirements of the *Land Acquisition and Compensation Act 1986*.

Construction of the Mid West Option would also impact the car park associated with the Echuca boat ramp and require the removal of the existing public toilet block and six lawn tennis courts. VicRoads has made a commitment to reinstate the toilet block and tennis courts in appropriate locations. Council's submission agrees that the new tennis courts should be established for the Echuca Lawn Tennis Club prior to the decommissioning of the existing courts⁹⁴.

The EES anticipates short-term impacts on surrounding land uses, including Victoria Park, during construction works. In particular, construction activities may reduce the visual amenity and therefore the attractiveness of Victoria Park and the Murray River as a recreational and tourist destination. Other impacts include temporary road closures, increased truck movements on local roads, access alterations and increased noise, dust and vibration to local residents.

The Mid West Option would also result in the temporary relocation of construction workers to Echuca-Moama, which may generate additional demand for community services and facilities and further pressure on an already tight housing market (refer to section 4.10).

Once operational, the Mid West Option would provide an additional crossing for emergency services, ease congestion on the existing bridge and redirect traffic from the Echuca town centre. Several submissions raised concerns about existing congestion and long delays as a result of a single existing bridge.

The Mid West Option would also provide a new shared off-road pedestrian and cyclist path connecting to existing networks in Echuca and Moama. The EES concludes that the improved traffic safety, amenity and connectivity would have a moderately positive benefit to the community and visitors of the area.

The Mid West Option would result in access being provided for all properties and land uses but may be altered in some cases. Access to the residential properties along the north-west side of Warren Street would be accessed via a new two-way service road.

The Mid West Option would also increase the visibility of Victoria Park and provide a separation between the active and passive uses within Victoria Park. Access to Scenic Drive would be retained, which meanders around Victoria Park and forms part of the informal recreational network.

The inquiry commented that the separation, along with the need for relocation of the six tennis courts and the creation of connected cycling and pedestrian paths, creates an opportunity to prepare a long-term plan for Victoria Park⁹⁵. The inquiry found that it would be appropriate for the previous masterplan for Victoria Park to be reviewed and updated⁹⁶.

It is not expected that the Mid West Option would create significant land use change. However, there may be some pressure for new commercial land uses within the vicinity of the roundabout at the Murray Valley Highway and Warren Street and at the northern end of High Street⁹⁷ due to improved amenity and/or accessibility.

The EES predicts that increased traffic along Warren Street may potentially conflict with funeral corteges travelling to the Echuca Cemetery⁹⁸. VicRoads' proposes to include an extended right-turn lane into Homan Street to ensure that regular traffic flows remain undisrupted. The Echuca Cemetery Trust submission

⁹³ Refer to Inquiry Report 19 January 2016 page 53

⁹⁴ Refer to Campaspe Shire Council Submission 6 October 2015 page 28

⁹⁵ Refer to Inquiry Report 19 January 2016 page 53

⁹⁶ Refer to Inquiry Report 19 January 2016 page 53

⁹⁷ Refer to EES August 2015 page 19-10

⁹⁸ Refer to EES August 2015 page 14-19

supports the incorporation of the turning lane from Warren Street and states that safe public access to Homan Street and the cemetery remains a concern for the trust⁹⁹.

Visual amenity and noise impacts at sensitive receptors including the Echuca Holiday Park, Echuca Lawn Tennis Club and Victoria Park are discussed in sections 4.7 and 4.9 of this report.

The inquiry recognised that the communities of Echuca and Moama, whilst being separated by the Murray River and in two separate States, rely on long established relationships and the sharing of many services. As a result, the current crossing provides an important link for each of the communities¹⁰⁰. The importance of the link was also highlighted in the submission from Echuca Regional Health, which commented that the construction of a second river crossing will improve access to health care for a significant proportion of our clients and reduce frustrating and sometimes life threatening delays¹⁰¹.

Overall, the inquiry agreed that the mitigation measures identified in the EES would achieve an acceptable social and land use outcome for the project¹⁰².

Infrastructure

Construction of the Mid West Option would create short-term impacts on utility services including drainage channels, sewerage pipelines, a gas distribution main, overhead powerlines and poles and telecommunication lines. Most of these infrastructure assets are located near the proposed roundabout at the intersection of the Murray Valley Highway with Warren Street¹⁰³. Disruption to these services would be temporary. These short-term impacts are considered minor and can be appropriately managed through the implementation of the construction environmental management plan (CEMP).

Conclusion for social and land use

Having regard to the EES, submissions and the inquiry report, **it is my assessment that:**

- The Mid West Option is consistent with land use planning strategies and policy, including the Campaspe Planning Scheme and other planning strategies.
- The social and land use impacts are generally minor and of local significance and would be acceptable, provided the relevant mitigation measures are implemented via the environmental management framework and CEMP(s) – i.e. as outlined in chapters 13 and 14 and Appendix O of EES and the consolidated list of mitigation measures included in Appendix E of the inquiry report.
- The Mid West Option would sever land, in particular Victoria Park, and would create a separation between the active and passive uses within Victoria Park, although this is not likely to cause detrimental impact.
- The Mid West Option would also displace six tennis courts and the toilet facilities near the boat ramp. However, impacts on existing active and passive recreational uses and other activities and events in Victoria Park are considered to be of local significance and would be acceptable subject to appropriate mitigation measures being implemented, including the prompt replacement of recreational facilities.
- VicRoads should provide funding to support the Campaspe Shire Council's review and revision of the Victoria Park Masterplan to guide the existing and future use and development of recreational facilities and associated works in the Park, in the context of the changes will stem from the new bridge being constructed through it.

⁹⁹ Refer to Echuca Cemetery Trust Submission no date

¹⁰⁰ Refer to Inquiry Report 19 January 2016 page 55

¹⁰¹ Refer to Echuca Regional Health Submission dated 25 September 2015

¹⁰² Refer to Inquiry Report 19 January 2016 page 56

¹⁰³ Refer to EES August 2015 page 13-11

4.7. Landscape and visual amenity

Evaluation objective - To minimise adverse effects on landscape values, including the Murray and Campaspe Rivers and floodplains, and on residents' visual amenity, to the extent practicable.

Key issues

The key issues for landscape and visual amenity are:

- Whether the potential effects on the landscape values of the Murray and Campaspe Rivers, associated floodplains and Victoria Park are significant.
- Whether the potential effects on visual amenity from recreational uses and from nearby residences and the Echuca Holiday Park are significant.
- Whether potential effects on landscape values and visual amenity are acceptable following mitigation measures.

Discussion and findings

The EES provides an assessment of the landscape and visual effects of the Mid West Option based on a conceptual design and an analysis of landscape character types, the size and magnitude of the change and the sensitivity of the existing landscape to visual change. Six landscape character types were identified within the Mid West Option in Victoria and the sensitivity of each to change was rated from high to low¹⁰⁴. The river floodplain and Murray River landscape character types were determined to have a high sensitivity to change¹⁰⁵.

In addition, a separate rating scale was applied to determine the significance of the landscape and visual effects from high to negligible¹⁰⁶.

Key views of high importance within the study area include the views from the boat ramp and picnic area towards activity on the Murray River and trees and vegetated banks on the NSW side of the river, as well as the views from houseboats and paddle steamers towards the trees and vegetation banks of the Murray River¹⁰⁷.

The EES identifies that the visual impacts of the Mid West Option for residences along Warren Street and Crofton Street would be low and low-moderate respectively, subject to minimising and replanting vegetation¹⁰⁸. However, visual impacts from the active recreational facilities, in particular the tennis courts and the Echuca Holiday Park, which would be affected by a 1.5 to 2 metre high noise wall, would be moderate even with mitigation measures in place (i.e. replanting vegetation and ensuring the noise wall design and materials are agreeable with the existing environment¹⁰⁹).

The EES concludes that the Mid West Option would have moderate-high landscape impacts and high visual impacts on the scenic amenity and landscape values of the Murray River. It also concludes that there will be low to moderate-high impacts on visual amenity and key views of the river floodplains and low to high landscape impacts and moderate-high visual impacts in relation to recreational values of Victoria Park¹¹⁰.

Mitigation measures to reduce the impacts include designing the bridge structures to be simple and elegant structures that make a positive visual contribution to the environment, minimising vegetation removal, screen planting wherever possible and reinstating existing shared paths, shade and shelter¹¹¹. Other more

¹⁰⁴ Refer to EES August 2015 Table 15-4 page 15-13

¹⁰⁵ Refer to EES August 2015 Table 15-4 page 15-13

¹⁰⁶ Refer to EES August 2015 Table 15-8 pages 15-16 to 15-17

¹⁰⁷ Refer to EES August 2015 page 15-8 and Figure 15-2 page 15-9

¹⁰⁸ Refer to EES August 2015 Table 15-8 page 15-17

¹⁰⁹ Refer to EES August 2015 Table 15-8 page 15-17

¹¹⁰ Refer to EES August 2015 Table 15-8 pages 15-16-15-20

¹¹¹ Refer to EES August 2015 page 15-24

specific design commitments were provided to the inquiry, which included designing noise walls and retaining structures sympathetically with the setting and surrounds¹¹².

The EES concludes that the overall impact of the Mid West Option on landscape and visual values is considered moderate¹¹³. However, the EES also notes that the visual impact of the Mid West Option during construction of the bridges over the Murray River would be high and then reduce to a moderate-high impact after ten years with the mitigation measures well established.

Council's submission recognises that it is practically impossible to introduce a new road and elevated bridges, such as those proposed by this project, without impact on the landscape values¹¹⁴. The inquiry also noted that whilst there will be negative visual impacts as a result of the project, the bridge infrastructure provides the opportunity to view areas of Victoria Park and the surrounding environs, which are not currently available¹¹⁵. The inquiry supported the proposed mitigation measures, in particular the design of bridges with clear spans across the Murray and Campaspe Rivers¹¹⁶.

I acknowledge that it will be difficult to mitigate the potential landscape and visual impacts of the Mid West Option, particularly where it passes through the Victoria Park bushland, across the Murray River and the floodplain, with its high scenic qualities and high sensitivity to change. I consider that a high quality design outcome for the Mid West Option will be important to help ensure that potential landscape and visual impacts are minimised to acceptable levels in this sensitive location. As set out below, this will need to be addressed via early prioritisation of design quality together with independent review.

Conclusion for landscape and visual amenity

Having regard to the EES, submissions and the inquiry report, **it is my assessment that:**

- The Mid West Option would have a moderate effect on the landscape values of the Campaspe River and Victoria Park and even more significant effect on the landscape values of the Murray River. However, this is likely to be acceptable with a high quality design outcome being implemented.
- In order to achieve such an outcome, design quality should be prioritised early in the design and procurement processes, such that a high quality design outcome is a key objective of these processes, and a clearly articulated design vision for the Mid West Option is encompassed within the project design brief, including specific design expectations or requirements.
- Independent design advice and review is required at key milestones and should be built into the implementation of the project. This should include a review by the Victorian Design Review Panel (VDRP), managed by the Office of the Victorian Government Architect or a Design Quality Team that draws on expertise from both the VDRP and the NSW Government Architect's Office.
- Following completion of independent design review, VicRoads must finalise and submit for approval, plans showing the detailed design of the Mid West Option in Victoria, including the design of bridge approaches and structures, noise walls and retaining structures, a materials and finishes schedule and landscaping (as set out within a condition under the incorporated document).
- The potential visual impacts of the Mid West Option from recreational uses and nearby residences vary between low and low-moderate and moderate within the vicinity of the Echuca Lawn Tennis Club and the Echuca Holiday Park. These impacts would be acceptable provided the mitigation measures in chapter 15 of the EES and the consolidated list of mitigation measures outlined in Appendix E of the inquiry report are incorporated into the design of the Mid West Option. In addition, VicRoads should consider extending the noise wall or providing some other form of screening for the Echuca Lawn Tennis Club site, that mitigates the visual and amenity impacts.

¹¹² Refer to Inquiry Report 19 January 2016 Appendix E

¹¹³ Refer to EES August 2015 page 15-24

¹¹⁴ Refer to Campaspe Shire Council Submission 6 October 2015 page 18

¹¹⁵ Refer to Inquiry Report 19 January 2016 page 59

¹¹⁶ Refer to Inquiry Report 19 January 2016 page 59

4.8. Catchment values

Evaluation objective - To maintain floodplain functions, hydrology, and other protected beneficial uses of surface and groundwater, as well as geomorphic stability of proximate sections of the lower Campaspe and Murray Rivers.

Key issues

The key issues in relation to water and catchment values are:

- Whether construction of the Mid West Option would have effects on the protected beneficial uses values of surface and groundwater, as well as geomorphic stability of the Campaspe and Murray Rivers.
- Whether the construction and operation of the Mid West Option would give rise to effects/ changes to the existing hydrological conditions, and potentially affect landowners and the towns of Echuca and Moama.

Discussion and findings

Soils and geology

The EES identifies that the geomorphology of the study area is defined by wide, flat floodplains and deep river channels that have been formed by the floods of the Murray and Campaspe Rivers¹¹⁷. As a result, 350,000m³ of imported fill material¹¹⁸ would be required for the construction of the Mid West Option. Fill material would be sourced from VicRoads accredited quarries and borrow pits and would need to meet appropriate specification standards, i.e. no contamination or inert material.

No potential areas of contaminated land were identified within the MW project area. The EES also considered the likelihood of encountering acid sulphate soils as very low and that saline soils and groundwater would be unlikely to be encountered given the low volumes of material to be excavated.

The erosive capacity of the soils in the study area is variable¹¹⁹. Site inspections undertaken during the preparation of the EES confirmed soil instability and erosion near the banks of the Murray and Campaspe Rivers. The EES also highlights the potential for erosion and compaction on the sandhill. VicRoads proposes to design the road pavement so the load of the road is evenly distributed on the sandhill to minimise these impacts¹²⁰.

Other potential effects outlined in the EES include the settlement of soft and compressible soils, which can damage structures and uncontained spills and leaks that could lead to soil and groundwater contamination.

VicRoads proposes to undertake pre-construction geotechnical investigations to further examine the potential for soil stability and erosion issues. The assessment would also include soil contamination testing to identify any contaminated soils and the identification of areas vulnerable to settlement.

The inquiry agreed with the EES findings that there were no major impediments to the construction and long-term maintenance of the Mid West Option provided proposed mitigation measures are implemented to minimise residual impacts on the environment¹²¹.

¹¹⁷ Refer to EES August 2015 page 17-6

¹¹⁸ Refer to EES August 2015 page 17-7

¹¹⁹ Refer to EES August 2015 page 17-7

¹²⁰ Refer to EES August 2015 page 17-8

¹²¹ Refer to Inquiry Report 19 January 2016 page 69

Surface water

The Mid West Option crosses two significant waterways, namely the Murray and Campaspe Rivers, and their associated floodplains. Both waterways would be crossed once. No realignments of these waterways are proposed.

The EES outlines that the potential effects on river health would include disturbance of the riverbanks, the removal of riparian vegetation, as well as sediment runoff that may affect water quality. Cofferdams would be constructed at pier locations in the Murray River, which may cause destabilisation of the riverbanks during construction. The EES identifies this potential effect as a medium risk¹²². Bridge piers at the Campaspe River would be located clear of the riverbanks and the EES considers the impacts to riverbank stability as minor.

Mitigation measures identified in the EES include implementing VicRoads' 'standard measures', as well as the preparation of a Construction Environmental Management Plan (CEMP), which would be developed in conjunction with the NCCMA. The NCCMA has advised that it will need to endorse VicRoads detailed design of the works, in relation to works on waterways (in Victoria), under the *Water Act 1989*, as well as ensure VicRoads has applied the NCCMA's standard conditions.

The EES also concludes that the impacts on surface water values, which include irrigation, domestic, industrial and stock water supply, recreation and leisure and habitat, are expected to be minor. In particular, the EES notes that VicRoads proposes to minimise the number and duration of temporary closures of the Murray River.

Floodplain functions

The Murray River system is highly regulated and the large catchment area results in long warning times for flooding and a slow increase in peak floods¹²³. The Murray River floodplain at Echuca is approximately 1km wide¹²⁴. The most recent flood at Echuca was in January 2011 when the flood level peaked at 92.85m AHD¹²⁵ at the Echuca Wharf gauging station, which was considered below the minor flood risk¹²⁶. Flood levels at Echuca depend on inflows from other waterways, including the Campaspe River and the Goulburn River.

A key area of concern is whether the construction and operation of the Mid West Option would potentially alter the hydrological conditions, which would impact on nearby residences and the towns of Echuca and Moama. The hydrological conditions at Echuca-Moama are complex and depend on the interactions of both the Murray River and Campaspe River systems and their floodplains¹²⁷.

The EES states that during construction of the Mid West Option the construction contractor would be required to monitor weather and remove any equipment and blockages from the floodplains to the maximum extent possible prior to a flood event. The EES concludes that the impact of construction on the flood behaviour of the floodplains would be minor and the risk negligible¹²⁸.

The Murray Darling Basin Authority (MDBA) submission expressed concern about the initial risk rating for floodplain impacts during construction being assessed as negligible. Further discussion with the NCCMA confirms that the likelihood of a flood would be rare and the consequence would be minor, which would translate to a negligible risk rating as per table 5-4 in chapter 5 of the EES. The consequence of a flood would only be minor if the new link road across the floodplain was progressively constructed in relatively small sections, fill compacted and culverts installed and provided that stockpiling of material on the

¹²² Refer to EES August 2015 page 16-11

¹²³ Refer to EES August 2015 page 16-5

¹²⁴ Refer to EES August 2015 page 16-5

¹²⁵ The flood warning level includes minor at 93.50m AHD

¹²⁶ Refer EES August 2015 page 16-5

¹²⁷ Refer EES August 2015 page 16-5

¹²⁸ Refer to EES August 2015 page 16-11

floodplain was limited. The preparation of an emergency management plan as part of the CEMP to manage the rare likelihood of a flood would also be important.

Flood modelling prepared for the Mid West Option was based on hydrological information from the SKM Echuca Moama Flood Study (1997), which analysed over a 100 years data from 1865-1996. Three scenarios were modelled representing the worst case peak flood levels experienced by the rivers at Echuca-Moama. Each scenario was modelled for three different Average Recurrence Intervals (ARI), being the 1 in 20 year ARI, 1 in 50 year ARI and 1 in 100 year ARI. A key finding of the modelling was that Warren Street is an important hydraulic control in the Campaspe River floodplain, which under existing conditions overtops in the 1 in 20 year ARI event.

Potential benefits of the Mid West Option include the provision of a second flood evacuation route above the 1 in 100 year ARI, increased flood protection for Warren Street with the upgrade of culverts (or bridge structures) to manage more frequent floods more effectively and the raising of a section of Warren Street from the new roundabout to the Campaspe River above the 1 in 100 year ARI event¹²⁹.

The Mid West Option would result in a new link road through the floodplains, new bridge structures and an increase in the height of a section of Warren Street, which would potentially alter the flood conditions at Echuca-Moama without mitigation measures in place.

The modelling indicates that during a 1 in 100 year ARI event, the Mid West Option would maintain peak flood levels within increases and/or decreases of 2.5 cms¹³⁰ from existing levels across the floodplains with some increases near the proposed roundabout on Warren Street. The hydrology assessment prepared for the EES states that the maximum increase in peak flood levels in this area is less than 5 cms and the increases extend approximately 300 metres from the raised road section of Warren Street. Two properties in this area are predicted to experience an increase in flood levels of 3.2 cms and 2.8 cms respectively. The EES states that at this point, the existing flood depths exceed one metre and the increases are not expected to significantly change the already severely impacted properties¹³¹.

Mitigation measures include bridge spans across the Campaspe and Murray Rivers to allow the flow of flood waters up to the 100 year ARI event plus a freeboard of at least 1 metre, the upgrading of culverts (or bridge structures) in Warren Street and the use of coffer dams during construction and spill basins during operation to control sediment, capture runoff and protect water quality in the rivers.

Overall, the EES concludes that the Mid West Option would not significantly alter the flood behaviour across the floodplains and that impacts are expected to be minor subject to mitigation so existing flood levels are not exceeded¹³².

The MDBA commented to the inquiry that given the inherent uncertainty in hydraulic and hydrologic modelling some sensitivity assessment and examination of floods rarer than 100 year ARI would be prudent. VicRoads' expert witness statement on hydrology responds to this issue, by providing further information in relation to the difference between the 100-year ARI flood levels and the 200-year ARI flood levels for the Murray River, but not the Campaspe River.

The MDBA also stated that the hydrological assessment was based around the SKM 1997 study and that there had been significant advancements in the assessment of hydrological risk since that time. It also noted that there had been significant flood events since 1997 including in 1998 and the most recent floods in 2010-2011, which may change the assessment of flood risk. In response, VicRoads' expert witness stated that the 1997 report analysed over 100 years of information on the Murray River, including any significant previous historical flood events, and considered the data from an individual flood event unlikely to alter the expected 100-year ARI flows.

¹²⁹ Refer to EES August 2015 page 16-11

¹³⁰ Refer to Echuca-Moama Bridge EES Specialist Hydrology Report, July 2015 page 25

¹³¹ Refer to EES August 2015 page 16-12

¹³² Refer to EES August 2015 page 16-12

The inquiry accepted the evidence provided by VicRoads' expert witness, including that the flood modelling undertaken for the EES, was to the satisfaction of the floodplain manager, the NCCMA.

The NCCMA has indicated that there is some residual uncertainty in relation to the hydrological assessment for the Mid West Option, which requires a precautionary approach to be adopted via further review of the flood frequency analysis post 1997. This should be undertaken to ensure the hydrological assessment was indeed robust and reliable for the prediction of likely hydrological effects.

The MDBA also raised some concerns regarding potential impact on the gauging station at Echuca Wharf. However, the proponent's expert witness was adamant the impacts on any upstream gauging stations would be negligible. The Inquiry did not make any specific finding regarding this matter. While consultation with NCCMA confirms this is not likely to be of any significance, it recommends that the NSW branch of the Bureau of Meteorology be contacted to confirm that this increase does not impact on the provision of flood prediction services to Echuca.

Groundwater

The EES states that groundwater most likely to be of concern to the Mid West Option would be contained in the Shepparton and Coonambidgal formations, two of the four known aquifers within the study area which are shallow aquifers¹³³. Given that most of the Mid West Option would be constructed on fill material, the EES does not anticipate that groundwater would be impacted due to excavation. However, bridge piers would be deep enough to interact with groundwater. Potential impacts on the quality of groundwater are expected to be minor and VicRoads standard measures would prevent land subsidence and groundwater from being discharged into the rivers.

The EES concludes that impacts from the construction and operation of the Mid West Option on groundwater would be minor¹³⁴.

Conclusion for catchment values

Having regard to the EES, submissions and the inquiry report, **it is my assessment that:**

- The potential effects on soils and geology from the Mid West Option are unlikely to be significant and can be appropriately managed via detailed design and the preparation and implementation of a CEMP(s).
- The potential effects on surface water environments are also unlikely to be significant and would be acceptable provided careful attention is given to minimising the impacts associated with the coffer dams and riverbank disturbance on the Murray River. Specific mitigation measures should be developed in consultation with relevant agencies and be implemented through the EMF and CEMP.
- The potential effects on hydrological conditions from the Mid West Option are unlikely to be significant and can be appropriately managed via detailed design and the preparation and implementation of mitigation in consultation with NCCMA.
- However, in order to ensure the hydrological assessment undertaken for the Mid West Option is a sufficiently reliable basis for the prediction of hydrological impacts, VicRoads is to prepare a report to the satisfaction of the NCCMA, which provides:
 - An updated flood frequency analysis for the Murray and Campaspe Rivers at Echuca (including post 1997 floods); and
 - A commentary on the changes in flow rates and flood levels.
- Potential impact on upstream gauging stations are likely to be negligible. However, it is recommended that VicRoads contact the NSW branch of the Bureau of Meteorology to confirm that the provision of flood prediction services to Echuca is not affected.

¹³³ Refer to EES August 2015 page 16-13

¹³⁴ Refer to EES August 2015 page 16-13

- The potential effects on groundwater from the Mid West Option would be minor and can be appropriately managed via the preparation and implementation of a CEMP.

4.9. Noise and air quality

Evaluation objective - To minimise adverse noise and air quality effects to the extent practicable.

Key issues

The key noise and air quality issues associated with the construction and operation of the Mid West Option are:

- Whether the construction and/or operation of the Mid West Option would significantly affect noise levels at sensitive receptors, such as residences, recreational facilities and parkland areas.
- Whether potential noise levels can be mitigated or managed during the construction and/or operation of the project.
- Whether dust emissions during construction of the Mid West Option can be managed to an acceptable level.

Discussion and findings

Noise

The EES recognises that construction of the Mid West Option would have temporary adverse noise impacts for some sensitive receptors¹³⁵ and users of Victoria Park. The noisiest activities are expected to be vegetation removal and corridor clearing and piling activities associated with the construction of the bridge piers. The EES also anticipates that vibration impacts associated with construction would be moderate even with mitigation measures in place¹³⁶. Construction equipment like pile drivers could cause significant vibration.

VicRoads proposes to manage potential construction noise impacts by including standard measures and monitoring requirements in the CEMP. Such measures would include restricting working hours, fitting and maintaining construction vehicles and equipment with silencing kits, enclosing noisy equipment and scheduling noisy work and noise monitoring near sensitive receptors. A noise assessment of potentially occupied buildings and land exceeding 'hearing damage' thresholds would also be prepared as part of the CEMP.

In addition, VicRoads proposes to undertake an assessment of potential vibration impacts to buildings within 100 metres of any works and to set thresholds and implement strategies to meet the thresholds.

Once operating, the EES concludes that 44 sensitive receptors adjacent to the Mid West Option would experience a perceptible increase in noise levels during operation¹³⁷. The EES notes that the assessment only analysed sensitive receptors closest to the Mid West Option rather than all of the receptors within the study area. Of the 44 sensitive receptors 39 would experience an increase rated as 'twice as loud' [between 11-12dB(A)] or 'much louder' [greater than 12dB(A)]¹³⁸. The main areas of concern would be residential properties in Crofton Street and within the Echuca Holiday Park.

Similarly, predicted noise levels at the Echuca Lawn Tennis Club and within Victoria Park are expected to be 'much louder' and 'twice as loud'¹³⁹. The EES indicates that noise levels at the Echuca Lawn Tennis Club would increase from 42dB(A) to 67dB(A) without mitigation measures and to 62dB(A) with mitigation

¹³⁵ Refer to EES August 2015 page 18-17

¹³⁶ Refer to EES August 2015 page 18-19

¹³⁷ Refer to EES August 2015 Table 18-11 page 18-20

¹³⁸ Refer to EES August 2015 Table 18-10 page 18-19

¹³⁹ Refer to EES August 2015 page 18-20

measures, which is a significant increase¹⁴⁰. Within Victoria Park, noise levels would increase slightly less, from 42dB(A) to 55dB(A) without mitigation measures and to 53dB(A) with mitigation measures.

In order to mitigate noise impacts, VicRoads proposes to install a 1.5 metre high noise wall on the east side of the Mid West Option for approximately 525 metres adjacent to Crofton Street, a 2 metre high noise wall on the east side of the Mid West Option for approximately 620 metres adjacent to the Echuca Holiday Park¹⁴¹ and stone mastic asphalt on the Mid West Option from south of the Campaspe River to the Murray River for 1.7kms¹⁴².

Council's submission requests that mitigating measures for noise impacts be implemented in full and as soon as practical in the construction period¹⁴³. The inquiry found that the mitigation measures outlined above are acceptable and agreed with council that mitigation measures should be incorporated into the project at an early stage.

VicRoads does not apply its Traffic Noise Reduction Policy (2005) to recreational facilities or larger areas of passive use¹⁴⁴, although the significant increase in traffic noise predicted at the Echuca Lawn Tennis Club is cause for VicRoads to consider extending the Crofton Street noise wall. The EES only proposed to partially extend the noise wall across the Echuca Lawn Tennis Club site. If the Crofton Street noise wall was extended to remove the gap between it and the second wall, the noise levels are predicted to reduce to 59dB(A). An extended noise wall would also provide additional screening for the club from the visual impact of the Mid West Option and passing traffic.

Air quality

The EES indicates that air quality effects during construction would include dust and emissions generated from the use and movement of machinery and vehicles. Eleven sensitive receptors are located in close proximity to the Mid West Option between 5 to 60 metres from the edge of the nearest trafficable lane¹⁴⁵. Given that adverse weather conditions during construction could generate dust dispersal of up to several hundred metres away, there is potential for many more sensitive receptors to be affected by dust emissions during construction. Appropriate dust management is therefore essential for this road construction project.

VicRoads proposes to manage air quality impacts by including standard measures and monitoring requirements in the CEMP. Such measures would include watering roads and dust sources, minimising the size and number of stockpiles and progressively stabilising completed areas. Dust deposition and dust directional monitoring stations would be located where construction was likely to have the greatest impact on sensitive receptors or create a nuisance to the community.¹⁴⁶

The EES also notes that air emissions during operation are likely to be insignificant¹⁴⁷ and would easily meet the State Environment Protection Policy (Air Quality Management) goals and objectives for air quality.

The inquiry noted VicRoads' commitment to monitoring air quality throughout construction and supported this approach.

Conclusion for noise and air quality

Having regard to the EES, submissions and the inquiry report, **it is my assessment that:**

- Predicted noise levels at residential properties in Crofton Street and within the Echuca Holiday Park are moderate and locally significant, although the impacts should be acceptable subject to the

¹⁴⁰ Refer to EES August 2015 Table 18-12 page 18-20

¹⁴¹ VicRoads has advised that the gap or distance between the two noise walls proposed in the EES is approximately 75 metres

¹⁴² Refer to EES August 2015 page 18-20

¹⁴³ Refer to Campaspe Shire Council Submission 6 October 2015 page 28

¹⁴⁴ Refer to EES August 2015 page 18-20

¹⁴⁵ Refer to EES August 2015 page 18-7

¹⁴⁶ Refer to EES August 2015 page 18-8

¹⁴⁷ Refer to EES August 2015 Table 5-3 page 5-11

implementation of proposed mitigation measures outlined in chapter 18 of the EES (via the environmental management framework and CEMP).

- Noise impacts at the Echuca Lawn Tennis Club are also moderate and locally significant, even with partial mitigation measures in place. In particular, the predicted increase of 20dB(A) in noise levels at the Echuca Lawn Tennis Club is significant, and therefore VicRoads should consider extending the Crofton Street noise wall to mitigate this impact.
- Air quality effects, in particular dust, can be satisfactorily managed via standard procedures and monitoring to be included in the environmental management framework and CEMP.

4.10. Economic

Evaluation objective - To provide road infrastructure that fosters a viable level of economic performance for the local and regional economy of Echuca-Moama.

Key issues

The key economic issues associated with the Mid West Option are:

- Whether the Mid West Option would have overall economic benefits for Echuca-Moama and the wider region.
- Whether any negative impacts during construction and operation of the Mid West Option can be managed to an acceptable level.

Discussion and findings

The EES estimates that during construction, the Mid West Option would generate significant employment opportunities requiring 4,240 fulltime equivalent (FTE) jobs over the three year construction period (1,630 direct FTE jobs and 2,610 indirect FTE jobs)¹⁴⁸. This level of employment is expected to inject an estimated additional \$6.1 million per annum into the local and regional economy. Spending would include accommodation, retail, recreational and personal and medical services.

Construction of the Mid West Option is also expected to provide opportunities for training and upskilling of the local workforce including new apprenticeships and potentially permanent relocation of non-local workers and their families to Echuca-Moama¹⁴⁹. In addition, it is envisaged that construction of the Mid West Option could provide opportunities for local businesses to act as subcontractors, which could stimulate local business growth¹⁵⁰.

The adverse economic effects during construction would include business disruption due to the movement of construction-related vehicles causing congestion in Echuca, including across the existing bridge and impacts to the Echuca Holiday Park. The EES highlights that the Echuca Holiday Park would be directly affected due to its close proximity to the proposed works. Construction is likely to result in noise and visual amenity impacts that could lead to a loss of patronage and revenue. No estimate of revenue loss was provided.

The EES also recognises the potential for disruption to river-based activities (paddle-steamer and houseboat operators). Paddle-steamers generate up to 50 trips each way every day along the Murray River during peak holiday season¹⁵¹. There is also potential for events like the Southern 80 Ski Race to be

¹⁴⁸ Refer to EES August 2015 page 19-9

¹⁴⁹ Refer to EES August 2015 page 19-9

¹⁵⁰ Refer to EES August 2015 page 19-9

¹⁵¹ Refer to EES August 2015 page 19-10

disrupted, which attracts approximately 90,000 visitors and competitors and generates approximately \$10 million to the regional economy¹⁵².

The EES concludes that Echuca-Moama and the broader region would have sufficient labour force capacity for construction to avoid detrimental flow-on effects to the economy. It is also recognised that Echuca-Moama has a significant commercial accommodation sector that could cater for construction workers. However, if workers moving into the region were to occupy rental properties then further pressure would be placed on an already tight rental market. Demand may also lead to rental inflation and the displacement of local residents¹⁵³.

The Mid West Option would also have additional operational benefits for agricultural, industry, tourism and retail/commercial businesses, including improved connections across the Murray River during peak periods. The Mid West Option would remove the restrictions on the movement and size of over-dimensional loads, allow access across the Murray River 24 hours a day, reduce travel cost and time and improve amenity and safety within the Echuca town centre and historic Port of Echuca area. Loss of trade for businesses as a result of the Mid West Option is expected to be unlikely except for the Echuca Holiday Park. The EES indicates that visual and noise impacts associated with the operation of the Mid West Option may result in some degree of financial loss.

In addition to the standard mitigation measures, VicRoads proposes to minimise the number, extent and duration of river closures during construction in consultation with river-based businesses. It will also suspend construction in the vicinity of the Southern 80 Ski Race over the two week period for set-up, staging and decommissioning of the event, as well as encourage discussion between contractor/s and the councils regarding suitable options for accommodation of construction workers¹⁵⁴.

Council's submission requests that all recommendations within the specialist studies relating to impacts on the Echuca Holiday Park be implemented to mitigate negative impacts on the business and consequently council, the community and its customers¹⁵⁵.

The inquiry highlighted the significant positive impacts associated with the project and the potential negative impacts to the Echuca Holiday Park but agreed that mitigation measures would reduce the impacts to acceptable levels.

Conclusion for economic

Having regard to the EES, submissions and the inquiry report, **it is my assessment that:**

- The Mid West Option would have overall economic benefits for Echuca-Moama and the wider region.
- Potential negative economic effects associated with the Mid West Option are unlikely to be greater than of local significance and considered acceptable, provided the mitigation measures outlined in chapter 19 and in the consolidated list of mitigation measures in Appendix E of the inquiry report are implemented.
- VicRoads works with the Campaspe Shire Council to develop an accommodation strategy, which encourages construction workers to be housed in available commercial or private accommodation, to reduce potential impacts on the availability of rental accommodation in the area.
- VicRoads consult with the Echuca Holiday Park, to confirm the need for any mitigation against potential impacts associated with any loss of patronage and/or revenue.

¹⁵² Refer to EES August 2015 page 19-11

¹⁵³ Refer to EES August 2015 page 19-11

¹⁵⁴ Refer to EES August 2015 page 19-12

¹⁵⁵ Refer to Campaspe Shire Council Submission 6 October 2015 page 29

4.11. Environmental management framework

Evaluation objective - To provide a transparent framework with clear accountabilities for managing environmental effects and hazards associated with construction and operation phases for the project, in order to achieve acceptable environmental outcomes.

Key issues

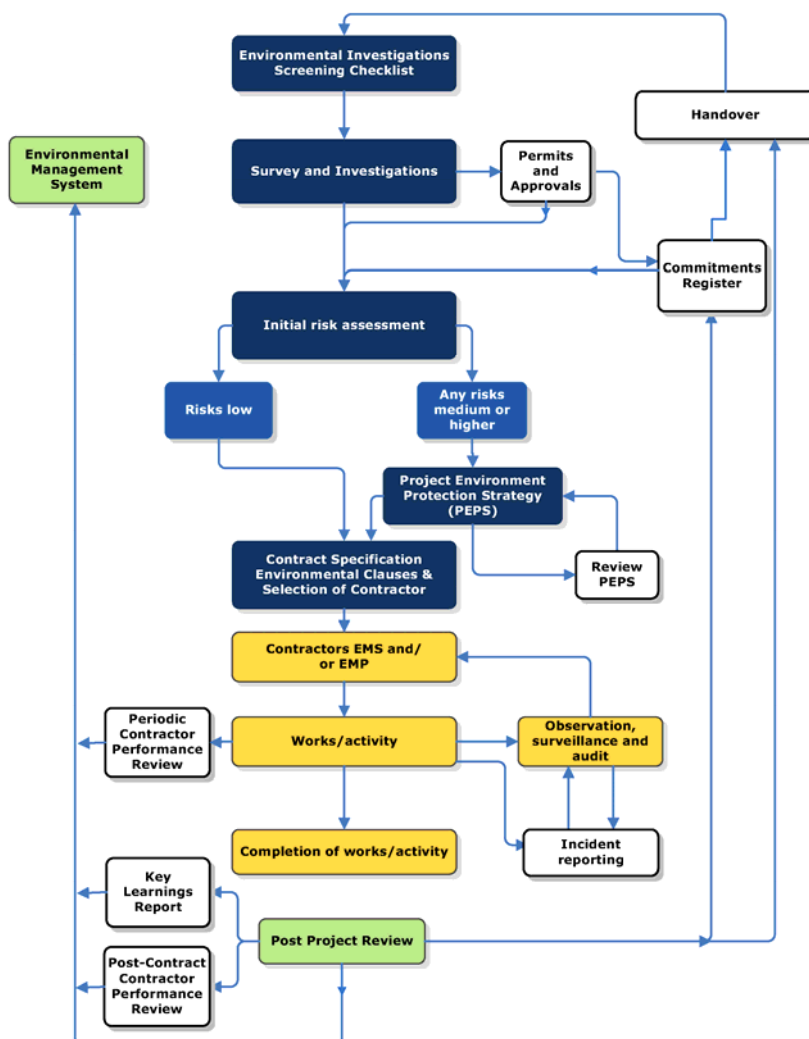
The key issue for this section is whether the potential environmental effects and hazards associated with the construction and operation phases of the Mid West Option can be managed to meet statutory requirements and achieve acceptable environmental outcomes.

Discussion and findings

The EES includes a preliminary environmental management framework (EMF), which provides the overall approach for the management of environmental effects associated with the design, construction and operation of the Mid West Option. The intention of the framework is to capture the mitigation and management measures identified in the EES and to ensure the measures are incorporated into project decisions and approvals.

The Mid West Option would be delivered in accordance with VicRoads' environmental management system (EMS) and Environmental Risk Management Guideline. The guideline has been developed to assist with the implementation of VicRoads' EMS for construction and maintenance of projects. The diagram below outlines the process and key features of VicRoads' EMS.

Figure 3: VicRoads' Environmental Management System



The EES and EMF form part of the 'Survey and Investigations' and the 'Initial Risk Assessment' steps of the process. The process includes the preparation of a VicRoads Project Environment Protection Strategy (PEPS), which is a VicRoads document used to track implementation of overall environmental commitments and approval conditions. The PEPS would include a risk register and a 'project commitments' register developed during the 'Initial Risk Assessment' step.

The 'Contract Specifications' step would require the preparation of the contract/s, which would include VicRoads standard contract specifications, which were included in Appendix O of the EES. Roads and Maritime Services guidelines would also be adopted where more stringent, or if they contained additional requirements.

Once a contractor/s has been selected, a condition of the contract would require the preparation of site-specific CEMP(s) and other issue specific management plans (e.g. a weed management plan) to manage construction of the Mid West Option. The CEMP would include mitigation and management measures identified in the EES and in approvals (and therefore PEPS), relevant management processes and responsibilities, legal requirements, training, emergency responses, incident management and monitoring, auditing and reporting requirements.

Tables 20-4 to 20-22 in the EES outline the objectives, indicators, risks, environmental measures and responsibilities for each environmental aspect of the project that would be implemented for the Mid West Option.

Council's submission requests that all of the consultants' recommendations contained within the specialist studies be incorporated into the approvals, planning, detailed design and implementation of works, and in particular those recommendations that relate to noise mitigation, visual design, hydrology and cultural heritage¹⁵⁶.

The inquiry sought clarification from VicRoads regarding whether an EMF or CEMP was required to be submitted to the Minister for Planning for approval noting that a proposed EMF has been included within the EES with a high level set of environmental principles¹⁵⁷. Counsel on behalf of VicRoads suggested that the PEPS should be submitted to address the requirement for an EMF, and that the incorporated document be amended to reflect this. The inquiry agreed with this approach.

A revised EMF is necessary prior to the implementation of the project. The proposed EMF in the EES was provided as part of an 'assessment process', from which other relevant recommendations and measures arise, in particular from the Inquiry Report and this Assessment.

If VicRoads chooses to, the revised EMF could also address relevant requirements for the preparation of the PEPS. A PEPS could also be developed as a document that meets the requirement for an EMF. However, the use of the term PEPS instead of EMF within the incorporated document itself is not supported. PEPS is neither a common or broadly understood term, and while this tool is currently used by VicRoads, it may or may not be replaced in the future. The requirement for and use of the term EMF on the other hand is relatively common, including within incorporated documents, approvals and assessments for various types of major projects.

Conclusion for environmental management framework

Having considered the EES, submission and the inquiry report, **it is my assessment that:**

- A revised EMF based on the preliminary EMF outlined in the EES, which includes any additional requirements identified in this Assessment, would provide a robust and transparent framework for the management of residual environmental effects and achievement of acceptable environmental outcomes.
- VicRoads ensure measures set out in the EES and the consolidated list of mitigation measures contained in Appendix E of the inquiry report and any additional requirements identified in this

¹⁵⁶ Refer to Campaspe Shire Council Submission 6 October 2015 page 27

¹⁵⁷ Refer to Inquiry Report 19 January 2016 page 76

Assessment, be included in the EMF and incorporated into the design, construction and operation phases of the project (including the PEPS as appropriate), contract specifications, CEMP and other specific management plans.

- The revised EMF (or equivalent document) and core management plans (e.g. a native vegetation offset strategy) be included as conditions in the incorporated document forming part of Amendment C103 to the Campaspe Planning Scheme.
- The revised EMF and core management plans are to be prepared in consultation with and to the satisfaction of relevant authorities (as set out within Appendix 2).

4.12. Integrated and sustainable transport

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

Key issues

The key issue for integrated and sustainable transport is whether the Mid West Option achieves an acceptable balance of economic, social and environmental outcomes and is beneficial over the short and long term.

Discussion and findings

This section focuses on the acceptability of environmental outcomes of the Mid West Option, compared to the economic and social outcomes, in the context of the objectives and principles of ecologically sustainable development (ESD). ESD is development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends¹⁵⁸.

The Ministerial Guidelines made under section 10 of the EE Act require the Mid West Option to be assessed against the relevant objectives and principles of ESD. A key ESD objective is to protect biological diversity and maintain essential ecological processes and life-supporting systems. Relevant principles of ESD include:

- (a) *That decision-making processes should effectively integrate both long-term and short-term economic, social and equity considerations;*
- (g) *The need to facilitate community involvement in decisions and actions on issues that affect the community.*¹⁵⁹

In summary, this assessment has identified that the Mid West Option would have the following key economic, social and environmental outcomes:

- The Mid West Option would deliver a safe and efficient link road and bridge crossings connecting the Murray Valley Highway in Victoria with the Cobb Highway in NSW, which would improve accessibility and connectivity for residents, businesses and visitors of Echuca-Moama and the wider region, improve capacity requirements and road safety needs, as well as enhance the safety and amenity of the town centres of Echuca and Moama (refer to section 4.3).
- The Mid West Option would result in the removal of a total extent of 14.147 ha of native vegetation as well as 221 LOTS, which is considered a moderate impact (refer to section 4.4).
- The Mid West Option would not result in any significant impacts to any threatened ecological communities or flora species listed under the FFG Act (refer to section 4.4).

¹⁵⁸ Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978 page 3

¹⁵⁹ *ibid*

- The Mid West Option is unlikely to result in a significant impact to the Squirrel Glider and other listed fauna species under the FFG Act provided appropriate mitigation measures and monitoring is implemented (refer to section 4.4).
- The Mid West Option would result in moderate effects on Aboriginal cultural heritage by impacting a large sandhill, an area of high Aboriginal cultural sensitivity, removing two scarred trees and lopping a third scarred tree. The Mid West Option also potentially impacts two deposits of stone artefacts near the proposed bridge piers on the north bank of the Campaspe River and land along Warren Street, where families of the Yorta Yorta and Wemba Wemba people settled when they walked off the Cummeragunja in 1939 (refer to section 4.5).
- The Mid West Option would also result in minor effects on historic cultural heritage by removing 13 Murray Pines on the sandhill and two palm trees located near the entrance to the former Echuca Secondary College (refer to section 4.5).
- The Mid West Option would result in minor impacts on land use, social and infrastructure and would result in some private land being acquired. The Mid West Option would not unreasonably impact on the existing active and passive recreational uses and other activities and events in Victoria Park with the exception of the Echuca Lawn Tennis Club (refer to section 4.6).
- The Mid West Option would have a moderate effect on landscape values of the Campaspe River and Victoria Park and a significant effect on landscape values of the Murray River, which would only be acceptable subject to a high quality design outcome (refer section 4.7).
- The visual impacts from recreational uses and nearby residences as a result of the Mid West Option would vary from low to low-moderate and moderate within the vicinity of the Echuca Lawn Tennis Club and the Echuca Hoilday Park (refer to section 4.7).
- The Mid West Option would not result in a significant impact on catchment values and floodplain functions, including the Murray and Campaspe Rivers and their associated floodplains (refer to section 4.8).
- The Mid West Option would result in minor noise impacts for sensitive receptors, with the exception of residential properties in Crofton Street and the Echuca Holiday Park, which are likely to be moderate. Noise impacts at the Echuca Lawn Tennis Club would be also be moderate, even with mitigation measures in place (refer to section 4.9).
- The Mid West Option is unlikely to result in a significant impact to air quality provided appropriate mitigation measures and monitoring is in place (refer to section 4.9).
- The Mid West Option would result in overall economic benefits for Echuca-Moama and the wider region in terms of employment, spending, training and business opportunities. Short-term disruption to local businesses, including river-based activities, events and congestion would occur during the construction period. (refer to section 4.10)
- The implementation of a revised EMF should enable the Mid West Option to be designed, constructed and operated in an overall manner that is environmentally acceptable (refer to section 4.11).

Inquiry recommendation

The inquiry concluded that, on balance, the Mid West Option represents the best project alignment and that subject to the careful implementation of mitigation measures, the environmental effects of the Echuca-Moama Bridge Project can be managed and the long-term adverse effects on surrounding properties and landscape should be minimal¹⁶⁰.

I agree with the inquiry that the Mid West Option provides a sound balance of environmental, social and economic outcomes for the communities of Echuca and Moama. In particular, VicRoads has sought to avoid

¹⁶⁰ Refer to Inquiry Report page 81

and minimise significant impacts on biodiversity and habitat, Aboriginal cultural heritage and social considerations during the three phase assessment process.

Importantly, the Mid West Option provides essential access for industries, businesses, workers, residents and visitors of Echuca-Moama and the wider region. It is also expected that the Mid West Option would generate over 4,240 FTE jobs directly and indirectly and an additional \$6.1 million per annum, which would provide a boost to the local and regional economy over the three year construction period.

Whilst the Mid West Option would have some adverse environmental effects as detailed within this Assessment, these effects can be managed to acceptable levels with appropriate offsets and mitigation measures.

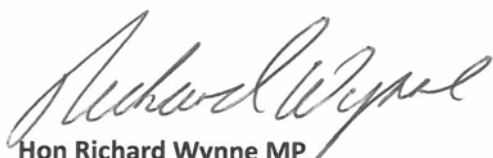
Overall Conclusion

Having considered the EES, submissions and the inquiry report, **it is my overall assessment that:**

- The Mid West Option would have an acceptable level of environmental effects, having regard to overall project outcomes.
- The Mid West Option will provide a net community benefit to the State of Victoria, having regard to both short term and long term economic, environmental and social considerations.

A summary of my response to the Inquiry recommendations is provided in **Appendix 3**.

In order to assist in the transparency of the EES process, I also recommend relevant decision makers write to me, advising of the outcome of their decisions. Where a decision maker proposes not to adopt part of this Assessment, I ask that the decision maker first consult with my department.



Hon Richard Wynne MP
Minister for Planning

23 13 /2016

5. Planning scheme amendment

5.1. Draft amendment

A draft amendment to the Campaspe Planning Scheme prepared by VicRoads was exhibited with the EES. The amendment was not formally exhibited under the P&E Act.

On 4 November 2014, the previous Minister for Planning provided in-principle agreement to act as the planning authority to prepare, adopt and approve an amendment to facilitate the project subject to a favourable assessment of the EES and any other considerations that may arise from the report of this inquiry. For this reason, the Minister for Planning appears as the planning authority on the draft amendment documentation.

The draft amendment proposes to:

- Apply a Public Acquisition Overlay to land required for acquisition for the project as shown on Planning Scheme Map Nos 7PAO and 8PAO;
- Amend the Schedule to Clause 45.01 Public Acquisition Overlay to identify and reserve land for the project (PAO4) and designate the roads corporation as the acquiring authority for PAO4;
- Amend the Schedule to Clause 52.03 to include reference to a new incorporated document titled “*Echuca Moama Bridge Project, Incorporated Document, June 2015*”, to exempt the project from requiring a permit subject to specific conditions;
- Amend the Schedule to Clause 61.03 to include new Planning Scheme Map Nos. 7PAO and 8PAO into the Campaspe Planning Scheme; and
- Amend the Schedule to Clause 81.01 to introduce a new incorporated document titled “*Echuca Moama Bridge Project, Incorporated Document, June 2015.*”

5.2. Key issues

The advisory committee reviewed the draft amendment documentation and relevant submissions and considered the following issues:

- Whether the Public Acquisition Overlay had been appropriately applied.
- Whether the content in the incorporated document adequately reflects the environmental management regime and appropriately secures the mitigation measures identified in the EES.
- Whether the Minister for Planning should use his powers of intervention to prepare, adopt and approve an amendment under section 20(4) of the P&E Act.

5.3. Inquiry recommendation

The advisory committee¹⁶¹ recommended that the Minister for Planning exercise his powers under section 20(4) of the P&E Act to approve Campaspe Planning Scheme Amendment C103, as exhibited in draft form with the EES, subject to the following changes:

- a) Apply the Public Acquisition Overlay to all additional land required for the project, including Crown land, as shown in amended maps presented to the inquiry in a letter from the VicRoads’ Regional Director Northern Region dated 13 November 2015.
- b) Amend the incorporated document as shown in Appendix D of its report.

¹⁶¹ A joint inquiry/advisory committee was appointed by the Minister for Planning as described in section 3.4 of this report

5.4. Discussion

Public Acquisition Overlay

The draft amendment includes the application of the Public Acquisition Overlay (PAO) to land required for acquisition for the Mid West Option. Given that a majority of the land in Victoria affected by the Mid West Option is Crown land, the PAO was not applied to this land. At the hearing, VicRoads requested that the PAO be extended to include the Crown land in order to provide a defined resolution process for the acquisition of land/or interest in the land for the construction of the Mid West Option.

DELWP supports the extension of the PAO to include Crown land within the project area and commented that the mechanism would ensure an appropriate and equitable outcome for all parties in the event of a dispute over compensation for the acquisition of the land¹⁶². Council also supports the extension of the PAO and commented that the introduction of a PAO over both private and public land would better articulate the corridor in the Campaspe Planning Scheme¹⁶³.

The inquiry's recommendation that the PAO should be applied to all land required for the Mid West Option is sound, including Crown land, and the planning scheme maps should be amended accordingly.

Content of the incorporated document

Council's submission expressed concern about the mechanism for requiring the replacement of the six tennis courts and installation of new pedestrian and cycling infrastructure, including the connections to the existing network¹⁶⁴. Council stated that unless accommodated elsewhere these obligations should be included in the incorporated document¹⁶⁵. As noted above, these obligations will be captured in the EMF (via the incorporated document), which is to be approved by the Minister for Planning.

VicRoads submitted that the reference to an EMF in the draft incorporated document be replaced by the term PEPS. However, use of the term PEPS is not common nor broadly understood - it is an internal tool currently used by VicRoads, which may or may not be utilised in the future. The requirement for and use of the term EMF on the other hand is relatively common, including within incorporated documents. As noted in the EES, a PEPS developed for this project is likely to be part of an EMF, in order for the document and track implementation of overall environmental commitments and approval conditions.

However, as discussed in section 4.11, a revised EMF (or equivalent document) needs to be prepared, based on the preliminary EMF in the EES and including the consolidated list of mitigation measures contained in Appendix E of the inquiry report and any additional mitigation /requirements identified in this Assessment.

DELWP also requested a change to clause 5.3 of the incorporated document to clearly articulate the responsibility of decision making about offset requirements under the appropriate legislation by referencing the Secretary in his capacity as the body corporate established by the *Conservation Forests and Lands Act 1987* rather as the Secretary of DEWLP in his capacity as a department head¹⁶⁶. I support this change.

Use of section 20(4) of the P&E Act

The EES argues that the use of section 20(4) of the P&E Act would be appropriate because:

- The project is of significance to the State of Victoria;
- The environmental, social and economic effects have been considered during the EES process;
- There has been extensive community consultation during the planning phases of the project;

¹⁶² Refer to DELWP Submission dated 13 November 2015

¹⁶³ Refer to Campaspe Shire Council Submission in Response to Inquiry Directions dated 17 November 2015 page 6

¹⁶⁴ Refer to Campaspe Shire Council Submission 6 October 2015 page 22

¹⁶⁵ Refer to Campaspe Shire Council Submission 6 October 2015 page 28

¹⁶⁶ Refer to DELWP Submission dated 9 October 2015

- The EES process has enabled the views of relevant parties to be considered and reviewed by an inquiry; and
- Draft amendment documents and supporting information have been exhibited with the EES¹⁶⁷.

Council's submission indicates support for the draft amendment because the changes would provide greater certainty for the project and funding partners and would reduce further administrative burden on council's planning resources. The submission from DELWP (Regional Services), acting under delegation to the Minister for Environment and Climate Change, also supports the amendment¹⁶⁸.

I note that the inquiry concluded that it would be appropriate that I use my powers of intervention under section 20(4) of the P&E Act in order to facilitate the inclusion of controls in the Campaspe Planning Scheme. Given that the project is of State significance, there has been extensive consultation and the EES process has provided the community and key stakeholders with an opportunity to comment on a draft amendment, I agree that there is merit in this approach.

5.5. Conclusion

Having considered the draft amendment, submissions and the inquiry report, **it is my assessment that:**

- I will consider a request to prepare, adopt and approve, without notice, an amendment under section 20(4) of the P&E Act.
- The following conditions as outlined in **Appendix 2** should be included in the incorporated document provided to the department.

¹⁶⁷ Refer to EES page 13-21

¹⁶⁸ Refer to DELWP Submission dated 9 October 2015

Appendix 1-Assessment of Mid West Option against key State planning policies

Table 8 Key State planning policies

Clause and theme	Objective	Support or give effect to	Response
Clause 11.05-1 Regional settlement networks	To promote the sustainable growth and development of regional Victoria through a network of settlements identified in the Regional Victoria Settlement Framework plan	Yes	Supports the sustainable development of Echuca
Clause 12.01-1 Protection of biodiversity	To assist the protection and conservation of Victoria's biodiversity, including important habitat for Victoria's flora and fauna and other strategically valuable biodiversity sites	Partially	Minimises significant impacts on Victoria's biodiversity
Clause 12.04-2 Landscapes	To protect landscapes and significant open spaces that contribute to character, identity and sustainable environments	Partially	Subject to a high quality design outcome and provides opportunities to improve landscape qualities and open space linkages
Clause 13.02-1 Floodplain management	To assist the protection of: <ul style="list-style-type: none"> Life, property and community infrastructure from flood hazard The natural flood carrying capacity of rivers, streams and floodways The flood storage function of floodplains and waterways Floodplain areas of environmental significance or of importance to river health 	Yes	Subject to flood mitigation measures and provides a second flood evacuation route
Clause 13.04-1 Noise abatement	To assist the control of noise effects on sensitive land uses	Yes	Subject to noise mitigation measures
Clause 15.03-2 Aboriginal cultural heritage	To ensure the protection and conservation of places of Aboriginal cultural heritage significance	Partially	Minimises impact to the sandhill and other places of Aboriginal cultural heritage
Clause 18.01-1 Land use and transport planning	To create a safe and sustainable transport system by integrating land-use and transport	Yes	Provides safe and efficient traffic movement, makes best use of infrastructure by utilising part of Warren Street and minimises amenity impacts and disruption to the community
Clause 18.01-2 Transport system	To coordinate development of all transport modes to provide a comprehensive transport system	Yes	Caters for pedestrians and cyclists

Clause 18.05-1 Develop freight links	To further develop the key transport gateways and freight links and maintain Victoria's position as the nation's premier logistics centre	Yes	Improves the freight network
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Appendix 2- Proposed conditions for incorporated document

On or behalf of Roads Corporation

1. The use, development and any ancillary activities specified in clause 4.0 of this incorporated document must be for the project and undertaken by or on behalf of the Roads Corporation.

Plans required

2. Before development starts, detailed design plans for the project must be prepared that achieve a high quality design outcome, which need to be submitted to and approved by the Minister for Planning. The plans must be drawn to scale with dimensions and three copies must be provided. The plans must include:
 - A site layout plan showing the location of key elements of the project.
 - Elevation plans showing the bridge approaches and structures, noise walls and any retaining structures.
 - A materials and finishes schedule for the bridge structures, noise walls or other key elements;
 - Landscaping and planting within the project area along with a planting schedule.

Once endorsed, the plans must not be altered without the written consent of the Minister for Planning.

Environmental management framework

3. Prior to the commencement of works, an Environmental Management Framework (or equivalent document) must be prepared for the project by the Roads Corporation, and be submitted to and approved by the Minister for Planning. This document need to address: mitigation and management measures set out in the EES, the consolidated list of mitigation measures contained in Appendix E of the inquiry report, as well as relevant requirements set out in the Minister for Planning's Assessment under the *Environment Effects Act 1978*.

Construction environmental management plan

4. Consistent with the staging of works, and prior to the commencement of construction or carrying out of corresponding stages of works, a Construction Environmental Management Plan(s) must be prepared in consultation with the Department of Environment, Land, Water and Planning (DELWP), the North Central Catchment Management Authority, and the responsible authority, and then be submitted to, and endorsed by the Secretary of DELWP.

Native vegetation offset strategy

5. Prior to the removal of native vegetation, an offset strategy must be prepared detailing how offsets will be secured for the project, and then be submitted to and endorsed by the Secretary of DELWP (as constituted under Part 2 of the *Conservation, Forests and Lands Act 1987*).

Staging of offsets

6. Prior to the commencement of native vegetation clearing works, offsets for each stage of the project must be secured to the satisfaction of the Secretary of DELWP (as constituted under Part 2 of the *Conservation, Forests and Lands Act 1987*).

Threatened species management plan

7. Prior to the commencement of works, a Threatened Species Management Plan must be prepared for the project, and then be submitted to and endorsed by the Secretary of DELWP (as constituted under Part 2 of the *Conservation, Forests and Lands Act 1987*).

Hydrology report

8. Prior to the commencement of works, a report must be prepared to the satisfaction of the NCCMA and then be submitted to the Minister for Planning. The report must include:

- An updated flood frequency analysis for the Murray and Campaspe Rivers at Echuca (including post 1997 floods); and
- A commentary on the changes in flow rates and flood levels.

Expiry date

9. The control in this incorporated document expires if any of the following circumstances applies:

- The development allowed by the control is not started by 31 December 2021.
- The development allowed by the control is not completed by 31 December 2026.
- The use allowed by the control is not started by 31 December 2026.

The responsible authority may extend these periods if a request is made in writing before the expiry date or within three months afterwards.

Appendix 3 - Summary of response to Inquiry recommendations

The inquiry made nine recommendations in its report. My response to each recommendation is outlined in **Table 9** below.

Table 9 Inquiry recommendations and Minister for Planning's response

Number	Recommendation	Response
1.	Offset the areas of remnant vegetation to be removed for the project in accordance with the appropriate guidelines, including offsets for the removal of seven scattered trees.	Agreed
2.	Implement additional measures identified in the Department of Environment, Land, Water and Planning's submission to mitigate for the impact of removing hollow-bearing trees.	Agreed
3.	Incorporate the mitigation measures reflected in the 'Consolidated List of Mitigation Measures for the Echuca-Moama Bridge project' document into VicRoads' Project Environment Protection Strategy and the contractors' Construction Environmental Management Plan.	Agreed
4.	Undertake a pre-construction survey for the Masked Owl to determine if the species is breeding in the study area.	Agreed
5.	Amend the incorporated document as shown in Appendix D of this report.	Agreed in part
6.	Adopt VicRoads' preferred Mid-West Option as presented in the Echuca-Moama Bridge Environment Effects Statement.	Agreed
7.	Implement all mitigation measures proposed in the Environment Effects Statement and subsequent table (Appendix E of this report).	Agreed
8.	Include all mitigation measures in VicRoads' Project Environment Protection Strategy.	Agreed in part
9.	<p>The Advisory Committee recommends that the Minister for Planning exercise his powers under Section 20(4) of the Planning and Environment Act 1987 to approve Campaspe Planning Scheme Amendment C103, as exhibited in draft form with the Environment Effects Statement, subject to changes:</p> <ul style="list-style-type: none"> Apply the Public Acquisition Overlay to all additional land required for the project, including Crown land, as shown in amended maps presented to the Inquiry in a letter from the VicRoads' Regional Director Northern Region dated 13 November 2015. Amend the incorporated document as shown in Appendix D of this report. 	<p>Agreed</p> <p>Agreed in part</p>