

*Environment Effects Act 1978*  
*Planning and Environment Act 1987*

**Environment Effects Statement Inquiry and Advisory Committee Report**  
**Echuca Moama Bridge**

**19 January 2016**

*Environment Effects Act 1978*


Inquiry pursuant to Section 9 of the Act

*Planning and Environment Act 1987*

Advisory Committee Report pursuant to section 151 of the Act

Draft Campaspe Planning Scheme Amendment C103

19 January 2016



Trevor McCullough, Chair



Mandy Elliott, Member



James Golsworthy, Member

# Contents

	Page
<b>Executive Summary .....</b>	<b>iii</b>
1.1 Summary .....	iii
1.2 Inquiry findings and recommendations .....	v
<b>PART A: BACKGROUND AND INQUIRY PROCESS .....</b>	<b>1</b>
<b>1 Introduction .....</b>	<b>2</b>
1.1 The Inquiry .....	2
1.2 Planning scheme Amendment .....	2
1.3 Purpose of this report .....	2
1.4 Structure of this report .....	3
<b>2 The Proposal .....</b>	<b>4</b>
2.1 The project .....	4
2.2 Project history .....	4
2.3 Project alternatives .....	5
2.4 Community and stakeholder engagement .....	6
<b>3 Inquiry approach to assessment .....</b>	<b>7</b>
3.1 EES Assessment framework .....	7
3.2 Discussion .....	10
<b>4 Legislative and Policy Framework .....</b>	<b>11</b>
4.1 Legislation Framework – Assessment and Approvals .....	11
4.2 Project approvals .....	15
4.3 State and Local Planning Policy .....	16
4.4 Strategic Documents .....	18
<b>PART B: ENVIRONMENTAL EFFECTS OF THE PROJECT .....</b>	<b>19</b>
<b>5 Traffic and transport .....</b>	<b>20</b>
5.1 The issues .....	20
5.2 EES documentation .....	20
5.3 Submissions .....	21
5.4 Discussion .....	22
5.5 Findings .....	22
<b>6 Biodiversity and habitat .....</b>	<b>23</b>
6.1 The issues .....	23
6.2 EES documentation .....	23
6.3 Evidence and submissions .....	27
6.4 Discussion .....	32
6.5 Findings .....	33
6.6 Recommendations .....	34
<b>7 Aquatic flora and fauna .....</b>	<b>35</b>

7.1	The issue .....	35
7.2	EES Documentation .....	35
7.3	Evidence and submissions .....	37
7.4	Discussion and findings .....	38
<b>8</b>	<b>Aboriginal cultural heritage .....</b>	<b>40</b>
8.1	The issue .....	40
8.2	EES documentation .....	40
8.3	Evidence and submissions .....	43
8.4	Discussion and findings .....	45
<b>9</b>	<b>Post European settlement heritage .....</b>	<b>46</b>
9.1	The issue .....	46
9.2	EES documentation .....	46
9.3	Evidence and submissions .....	46
9.4	Discussion .....	47
9.5	Findings.....	47
<b>10</b>	<b>Planning and land use.....</b>	<b>48</b>
10.1	The issue .....	48
10.2	EES documentation .....	48
10.3	Evidence and submissions .....	50
10.4	Discussion .....	53
10.5	Findings.....	53
<b>11</b>	<b>Social issues .....</b>	<b>54</b>
11.1	The issue .....	54
11.2	EES documentation .....	54
11.3	Evidence and submissions .....	55
11.4	Discussion and findings .....	55
<b>12</b>	<b>Landscape and visual amenity .....</b>	<b>57</b>
12.1	The issue .....	57
12.2	EES Documentation .....	57
12.3	Evidence and submissions .....	58
12.4	Discussion .....	59
12.5	Findings.....	59
<b>13</b>	<b>Catchment values .....</b>	<b>60</b>
13.1	The issue .....	60
13.2	EES documentation .....	60
13.3	Evidence and submissions .....	64
13.4	Discussion and findings .....	67
<b>14</b>	<b>Soils and geology .....</b>	<b>68</b>
14.1	The issue .....	68
14.2	EES documentation .....	68
14.3	Evidence and submissions .....	69
14.4	Discussion and findings .....	69



<b>15</b>	<b>Air and noise</b> .....	<b>70</b>
	15.1 The issue .....	70
	15.2 EES documentation .....	70
	15.3 Evidence and submissions .....	70
	15.4 Discussion and findings .....	71
<b>16</b>	<b>Economic issues</b> .....	<b>72</b>
	16.1 The issue .....	72
	16.2 EES documentation .....	72
	16.3 Evidence and submissions .....	73
	16.4 Discussion and findings .....	74
<b>17</b>	<b>Environmental Management Framework</b> .....	<b>75</b>
	17.1 The issue .....	75
	17.2 EES documentation .....	75
	17.3 Evidence and submissions .....	76
	17.4 Discussion and findings .....	77
	17.5 Recommendation.....	77
<b>18</b>	<b>Matters of Commonwealth interest</b> .....	<b>78</b>
	18.1 The issue .....	78
	18.2 Submissions and evidence .....	78
	18.3 Discussion and findings .....	78
<b>19</b>	<b>Integrated assessment</b> .....	<b>79</b>
	19.1 Introduction .....	79
	19.2 Discussion and findings .....	79
	19.3 Recommendations .....	82
	<b>PART C: DRAFT PLANNING SCHEME AMENDMENT</b> .....	<b>83</b>
<b>20</b>	<b>Draft planning scheme Amendment C103</b> .....	<b>84</b>
	20.1 The draft Amendment .....	84
	20.2 Public Acquisition Overlay .....	84
	20.3 Incorporated Document .....	85
	20.4 Use of section 20(4) of the Planning and Environment Act 1987.....	87
	20.5 Recommendation.....	88
<b>Appendix A</b>	<b>Inquiry and Advisory Committee Terms of Reference</b>	
<b>Appendix B</b>	<b>List of Submitters</b>	
<b>Appendix C</b>	<b>Document List</b>	
<b>Appendix D</b>	<b>Panel Preferred Incorporated Document</b>	
<b>Appendix E</b>	<b>Consolidated List of VicRoads Mitigation Measures</b>	

## List of Tables

	<b>Page</b>
Table 1	Draft evaluation objectives.....8
Table 2	Risk rating matrix .....9
Table 3	Relevant legislation .....15
Table 4	Biodiversity and habitat assessment ratings .....27
Table 5	Aboriginal and historic heritage assessment.....43
Table 6	Surface water and groundwater risks .....64

## List of Figures

	<b>Page</b>
Figure 1	Mid-West options considered in the EES .....5
Figure 2	Environmental risk assessment process.....9
Figure 3	Legislative framework .....13
Figure 4	Study area for biodiversity assessments .....24
Figure 5	Aquatic flora and fauna study area .....36
Figure 6	Aboriginal cultural heritage study area for the EES .....41
Figure 7	Echuca Town Structure Plan .....51
Figure 8	Loddon Mallee North Regional Growth Plan – Echuca Framework Plan.....52

## List of Abbreviations

BAP	Bridge Arts Project
BLA	Brett Lane & Associates
C4EM	Committee for Echuca Moama
CEMP	Construction Environmental Management Plan
CHMP	Cultural Heritage Management Plan
DELWP	Department of Environment, Land, Water and Planning
EE Act	Victorian <i>Environment Effects Act 1978</i>
EES	Environment Effects Statement
EMF	Environmental Management Framework
EP&A Act	New South Wales <i>Environment Planning and Assessment Act 1979</i>
EPA	Environment Protection Authority
EPBC Act	Commonwealth's <i>Environment Protection and Biodiversity Conservation Act 1999</i>
EVC	Ecological Vegetation Class
FFG Act	<i>Flora and Fauna Guarantee Act 1988</i> (Vic)
HO	Heritage Overlay
ICOMOS	International Council on Monuments and Sites
LOT	Large Old Trees
LPPF	Local Planning Policy Framework
MDBA	Murray-Darling Basin Authority
MSS	Municipal Strategic Statement
NCCMA	North Central Catchment Management Authority
NRZ	Neighbourhood Residential Zone
OEH	NSW Office of the Environment and Heritage
PAO	Public Acquisition Overlay
PEPS	Project Environment Protection Strategy
REF	Review of Environmental Factors
ROW	Right of Way
SPPF	State Planning Policy Framework
SEPP	State Environment Protection Policy
vpd	Vehicles per day
YYNAC	Yorta Yorta Nations Aboriginal Corporation

## Overview

Project	
<b>The Project</b>	Echuca-Moama Bridge Project
<b>The Proponent</b>	VicRoads
<b>Subject Site</b>	The preferred alignment includes a new road and bridges over the Campaspe and Murray Rivers and traverses from the intersection of the Murray Valley Highway and Warren Street, Echuca (Victoria) and the Cobb Highway in Moama (New South Wales)
<b>Victorian Statutory Approvals</b>	<ul style="list-style-type: none"> <li>- An Amendment to the Campaspe Planning Scheme under the <i>Planning and Environment Act 1987</i> (P&amp;E Act)</li> <li>- An approved Cultural Heritage Management Plan (CHMP) under the <i>Aboriginal Heritage Act 2006</i></li> <li>- Consent to disturb an archaeological site under the <i>Heritage Act 1995</i></li> <li>- Consents to undertake works near waterways under the <i>Water Act 1989</i></li> <li>- Permits for the removal of listed flora and fauna from public land under the <i>Flora and Fauna Guarantee Act 1988</i></li> <li>- Consents under the <i>Crown Land (Reserves) Act 1978</i> for works on public land.</li> </ul>
<b>Commonwealth Statutory Approval</b>	<p>The proposal is a 'controlled action' and requires assessment and approval under the <i>Environment Protection Biodiversity and Conservation Act 1999</i> (EPBC Act)</p> <p>Controlling provisions relate to listed threatened species and ecological communities (sections 18 and 18A EPBC Act).</p>
<b>Exhibition</b>	The Environment effects Statement; Draft Campaspe Planning Scheme Amendment C103; NSW Review of Environmental Factors; and Commonwealth Preliminary Documentation were exhibited concurrently from 27 August to 9 October 2015.
<b>Submissions</b>	12 submissions were received. None opposed the project or the general alignment. Three submissions related exclusively to matters on the NSW side of the border.

## Inquiry Process

<b>The Inquiry</b>	A combined Inquiry appointed under section 9(1) of the <i>Environment Effects Act 1978</i> and an Advisory Committee appointed pursuant to Part 7, Section 151 of the <i>Planning and Environment Act 1987</i> .
<b>Members</b>	Trevor McCullough (Chair), Mandy Elliott and James Golsworthy
<b>Directions Hearing</b>	Echuca, 28 October 2015
<b>Public Hearing</b>	Echuca, 16 and 17 November 2015
<b>Site Inspections</b>	Unaccompanied, 28 October 2015. Accompanied, 17 November 2015
<b>Appearances</b>	<p><b>VicRoads</b> represented by Ms Emily Porter of Counsel, and calling expert evidence from:</p> <ul style="list-style-type: none"><li>- Mr Rob Swan of Cardno on Hydrology</li><li>- Mr Brett Lane of Brett Lane &amp; Associates on Flora and Fauna</li><li>- (Mr John Henshall (Economics) and Mr David Rhodes (Aboriginal Heritage) also prepared written reports for the Inquiry</li></ul> <p><b>Campaspe Shire Council</b> represented by Ms Anne Howard</p> <p><b>Committee for Echuca Moama Inc</b> represented by Mr Geoff Kelly, Mr Tod Collins and Mr Dean Oberin</p>
<b>Date of this Report</b>	19 January 2016

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# Executive Summary

## 1.1 Summary

The Echuca-Moama Bridge Project (the Project) proposes a second crossing of the Murray River between Echuca in Victoria and Moama in New South Wales (NSW).

The Project has a significant history, with the first formal investigations of a second crossing commencing as early as 1986. As a result, a new rail bridge was constructed parallel to the existing bridge at that time, and the previous joint rail and road bridge converted exclusively for vehicular traffic. Since 1996 a range of alignment options have been investigated jointly between Victorian and NSW road authorities for a second road crossing of the Murray River.

These investigations have culminated in the current proposal considered in the Environment Effects Statement (EES) prepared by VicRoads and before this Inquiry. The EES considers three options: the Mid-West; Mid-West 2A; and Mid-West 2B, along with the 'No Project' scenario. The works proposed involve: the crossing of the Murray and Campaspe Rivers; an elevated roadway and extensive bridging and/or culverts across the floodplains of each river; pedestrian and bicycle paths; and improvements to the existing approach roads in Victoria and NSW.

The Minister for Planning determined that an EES is required for the Echuca-Moama Bridge Project under the *Environment Effects Act 1978* in June 2013.

A combined Inquiry and Advisory Committee was appointed on 27 September 2015 to consider the Project Environment Effects Statement and draft Campaspe Planning Scheme Amendment C103 in accordance with the Terms of Reference approved by the Minister for Planning on 15 September 2015.

The purpose of the Inquiry is to investigate and provide an integrated assessment of the potential effects of the Project on the environment.

Draft Campaspe Planning Scheme Amendment C103 (exhibited with the EES) proposes to apply a Public Acquisition Overlay to provide for the Mid-West Option and introduces a new Incorporated Document to facilitate the implementation of the Project.

Significant and extensive consultation with the community and stakeholders has been undertaken to determine the most suitable alignment. Formal consultation in relation to the Mid-West corridor commenced in early 2008 and has included: a public information display; a steering committee; a community consultative group; and following the formal exhibition of the EES: extensive consultation through formal meetings/briefings, information bulletins and a project website on the project detail and its specialist reports.

The Inquiry was impressed with the significant consultation undertaken over a long period of time. This has led to valuable relationships being established between interested parties and particularly with the Yorta Yorta Nations Aboriginal Corporation representatives. Such positive relationships appear to have assisted the determination of the final Project alignment and the success of the consultation is reflected in the fact that no opposing submissions were received.

A number of suggestions for further mitigation measures and improvements to the implementation measures were made in supporting submissions and these have been considered, and to large degree accepted, by the Inquiry.

The Inquiry has reviewed the EES documentation provided to it along with the specialist reports and submissions made, and has concluded 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 minimal.

Chapter 5 of the EES sets out evaluation objectives (reproduced in Chapter 3 of this report). The Inquiry has summarised its conclusions in relation to each of these objectives in Chapter 19 of this report and concludes that, on balance, the Mid-West Option represents the best Project alignment.

Overall, the Inquiry considers the evaluation objectives adopted by VicRoads in the EES to be satisfactory and do not require further refinement or the need for additional objectives.

The proposed draft Campaspe Planning Scheme Amendment C103 is supported subject to changes to the proposed Public Acquisition Overlay to include Crown land and subject to changes to the Incorporated Document to clarify the extent of mitigation measures required to be implemented. For the reasons set out in the report, the Advisory Committee recommends that the Minister exercise his powers under Section 20(4) of the *Planning and Environment Act 1987* to implement the Amendment.

## 1.2 Inquiry findings and recommendations

### Overall finding

Based on the reasons set out in this report, the Inquiry and Advisory Committee finds that 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 minimal subject to implementing the following further recommendations:

### Implementation

The Inquiry and Advisory Committee recommends the following actions to facilitate the implementation of the Project:

Adopt VicRoads' preferred Mid-West Option as presented in the Echuca-Moama Bridge Environment Effects Statement.

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.

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.

Undertake a pre-construction survey for the Masked Owl to determine if the species is breeding in the study area.

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 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 Nov 2015 (Document 5).
- b) Amend the Incorporated Document as shown in Appendix D of this report.

### Mitigation Measures

The Inquiry and Advisory Committee recommends the following actions to ensure that all identified mitigation measures are implemented as intended:

Implement all mitigation measures proposed in the Environment Effects Statement and subsequent table (Appendix E of this report).

Incorporate the mitigating 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.

Include all mitigation measures in VicRoads' Project Environment Protection Strategy.



## **PART A: BACKGROUND AND INQUIRY PROCESS**



# 1 Introduction

## 1.1 The Inquiry

The Minister for Planning determined that an EES is required for the Echuca-Moama Bridge Project (the Project) under the *Environment Effects Act 1978* in June 2013. The published reasons for the decision were:

- Development of either Option 2A or 2B would involve the potential for significant effects on native vegetation and associated biodiversity values, Aboriginal cultural heritage, passive recreation values in Victoria Park, as well as landscape values, floodplain function and geomorphic stability of proximate sections of the lower Campaspe River and the Murray River.
- An EES would provide a robust and transparent framework within which to assess and evaluate the most suitable alignment for a second crossing of the Murray River at Echuca-Moama, building upon investigations to date of options within the MW2 corridor as well as nearby alternative alignments.

A combined Inquiry and Advisory Committee was appointed on 27 September 2015 to consider the Project EES and draft Campaspe Planning Scheme Amendment C103 in accordance with the Terms of Reference approved by the Minister for Planning on 15 September 2015. The Terms of Reference are attached as Appendix A.

The Inquiry and Advisory Committee comprises Trevor McCullough (Chair), Mandy Elliott and James Golsworthy.

The purpose of the Inquiry is to investigate and provide an integrated assessment of the potential effects of the Echuca-Moama Bridge Project (on the environment).

## 1.2 Planning scheme Amendment

VicRoads has prepared a draft amendment known as Amendment C103 to the Campaspe Planning Scheme (the Amendment) for the Mid-West Option. 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 Echuca Moama Bridge Project (PA04) and designate the Roads Corporation as the acquiring authority for PA04;
- 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 Maps 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.

## 1.3 Purpose of this report

The Terms of Reference require the Inquiry to produce a report to inform the Minister for Planning's Assessment of the Project under the *Environment Effects Act 1978* (the EE Act)

and will also assist the Minister to make a decision about the proposed Amendment to the Campaspe Planning Scheme to facilitate the project.

As the Inquiry is jointly appointed as an Advisory Committee, this report also advises on the suitability of the Amendment in response to issues raised in submissions.

The more detailed requirements of the report are set out in paragraph 28 of the Terms of Reference.

## **1.4 Structure of this report**

The Inquiry considered the exhibited EES and Amendment, all submissions and evidence provided at the Hearing by parties listed in the Overview table and all written submissions. In addressing the issues, the Inquiry has been assisted by the information provided to it as well as its observations from inspections of specific sites.

This report has three parts:

Part A: Background and Inquiry process: Introduction and background to the Echuca-Moama Bridge Project, the EES and Inquiry process and legislative and policy framework.

Part B: Environmental effects of the project: Examines the environmental effects in detail under the themes of:

- Traffic and transport
- Biodiversity and habitat
- Aquatic flora and fauna
- Aboriginal cultural heritage
- Post European settlement heritage
- Planning and land use
- Social issues
- Landscape and visual amenity
- Catchment values
- Soils and geology
- Air and noise
- Economic issues
- Environmental management framework
- Matters of Commonwealth interest
- Integrated assessment

The EES evaluation objective for each chapter is set out at the start of each chapter.

Part C The draft planning scheme Amendment

## **2 The Proposal**

### **2.1 The project**

The Echuca-Moama Bridge Project proposes a second crossing of the Murray River between the cross border townships. The works proposed involve: the crossing of the Murray and Campaspe Rivers; an elevated roadway and extensive bridging and/or culverts across the floodplains of each river; pedestrian and bicycle paths; and improvements to the existing approach roads in Victoria and NSW. The total length of the works proposed (through both Victoria and NSW) is approximately 4.3km for the preferred Mid-West alignment.

The Project would provide a second flood free road connection between the Murray Valley Highway (Victoria) and the Cobb Highway (NSW). The Project would vary in its footprint width and commence at the intersection of the Murray Valley Highway and Warren Street in Echuca with a roundabout. The Project would then extend north east along Warren Street to a proposed roundabout where the alignment would proceed to the north west and cross the Campaspe River and associated floodplain with use of raised sections to allow the flow of floodwater. The alignment then would follow then turn north easterly through the former Echuca Secondary College and to the north around Victoria Park and the Echuca Holiday Park after which it would cross the Murray River and connect with the Cobb Highway at Meninya Street and Perricoota Road in Moama.

### **2.2 Project history**

The Project has a significant history, with a second crossing of the Murray River at Echuca-Moama considered since 1965. The first formal investigations, however, commenced around 1986 when a joint EES (Victorian section) and Environmental Impact Statement (EIS) (NSW section) commenced preparation. This investigation considered a new railway crossing and included a number of options for linking the township areas or for a bypass. The final solution at that time was to construct a new rail bridge parallel to the existing bridge and rehabilitate the previous joint (rail and road) bridge exclusively for vehicular traffic.

In 1996, a further investigation was undertaken on a new crossing of the Murray River and considered three potential corridors being eastern, western and central. In 2002, the Minister for Planning appointed a Panel to consider submissions associated with the proposal. The Panel recommended the western option, which was subsequently endorsed by the Minister. Following this, consent was not gained for the proposal due to cultural heritage matters.

Between 2005-2007 considerations of the Mid-West corridor was undertaken, which involved relevant State Governments and Councils, along with the Yorta Yorta Nations Aboriginal Corporation and resulted in an in principle agreement. The option was further enhanced through the proposal for the Echuca Secondary College to be relocated from its current site to the south east of Victoria Park, which has since taken place.

Through 2008-2010 detailed investigations of the Mid-West alignment were completed, and a preferred alignment was identified. An EES referral was made and it was confirmed in April 2010 that no EES would be required subject to a number of conditions. In November

2010, however, the Minister for Roads announced a further planning study would be undertaken to consider a further potential alignment known as the Mid-West 2 corridor.

The alternative Mid-West 2 corridor reflected the same corridor in NSW, however provided four options in Victoria. In June 2013 it was determined that two of the options, along with the Mid-West option required an EES.

### 2.3 Project alternatives

The EES considers three route options: the Mid-West; Mid-West 2A; and Mid-West 2B along with the 'No Project' scenario. The route options are as shown in Figure 1.



Figure 1 Mid-West options considered in the EES

Each of the options are located in a common and broad corridor generally from the Murray River to the Murray Valley Highway, however the Mid-West option has a greater reliance on the existing road network particularly that of Warren Street. Options Mid-West 2A and Mid-West 2B rely on an alignment that bisects Victoria Park, has greater impacts on the existing culturally significant sandhill and requires reservation and acquisition of a larger area of land. VicRoads advised the Inquiry that the Mid-West Option is the preferred option.

## **2.4 Community and stakeholder engagement**

Significant and extensive consultation with the community and stakeholders has been undertaken to determine the most suitable alignment. Formal consultation in relation to the Mid-West corridor commenced in early 2008 through a public information display where around 380 people were in attendance. Following this, a steering committee was formed along with a community consultative group where meetings were held in order to provide information and receive feedback regarding the project options. From that point through to the formal exhibition of the EES, extensive consultation continued in order for information regarding the project and its specialist reports to be communicated to the community and stakeholders. Such consultation was undertaken through formal meetings/briefings, information bulletins and a project website. In addition to the formal consultations each of the Councils were also presented with information and options for formal consideration.

The Inquiry was impressed with the significant consultation undertaken over a long period of time. This has led to valuable relationships being established between interested parties and particularly with the Yorta Yorta Nations Aboriginal Corporation representatives. Such positive relationships appear to have assisted the determination of the final Project alignment and the success of the consultation is reflected in the fact that no opposing submissions were received.

### 3 Inquiry approach to assessment

The purpose of the Echuca-Moama Bridge EES Inquiry is to investigate and provide an integrated assessment of the potential effects of the Echuca-Moama Bridge Project on the environment. The 'environment' is referred to in this context (see Inquiry Terms of Reference) as being 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.

The Inquiry's approach to its assessment of the environmental effects of the Echuca-Moama Bridge Project follows the approach outlined in section 28 of the Terms of Reference Echuca Moama Bridge Project Inquiry and Advisory Committee, including the provision of advice on:

- The likelihood, magnitude and significance of the potential environmental effects (impacts) of VicRoads' preferred alignment (i.e. the Mid-West Option).
- Proposed feasible mitigation measures or procedures to avoid, minimise or offset environmental effects, including those proposed by VicRoads or in submissions, and likely effectiveness of such measures.
- The draft framework for environmental management for the Project described in the EES.
- Whether the preferred alignment will substantially meet evaluation objectives and deliver an appropriate balance of environmental, economic and social outcomes, having regard to the conclusions on the effects of the preferred alignment, and submissions and the rationale for selecting the Mid-West Option over other options documented in the EES.
- Any feasible modifications to the preferred alignment, including in relation to the micro-alignment, design, and or other specific measures necessary to avoid, minimise or offset likely adverse impacts.
- Appropriate conditions under Victorian law, including the proposed Incorporated Document, necessary to achieve acceptable environmental outcomes in the context of applicable legislation and policy, relevant best practice and the principles and objectives of ecological sustainable development.

#### 3.1 EES Assessment framework

VicRoads' EES assessment framework comprised of three elements:

- The EES Scoping Requirements and draft evaluation objectives (prepared by the former Department of Transport, Planning and Local Infrastructure (DTPLI)).
- The objectives of relevant legislation, policies and guidelines.
- VicRoads' Project Objectives (which are more general and relate to the delivery of the Project).

These elements informed the technical assessments undertaken as part of the EES.

##### 3.1.1 Draft evaluation objectives

Chapter 5 of the EES sets out draft evaluation objectives as shown in Table 1.

<b>Draft evaluation objective</b>	
<b>Road safety capacity</b>	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.
<b>Biodiversity and habitat</b>	To avoid or minimise adverse effects on native vegetation and listed flora and fauna species and ecological communities, and address opportunities for offsetting potential losses consistent with relevant policy.
<b>Cultural heritage</b>	To avoid or minimise adverse effects on Aboriginal and historic cultural heritage values.
<b>Social and land use</b>	To minimise adverse social and land use effects, including impacts on existing uses of the Crown land.
<b>Landscape and visual amenity</b>	To minimise adverse landscape and visual amenity effects on values of the area, including the Murray and Campaspe rivers and floodplains.
<b>Catchment values</b>	To maintain floodplain functions, hydrology, values of surface water, groundwater and geomorphic stability of proximate sections of the lower Campaspe and Murray rivers.
<b>Amenity</b>	To minimise noise, air quality and other amenity effects to the extent practicable.
<b>Economic</b>	To provide road infrastructure that fosters a viable level of economic performance for the local and regional economy of Echuca-Moama.
<b>Environmental management framework</b>	To provide a transparent framework with clear accountabilities for managing environmental effects and hazards associated with construction, operation and rehabilitation phases of the Project, in order to achieve acceptable environmental outcomes.
<b>Sustainable development</b>	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.

Table 1 Draft evaluation objectives

The draft evaluation objectives were assessed and risk ratings were assigned using the scale shown in Table 2. The EES states that VicRoads could not rate all risks definitively because of incomplete information. In these cases, conservative assessments were made by VicRoads and its consultants based on the maximum credible consequence.



Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Low	Medium	High	Extreme	Extreme
Likely	Low	Medium	High	High	Extreme
Possible	Negligible	Low	Medium	High	High
Unlikely	Negligible	Low	Medium	Medium	High
Rare	Negligible	Negligible	Low	Medium	Medium

Table 2 Risk rating matrix

### 3.1.2 Risk and impact assessment process

The risk assessment process undertaken by VicRoads and its consultants was based on AS/NZS ISO 31000:2009: Risk Management and shown in Figure 2 below.

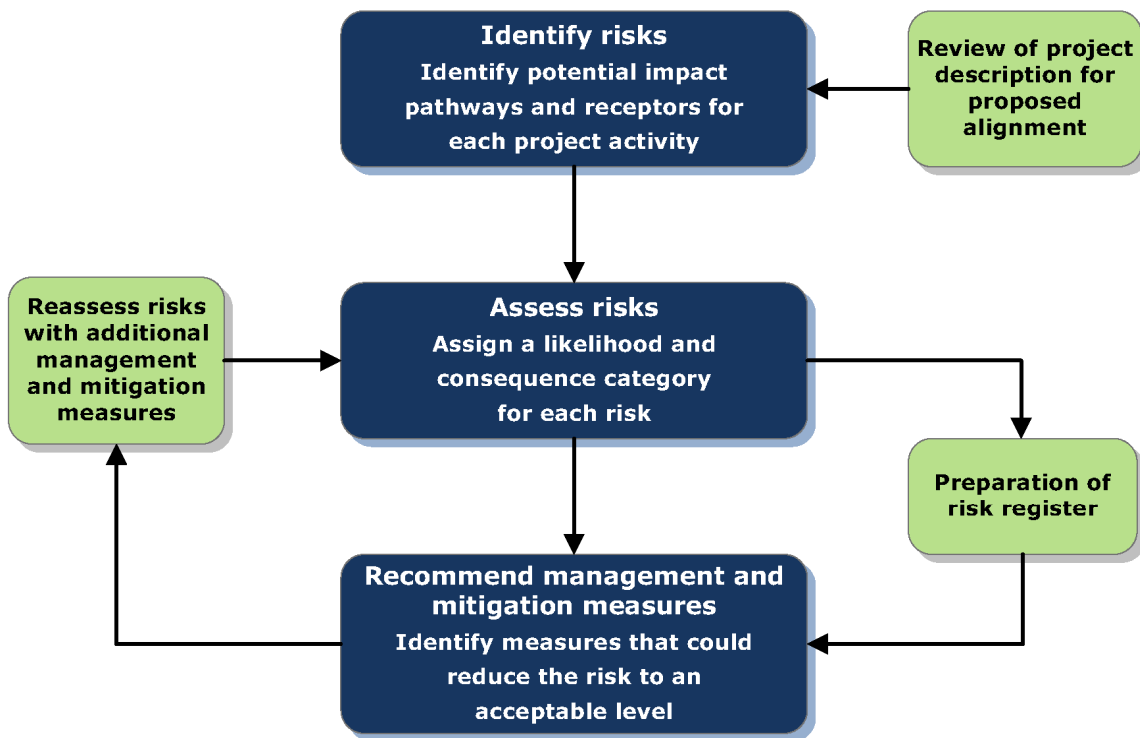


Figure 2 Environmental risk assessment process

Risks were assessed for likelihood (refer to Table 5-2 in the EES Vol 1) and consequence (refer to Table 5-3 in the EES Vol 1), depending on whether VicRoads and NSW Roads and Maritime Services (where applicable) standard environmental protection and design measures were implemented. Consequence criteria were developed with reference to existing conditions, the requirements of relevant legislation and guidelines, the draft EES Evaluation Objectives and the outcomes of stakeholder consultation. An initial risk rating was then assigned to each risk.

After initial ratings, additional Project-specific environmental management measures were considered. Likelihood and consequence ratings were revised to identify residual risks (i.e. those risks that remain after consideration of mitigation measures). A preliminary risk register was prepared and is found in the EES Technical Appendix P – Risk Register.

The Project-specific environmental management measures were then refined to reduce residual risks where possible. Impacts were reassessed, considering:

- Positive and negative changes or impacts
- Direct and indirect impacts
- Spatial and temporal changes
- The ability of the environmental resource or system to recover
- The ability to reduce or mitigate the impact.

The final residual risk rating reflects the likelihood and consequence of the risk following the implementation of VicRoads' standard environmental protection measures, and the final Project-specific environmental management measures.

### **3.2 Discussion**

The Inquiry has reviewed each of the objectives under the headings used by VicRoads in the EES and has made findings on the adequacy of work completed to date to meet these objectives.

The evaluation objectives address various components of the 'environment', being 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 and the EES assessments reflect this.

The Inquiry considers the evaluation objectives adopted by VicRoads in the EES to be satisfactory and do not require further refinement or the need for additional objectives.

The risk assessment approach adopted by VicRoads and its consultants is also sound and follows the approach undertaken for various EES projects in Victoria.

## **4 Legislative and Policy Framework**

### **4.1 Legislation Framework – Assessment and Approvals**

The Project requires assessment under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), the Victorian *Environment Effects Act 1978* (EE Act) and the New South Wales *Environment Planning and Assessment Act 1979* (EP&A Act).

The Project also requires approvals under the EPBC Act and EP&A Act.

#### **4.1.1 Environment Effects Act 1978 (Vic)**

The EE Act provides for assessment of projects capable of having a significant effect on the environment. A decision was made by the Minister on 14 June 2013 requiring VicRoads to prepare an EES to document the assessment of the Mid-West 2 corridor options 2A and 2B, as well as alternative alignments available in the previously identified Mid- West corridor.

#### **4.1.2 Planning and Environment Act 1987 (Vic)**

Under the provisions of the Campaspe Planning Scheme, a planning permit is required to use and develop land for the purpose of a road in the Urban Floodway Zone, and to lop or destroy native vegetation and alter access to a Road Zone Category 1 (Warren Street). Approval to undertake the works for the Project would be obtained via an Amendment to the Campaspe Planning Scheme, rather than obtaining individual planning permits.

A draft planning scheme Amendment has been prepared for the Project (Campaspe C103), which would exempt VicRoads from planning permit requirements of the Campaspe Planning Scheme in relation to the Project. In addition, the Amendment would reserve land by applying a Public Acquisition Overlay over land in the proposed Right-of-Way to enable VicRoads to acquire land for the construction of the Project and associated works.

#### **4.1.3 Environment Planning and Assessment Act 1979 (NSW)**

Under part 5 of the NSW EP&A Act, the NSW Roads and Maritime Services is the proponent and determining authority and responsible for coordination, preparation and public notification of the equivalent NSW document, the Review of Environmental Factors (REF). The purpose of the REF is to describe the proposal, document the likely impacts on the environment and outline recommended protective measures to be implemented during construction. Although the Project includes works in Victoria and NSW, the study area for the REF is confined to the section of the alignment in NSW.

#### **4.1.4 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)**

Both the Victorian and NSW components of the Project were referred together as a single project to the Australian Government for a decision on the need for assessment and approval under the EPBC Act. The Commonwealth determined on the 11 July 2013 that the project is a 'controlled action' under EPBC Act controlling provisions sections 18 and 18A (threatened species and ecological communities).

As the EES process applies to the Victorian component of the Project only, the EES could not be accredited under the EPBC Act as the required assessment process through the existing bilateral agreement between the Commonwealth and Victoria. The Commonwealth determined that the assessment approach under the EPBC Act is through Preliminary Documentation.

The EES, draft Amendment C103 to the Campaspe Planning Scheme, REF, and Preliminary Documentation were exhibited concurrently.

Figure 3 below (extracted from section 3.2 of the EES - Vol 1), presents the legislative framework for the Project.

The Inquiry / Advisory Committee is appointed under both the EE Act and the *Planning and Environment Act 1987*. It is not the role of the Inquiry to provide advice to either the NSW Roads and Maritime Services on the REF or to the Commonwealth Department of Environment regarding the Preliminary Documentation.

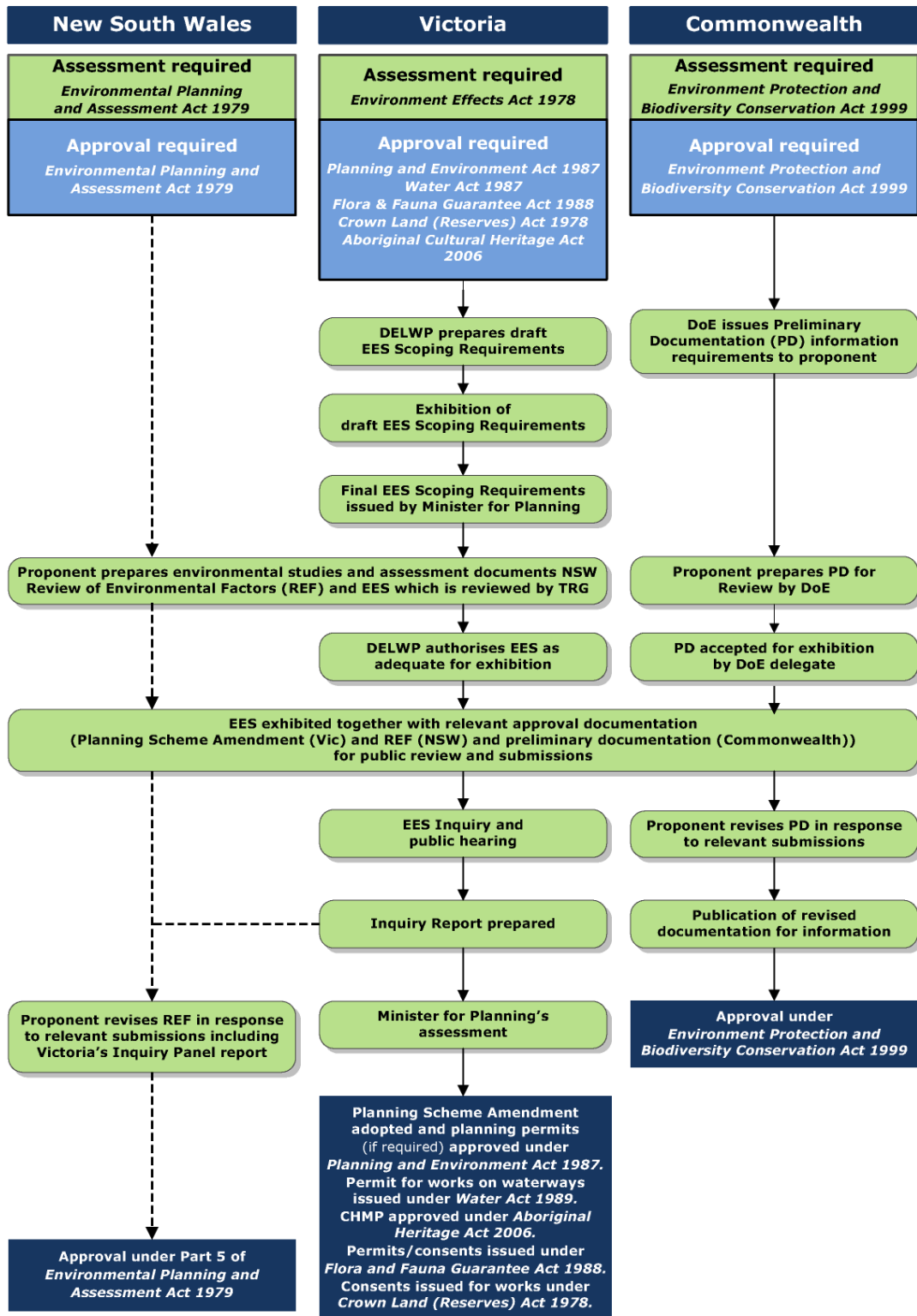


Figure 3 Legislative framework

The EES Scoping Requirements refer to legislation that is relevant to the Project and Table 3 below provides a list of relevant legislation and its associated EES evaluation objective.

<b>Legislation</b>	<b>Relevant to:</b>
<b>Commonwealth</b>	<b>Evaluation objective</b>
<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Biodiversity and habitat
<b>Victoria</b>	<b>Evaluation objective</b>
<i>Aboriginal Heritage Act 2006</i>	Cultural heritage Environmental management framework
<i>Catchment and Land Protection Act 1994</i>	Biodiversity and habitat Catchment values
<i>Environment Effects Act 1978</i>	Integrated and sustainable transport
<i>Environment Protection Act 1970</i>	Amenity and environmental quality Biodiversity and habitat Environmental management framework Integrated and sustainable transport
<i>Flora and Fauna Guarantee Act 1988</i>	Biodiversity and habitat
<i>Heritage Act 1995</i>	Cultural heritage
<i>Land Acquisition &amp; Compensation Act 1986</i>	Social, land use and infrastructure
<i>Planning and Environment Act 1987</i>	Road safety and capacity Amenity and environmental quality Social, land use and infrastructure Visual and landscape values Biodiversity and habitat Catchment values Cultural heritage Environmental management framework Integrated and sustainable transport
<i>Road Management Act 2004</i>	Road safety and capacity
<i>Transport Integration Act 2010</i>	Integrated and sustainable transport
<i>Water Act 1989</i>	Catchment values
<i>Wildlife Act 1975</i>	Biodiversity and habitat

New South Wales	Evaluation objective
<i>Environment Planning and Assessment Act 1979</i>	Road safety and capacity Amenity and environmental quality Social, land use and infrastructure Visual and landscape values Biodiversity and habitat Catchment values Cultural heritage Environmental management framework Integrated and sustainable transport
<i>Threatened Species Conservation Act 1995</i>	Biodiversity and habitat
<i>Fisheries Management Act 1994</i>	Biodiversity and habitat Catchment values

Table 3 Relevant legislation

## 4.2 Project approvals

Section 3 of the EES (Vol 1) outlines the relevant approvals needed in order for the Project to proceed. For the Victorian component of the Project, this includes:

- An amendment to the Campaspe Planning Scheme under the *Planning and Environment Act 1987* (P&E Act).
- An approved Cultural Heritage Management Plan (CHMP) under the *Aboriginal Heritage Act 2006* (approved in November 2015).
- Consent to disturb an archaeological site under the *Heritage Act 1995*.
- Consents to undertake works near waterways under the *Water Act 1989*.
- Permits for the removal of listed flora and fauna from public land under the *Flora and Fauna Guarantee Act 1988* and possibly to take wildlife under the *Wildlife Act 1975*.
- Consents under the *Crown Land (Reserves) Act 1978* for works on public land.

The Project also requires approval under the Commonwealth EPBC Act before it can proceed.

### 4.3 State and Local Planning Policy

The Project area is included in the Campaspe Planning Scheme. VicRoads stated in the EES and in its Hearing submission that the Project addresses the following clauses in the State and Local Planning Policy Frameworks.

<b>State Planning Policy Framework - Campaspe Planning Scheme</b>	
<b>Clauses</b>	
<b>11</b>	<b>Settlement</b>
	<p><b>11.05 Regional development</b></p> <p>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.</p> <p>11.05-4 Regional planning strategies and principles To develop regions and settlements which have a strong identity, are prosperous and are environmentally sustainable.</p> <p><b>11.11 Loddon Mallee North regional growth</b></p> <p>11.11-5 Sustainable communities To protect and provide local sense of place.</p> <p>11.11-6 Networked settlements To develop a living network of towns.</p>
<b>12</b>	<b>Environmental and landscape values</b>
	<p><b>12.01 Biodiversity</b></p> <p>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.</p> <p>12.01-2 Native vegetation management To ensure that permitted clearing of native vegetation results in no net loss in the contribution made by native vegetation to Victoria's biodiversity.</p> <p><b>12.04 Significant environments and landscapes</b></p> <p>12.04-1 Environmentally sensitive areas To protect and conserve environmentally sensitive areas.</p> <p>12.04-2 Landscapes To protect landscapes and significant open spaces that contribute to character, identity and sustainable environments.</p>
<b>13</b>	<b>Environmental risk</b>
	<p><b>13.04 Noise and air</b></p> <p>13.04-1 Noise abatement To assist the control of noise effects on sensitive land uses.</p> <p>13.04-2 Air quality To assist the protection and improvement of air quality.</p>



<b>15</b>	<b>Built environment and heritage</b>																																				
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## 4.4 Strategic Documents

### Permitted clearing of native vegetation - Biodiversity assessment guidelines (DEPI 2013)

As set out in these guidelines the objective for permitted clearing of native vegetation in Victoria is 'No net loss in the contribution made by native vegetation to Victoria's biodiversity'. The key strategies for ensuring this outcome when considering an application to remove native vegetation are:

- Avoiding the removal of native vegetation that makes a significant contribution to Victoria's biodiversity
- Minimising impacts on Victoria's biodiversity from the removal of native vegetation, and
- Where native vegetation is permitted to be removed, ensuring it is offset by native vegetation that makes an equivalent contribution to Victoria's biodiversity.

A planning permit under clause 52.17 of the Campaspe Planning Scheme is required for the removal of native vegetation. A planning scheme Amendment is being undertaken to include an Incorporated Document that exempts the Project from the requirement to obtain such a permit.

## **PART B: ENVIRONMENTAL EFFECTS OF THE PROJECT**



## 5 Traffic and transport

Traffic and transport issues are addressed in Chapter 8 of the EES. They are based on the Traffic and Transport Impact Assessment, Jacobs 2015 and EES Technical Appendix B.

### 5.1 The issues

Road safety and capacity issues identified in the EES are:

- Exacerbation of congestion on the existing bridge and approach roads through the central business districts of Echuca and Moama, and the potential impact on emergency service response, in absence of an alternate crossing point.
- The capacity limit of existing bridge restricts freight movements requiring load separation prior to crossing the bridge.
- The current width of the existing bridge necessitates the closing of the opposing lane for the movement of over-dimensional vehicles and thus, such movements are restricted to off-peak periods.

These issues relate to how well the following EES draft evaluation objective has been met:

- 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.

### 5.2 EES documentation

#### Existing issues

The existing bridge can carry heavy vehicles (up to 42.5 tonne six axle semi-trailers and 62.5 tonne nine axle B-doubles). Alternative river crossings for larger loads are at Barham (86km to the north-west) and Tocumwal (120km to the east). Larger vehicles are required to separate their loads before crossing into Victoria and over-dimensional load crossings are restricted to off peak times.

Existing bridge traffic is around 18,600 two-way vehicles per day. This is expected to increase to 22,900 by 2029 and 25,000 by 2044. The bridge is approaching capacity on current traffic volumes. On projected volumes, significant delays could be expected at peak times, with long queues on approach roads to the bridge. Of particular concern is potential for long delays to emergency vehicles needing to cross the River.

Traffic counts indicate that the heaviest traffic volumes currently occur on the main arterial routes through Echuca and Moama i.e. Ogilvie Avenue, High Street, Heygarth Street and Meninya Street. Holiday and weekend traffic peaks create long delays on roads approaching the existing bridge. Peak daily volumes are around 22,000 vpd, and up to 25,000 vpd during large events.

Heavy vehicles represent approximately 8% of all traffic, although higher proportions are experienced in the grain and tomato harvest seasons.

Vehicle crash statistics show that 257 injury crashes were recorded in Echuca in the ten years from 2003 to 2013, including one fatality. In the same period 124 injury crashes were recorded in Moama, with two fatalities. The majority of crashes were on the main roads i.e. Northern Highway, Murray Valley Highway, Cobb Highway and in Meninya Street.

The existing train bridge across the Murray adjacent to the existing road bridge is unaffected by the Project. A number of existing bus services use the current bridge. These services will not be adversely affected by the Project, and in fact may benefit through reduced traffic delays.

### **Impact of the Project (preferred Mid-West Option)**

With the Project built, two-way daily traffic volumes on the existing bridge are expected to drop below current levels: 13,700 in 2029 and 15,000 in 2044. The existing bridge would operate well below capacity at these volumes, with corresponding reduced delays. Access for emergency vehicles would be dramatically improved with reduced delays on the existing bridge and the option of an alternative route in the event of an accident blocking one of the routes.

Traffic modelling predicts that the new bridge would mainly be used by traffic accessing the western areas of Echuca and Moama and the Northern and Murray Valley Highways to the west of Echuca. Most inter-town traffic is expected to continue to use the existing bridge.

Modelling predicts that around 42% of through traffic would be removed from the area of High Street near the Historic Port area by 2044, with benefits in terms of traffic and pedestrian safety.

While most streets in Echuca will experience reductions in traffic once the Project is constructed, Warren Street north east of the Murray Valley Highway will experience significant traffic increases. Traffic increases in the order of 50% are expected in this section of Warren Street compared to the no project scenario.

The Project is expected to attract 44% of the bi-directional truck traffic in 2029 and provide a route for over-dimensional vehicles.

Some traffic impacts can be expected during the construction period, although it is expected that impacts will be relatively minor, and disruptions can be minimised through careful construction planning.

## **5.3 Submissions**

VicRoads submitted that all three Mid-West Options shared the following common traffic and transport benefits:

- Improved cross border access
- Travel time savings for vehicle traffic
- Improved access for pedestrians and cyclists
- Improved emergency vehicle access, particularly during peak tourist periods
- Removal of over-dimensional load restrictions.

VicRoads submitted that the Mid-West 2A and Mid-West 2B options would provide a more direct and effective route from the Murray Valley and Northern Highways to the Cobb Highway, but would not be as effective in removing traffic from the existing bridge and the Historic Port area.

Campaspe Shire Council made the following comments in support of the preferred Mid-West alignment:

The MW alignment offers greatest reduction on the existing bridge benefitting both locals and tourists. Congestion is not restricted to major events or peak tourist seasons, but now regularly experienced, e.g. it is common that between 4-6pm on most Fridays the congestion reaches High Street.

The MW alignment offers greatest reduction of traffic in the historic Port precinct (i.e. High Street north of Heygarth Street) benefitting both locals and tourists.

The MW alignment offers greatest reduction of traffic in Heygarth Street. This is particularly valuable at the intersection with Hare Street, which is currently a major safety concern to Council and the Echuca Moama community. The MW alignment and associated traffic reduction is a major opportunity to remove a significant impediment to pedestrians and cyclists, sill better link the CBD and tourism precincts and improve traffic congestion on Heygarth Street and adjacent roads.

Traffic reduction along Ogilvie Avenue (between the Murray Valley Highway and High Street) offered by the MW alignment provides improved connectivity for locals.

The Council also commented that in the longer term *'the MW alignment offers a feasible opportunity for a third vehicle crossing of the Campaspe River (potentially at Heygarth Street) should it be deemed to be warranted in the future'*.

## **5.4 Discussion**

Each of the three mid-west alignment options seems to provide substantial benefits in terms of local traffic improvements and broader benefits to the road network. Many of the benefits are common to all three options, with the preferred Mid-West Option having some small advantages over Mid-West 2A and Mid-West 2B in terms of removing a greater number of vehicles from the existing bridge and the Historic Port area.

The additional traffic on Warren Street under the Mid-West Option is a disadvantage compared to the other options, but the Inquiry is satisfied that the design proposed can mitigate impacts by controlling access points and creating service roads as required. The projected longer term traffic volumes of 14,000 to 15,000 vpd, whilst considerably higher than current volumes, are not excessive provided that amenity impacts are managed.

## **5.5 Findings**

The Inquiry finds that:

- VicRoads has completed appropriate traffic modelling of the various route options compared to the 'no project' scenario. The modelling is sufficient to have confidence that all mid-west alignment options provide substantial benefits to both local traffic and the broader road network.
- The Mid-West Option is marginally preferred over the Mid-West 2A and Mid-West 2B Options from a traffic and transport perspective.
- The negative impacts of the Project of additional traffic on Warren Street can be mitigated by design responses.

## 6 Biodiversity and habitat

Chapter 9 of the EES (Vol 1) presents the biodiversity and habitat impact assessment for the Echuca-Moama Bridge Project (preferred Mid-West Option). Detailed description of the survey methods used and the species that were surveyed for the terrestrial biodiversity assessment is included in EES Technical Appendix C – Biodiversity and Habitat Impact Assessment.

### 6.1 The issues

The potential biodiversity and habitat impacts associated with the Project include:

- Loss of, or degradation to, native vegetation and associated significant habitat for listed flora species such as Blue Burr-daisy, Pale Flax-Lily and Weeping Myall.
- Loss of, or degradation to, habitat for listed species of fauna, in particular the South Eastern Long-eared Bat (Corben's Long-eared Bat), Masked Owl, Squirrel Glider and Yellow-bellied Sheath-tail Bat.

This issue relates to how well the following EES draft evaluation objective has been met:

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

### 6.2 EES documentation

The Biodiversity and Habitat Impact Assessment (Brett Lane & Associates, 2015) examined the existing terrestrial ecology of the study area and the potential impacts that the Project could have on terrestrial flora and fauna.

The Biodiversity and Habitat Impact Assessment is based on a number of assessments undertaken prior to the EES process, as well as the assessments completed as part of the EES process. These assessments included targeted terrestrial fauna and flora surveys during appropriate seasons. A comprehensive list of assessments and targeted surveys is provided in Table 9-1 of the EES (Vol 1).

#### Study area

In order to determine the significance of biodiversity and habitat impacts, it was considered necessary by VicRoads and Brett Lane & Associates (BLA) to include a wider area than simply the preferred alignment of the Mid-West Option. Including a wider area provided context for the impact assessment given that many fauna species readily move over larger areas than just the study area.

The construction footprint within the study area is the area for which the extent of direct impacts was assumed by BLA when assessing native vegetation and habitat removal for the Mid-West Option.

The study area is defined in Figure 4 (figure 9-1 in EES Vol 1).



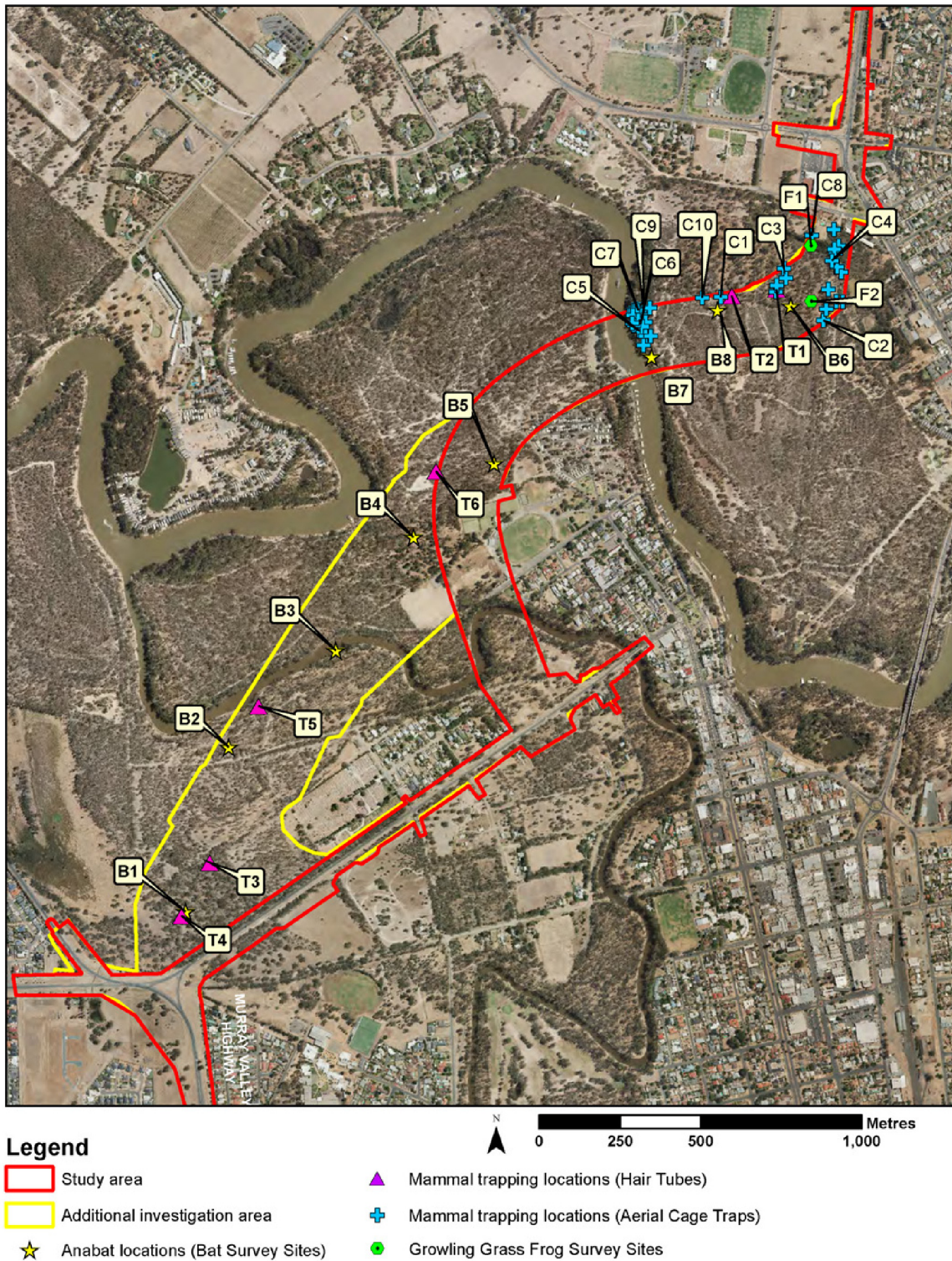


Figure 4 Study area for biodiversity assessments

**Existing conditions – flora**

A large proportion of the study area supports native vegetation. This includes a contiguous area of woodland vegetation between the Campaspe and Murray Rivers (predominantly



River Red Gum and Black Box). It also provides habitat linkages to other areas of woodland vegetation along the Murray River.

The Ecological Vegetation Classes (EVCs) present within the study area are:

- Semi-arid Woodland (EVC 97)
- Riverine Chenopod Woodland (EVC 103)
- Grassy Riverine Forest (EVC 106)
- Riverine Grassy Woodland (EVC 295)

Native shrubs and grasses are common near the rivers, although the EES suggests that the understorey layer is degraded, containing a high level of introduced flora and ground cover weed species. At the eastern end of Warren Street, and between the former Echuca Secondary College and the Murray River, there are large areas of Black Box Woodland. These areas support various native shrub and herb species and have a low instance of introduced flora.

No threatened ecological communities listed on the EPBC Act or the *Flora and Fauna Guarantee Act 1988* (Vic) (FFG Act) were identified in the Victorian component of the study area and were therefore considered in the EES as unlikely to occur. Targeted surveys were undertaken for four EPBC Act listed flora species that were considered to potentially occur in the study area. However, none of the EPBC Act listed species were recorded during the targeted surveys, and are therefore considered by BLA unlikely to occur in the study area.

There are no nationally significant flora species or communities affected by the Project. The flora species likely to be affected are listed under the Department of Environment, Land, Water and Planning (DELWP) Advisory List and the EES states that the impact is expected to be minor.

Two Blue Burr-daisy plants (rare) and an unquantifiable number of Pale Flax-lily plants (vulnerable) are proposed to be removed under the Project footprint.

#### **Existing conditions – fauna**

The Biodiversity and Habitat Impact Assessment identified fauna species that are of national, State and regional significance, and areas of fauna habitat in the study area.

The EES states that the high quality forest and woodlands, and moderate quality wetlands of the study area provide habitat for, and were found to attract, a diverse range of fauna. The fauna species found in the study area, particularly birds, were not usually restricted to certain habitats and were almost equally distributed amongst the different habitat types. However, water birds were generally confined to the riverbanks and wetland areas.

During field assessments, 139 fauna species were recorded in the study area. This included 105 birds (seven introduced), 22 mammals (four introduced), four reptiles and six frogs, as well as some fish species (discussed in the next section of the Inquiry report).

There are five major habitat types that occur in the study area. These types are:

- River Red Gum Woodland
- Black Box Woodland
- Mixed Murray Pine
- River Red Gum Wetlands

- Disturbed roadside vegetation.

Eight species considered likely to occur in the study area are listed under the EPBC Act. This includes seven birds and one mammal:

- Eastern Great Egret (Migratory)
- Rainbow Bee-eater (Migratory)
- Superb Parrot (Vulnerable)
- Swift Parrot (Endangered)
- White-bellied Sea-Eagle (Migratory)
- Fork-tailed Swift (Migratory)
- White-throated Needletail (Migratory)
- Koala (Vulnerable in NSW only)

The only EPBC listed fauna species recorded during the field assessments undertaken for the project was the Rainbow Bee-eater. The Rainbow Bee-eater is a summer visitor to the study area. The Rainbow Bee-eater is widespread in Australia, and though listed as a migratory species under the EPBC Act, it is not a threatened species. The EES states that removal of native vegetation within the study area is unlikely to have a significant impact on this species.

There were 16 FFG Act listed fauna species considered likely to occur, with three identified in site assessments:

- Masked Owl
- Squirrel Glider
- Yellow-bellied Sheath-tail Bat.

Of these three FFG Act listed fauna species recorded in the study area, all are dependent on hollow bearing trees.

### **EES overall habitat and biodiversity assessment**

The table below from the EES (Vol 1) shows assessment of the three options in terms of biodiversity and habitat. Yellow represents a low rating; orange represents a moderately poor rating; and light red represents a poor rating. The impacts have been assessed for the ultimate duplication of the second crossing.

Overall, based on an assessment against the EES evaluation criteria, the EES concluded that whilst the Project would result in localised impacts to biodiversity, with mitigation measures implemented, the Project would not significantly impact on biodiversity values of the region.

**Table 4-9 Overall biodiversity and habitat assessment ratings**

Biodiversity and Habitat Assessment				
Evaluation criteria	Assessment criteria	Mid-West Option	MW2A	MW2B
What is the extent of impact on listed flora species?	Removal of potential habitat for listed flora species within the study area	13.7ha	25.9ha	24.7ha
	Removal of confirmed habitat for two species on the DELWP Advisory List	7.5%	14.3%	13.6%
What is the extent of impact on listed fauna species?	Removal of potential habitat for listed fauna species within the study area	13.7ha 7.5%	25.9ha 14.3%	24.7ha 13.6%
	Removal of potential or confirmed habitat with a habitat score of 0.5 or more	5.3ha 39%	17.9ha 69%	17.4ha 70%
	Length of intact potential and confirmed habitat for listed fauna species dissected (thereby increasing potential for injury and mortality)	1.2km	2.5km	2.1km
What is the extent of impact to wildlife corridors?	Wildlife corridors including broader corridor along the Murray River between Barmah and Gunbower State forests	Yes	Yes	Yes
Is there an ability to readily secure offsets consistent with Environment Protection and Biodiversity Conservation Act requirements?	Offset target area for the South-eastern Long-eared Bat	54.6ha	103.8ha	98.8ha
	Readily available offsets (may be difficult to identify and secure)	No	No	No
Is there an ability to readily secure offsets consistent with Biodiversity Assessment Guidelines?	General equivalence units	4.537	-	1.650
	Minimum strategic score	0.354	0.500	0.498
	Specific units for Yellow Tongue Daisy	-	19.238	16.503
	Specific units for Blue Burr-daisy	-	21.765	-
	Ability to readily secure offsets	Yes	No	No

Table 4 Biodiversity and habitat assessment ratings

### 6.3 Evidence and submissions

A submission from DELWP Regional Services raised issues with the biodiversity and habitat impact assessment within the EES. The issues raised were mostly seeking clarifications, advice on native vegetation assessments, additional mitigation measures and edits that were required for the EES to be accurate. There were no major issues of contention.

The NSW Office of the Environment and Heritage (OEH) provided a submission on the REF document (exhibited with the EES) which raised issues regarding the Masked Owl in particular as well as impacts on Sloane's Froglet (discussed further in section 7 of the Inquiry report). Issues raised by the OEH relate to the NSW component of the Project

The Inquiry sought clarification on a number of matters as detailed in its Directions Letter (dated 30 October 2015). Mr Lane addressed these matters in his expert witness statement, discussed further below.

The Shire of Campaspe noted in its submission to the EES that:

Council recognises that there have been multiple flora and fauna surveys (both terrestrial and aquatic) conducted over many years. The consideration of impacts on biodiversity and habitat within the EES is therefore comprehensive.

The results of the flora and fauna surveys are comprehensive and provide great information to user groups and Council as the Land Manager for the Victoria Park Nature Reserve;

The project specific environmental management measure, FF11 to prepare a management plan for the Reserve, will improve the environmental outcome and will be a great opportunity for Council as the land manager to work with VicRoads and the Ecologist for the future management of Victoria Park Reserve.

### **Native vegetation removal and offsets**

The EES states there would be 13.655ha of remnant native vegetation removed for construction of the Project (Mid-West Option). A native vegetation assessment was undertaken using the habitat hectare assessment method from the Victorian *Permitted clearing of native vegetation - Biodiversity assessment guidelines* (DEPI 2013). The removal of native vegetation would be offset, as required under the Biodiversity Assessment Guidelines (discussed further below). The risk-based assessment pathway that applies to this Project for the Victorian native vegetation assessment is Moderate based on the Biodiversity Impacts and Offset Requirements report provided by DELWP.

There will be 221 Large Old Trees removed from the study area (a total of almost 700 of Large Old Trees were recorded). The EES states that the extent of hollow bearing trees removed would be a comparatively small proportion of the treed habitat on the Murray and Campaspe River floodplains near Echuca-Moama and that the overall impact on habitat is expected to be minor.

DELWP clarified (in a letter to the Chair dated 11 November 2015) that there will be a total of 14.147ha of native vegetation removed which is comprised of 13.655 ha of remnant patch vegetation and 0.492ha of scattered trees (7 trees). Both of these categories of native vegetation contain hollow-bearing trees. DELWP emphasized that although it concurs with the findings of BLA's report, it should be noted that under the FFG Act the loss of hollow bearing trees from Victorian native forests and woodlands is identified as a threatening process in Victoria. DELWP states that:

Care and extra planning is required when removing the hollow bearing trees, to ensure fauna species are not occupying the tree and are safely relocated to nearby habitat. This will reduce the short term impact of the construction works.

Mr Lane explained in his expert witness report that each scattered tree removed equates to 0.071ha each under the biodiversity assessment guidelines.

DELWP state in their submission to the EES that the correct offset requirement for the removal of native vegetation is 4.568 general biodiversity equivalent units. The general biodiversity equivalent score of the native vegetation to be removed is 3.045.

In its letter to the Inquiry Chair, DELWP states:

While VicRoads states that 'suitable offsets to meet these requirements are available in the VicRoads offset bank and other sources' (p9-27) an offset strategy is not provided in

the EES. This strategy would be required by DELWP prior to any native vegetation removal in accordance with the native vegetation policy.

In response, Mr Lane provided correspondence between BLA and VicRoads (through Ms Porter of Counsel representing VicRoads) indicating that VicRoads confirmed that it has secured '2.660 general biodiversity equivalence units in the offset bank all of which has a SBS (strategic biodiversity score) 0.354 or above' and that Vegetation Link has confirmed that the other 1.908 general equivalence units are available.

Under the Guidelines all offsets must be secured prior to the removal of native vegetation. Offsets should be identified through a native vegetation broker or by VicRoads itself.

DELWP suggested a number of additional mitigation measures be adopted to reduce the impact of removing hollow bearing trees on fauna such as erection of appropriate-sized nesting boxes, and placing hollow-bearing trunks on the ground in adjacent remnant vegetation so hollow-dependent fauna can continue to use them as habitat. These additional measures should be incorporated into VicRoads' 'Consolidated List of Mitigation Measures for the Echuca Moama Bridge Project' (Appendix E).

### **Large Old Trees**

An important habitat feature for fauna is hollow bearing trees. Such trees provide breeding sites for a range of bird species and day-time dens for tree-dwelling mammal species. Information collected on trees within the study area was in line with the requirements of each State. As such, hollow tree mapping was undertaken in NSW whereas in Victoria, all Large Old Trees (LOTs) within patches of native vegetation were mapped. Although specific hollow tree mapping was not undertaken in the Victorian section of the study area, many of the mapped LOTs were considered likely to bear hollows. Of the LOTs recorded in the Victorian section of the study area (which Mr Lane suggests in his expert witness statement is almost 700 LOTs), 221 are proposed for removal. Two thirds of the hollow bearing trees recorded within the study area will remain. Furthermore, numerous hollow bearing trees occur within contiguous habitat outside and adjacent to the study area.

### **Wildlife Corridors and Habitat Fragmentation**

The key impacts arising from the Project are to threatened fauna species through removal of habitat, and particularly hollow bearing trees.

The biodiversity and habitat impact assessment also considered the potential impact on wildlife corridors. The landscape of the study area and surrounds has changed significantly following European settlement and the introduction of various agricultural practices.

The Project would not contribute significantly at a regional scale to the fragmentation of existing wildlife corridors as this habitat is already fragmented due to historical and existing land uses. However, the Project would lead to fragmentation at a local scale specifically affecting Victoria Park. It is likely that many of the remaining fauna species in the existing habitat have already adapted to a degree of habitat fragmentation.

With the implementation of VicRoads standard environmental protection measures, and the additional measure of creating a management plan to mitigate the potential impacts on Victoria Park and its habitat, the impact to wildlife corridors is expected to be minor.

### **South Eastern Long-eared Bat (Corben's Long-eared Bat)**

The South Eastern Long-eared Bat (EPBC listed) was initially considered to be present within the study area, based on the analysis of calls recorded during targeted bat surveys and initial findings that there was suitable habitat present. However, a subsequent peer review of these findings found that the habitat was not suitable and the recorded calls could not be attributed to the South Eastern Long-eared Bat. As such, this species is considered not likely to occur within the study area and the Project would not impact upon this species.

The South Eastern Long-eared Bat roosts in tree hollows, crevices and under loose bark within a variety of inland woodland vegetation types scattered throughout the region. Capture rates vary across NSW and Victoria and records of the species are very limited in Victoria. The two closest records to the study area are near Terrick Terrick National Park, approximately 50km west of Echuca.

The South Eastern Long-eared Bat was formally described in 2009 and requires capture to be able to distinguish it from the closely related Gould's Long-eared Bat (*Nyctophilus gouldi*) and Lesser Long-eared Bat (*Nyctophilus geoffroyi*). Although the Draft South Eastern Long-eared Bat Recovery Plan (Schulz and Lumsden 2012) asserted the bat was considered to be potentially absent from River Red Gum forests along the Murray River, there is much about the ecology of the species which remains unknown.

Analysis of bat calls from the study area conducted by Dr. Greg Richards (Greg Richards and Associates) identified the presence of the South Eastern Long-eared Bat. However, it was found the recorded calls could not reliably attribute the call to the South Eastern Long-eared Bat due to its call similarity to the Gould's Long-eared Bat and Lesser Long-eared Bat.

The subsequent peer review of bat surveys was conducted by Gration in 2015. Consultation with subject matter experts resulted in a consensus that suitable habitat for the South Eastern Long-eared Bat was not present within proximity of the study area. As such, this species was considered not likely to occur within the study area (Gration, 2015). The preliminary documentation exhibited in accordance with the EPBC Act reflects the outcomes of the peer review.

### **Masked Owl**

This species mostly occurs in open woodlands and forests that provide dense and tall tree cover, and adjoining open habitats such as cleared farmlands (Higgins 1999).

Masked Owl pairs occupy a home range of between 400 and 1,100ha (DEC 2006). The area of treed habitat being removed in Victoria, at 13.655ha, according to BLA, represents a very small proportion of a likely home range for this species.

The NSW OEH stated in its submission to the REF document that:

A lack of records in the Echuca/Moama region is provided as justification for concluding that Masked Owls are unlikely to breed in the area. Scarcity of records may be a result of underreporting or lack of survey.

The NSW OEH further suggested that:

Masked Owls are generally sedentary with regular territories and preferentially used trees. A Masked Owl territory in the vicinity of the proposal site is likely to include a

relatively large area of forest extending into Victoria and along the Murray River corridor....Masked Owls are known for not uniformly using all parts of their territory. There may be pockets of habitat that are used intensively during breeding but not visited for the rest of the year. There may also be a number of nest trees in one territory so a particular tree may not receive annual use. Therefore, a small area of habitat with a particular favourite nest tree could be disproportionately important to a pair of owls. Construction through a masked owl territory is likely to increase the probability of traffic strike.

The EES suggested that the Project will potentially remove breeding and foraging habitat for the Masked Owl. However, given the limited development footprint of the Project compared with the usual home range size of the Masked Owl and the likelihood that the individual or individuals living in the treed habitats in the study area are already adapted to a developed landscape, the EES states that the probability that the Project will lead to a decline in the species in the area is considered very low.

The NSW OEH suggest further assessment of known hollow-bearing trees in the NSW proposal area to identify the presence of Masked Owl breeding sites and potential territory. Mr Lane also suggested a pre-construction assessment in Victoria for this species during his evidence statement to the Inquiry as there is a *'moderate to high risk of breeding in the area'*.

### **Squirrel Glider**

The nocturnal Squirrel Glider occurs in woodlands, including narrow, linear remnants that support a combination of older trees with sufficient den hollows. The BLA and the Australian Research Centre for Urban Ecology results indicate that a small Squirrel Glider population occurs in the area. Squirrel Glider occurs along the Murray River between the Gunbower Forest and the Keiwa River (Ahern 2003). The results of the surveys indicate that the species is likely to occur at a low density in the River Red Gum Woodlands on the floodplains of the Murray and Campaspe Rivers.

Suitable habitat in the area occurs mostly along the river bank where there are hollow trees and a sub canopy of wattles.

Wattles will only be removed where the bridge crosses the river and lengthy river bank populations of wattles will remain in the area. The Project therefore is unlikely to result in a significant reduction in the availability of a winter carbohydrate source for the glider and the species is most likely to persist in the area after the Project is completed.

### **Yellow-bellied Sheath-tail Bat**

The Yellow-bellied Sheath-tail Bat is a wide-ranging species found across northern and eastern Australia. In the most southerly part of its range, it is a rare visitor in summer and autumn. Seasonal movements are unknown; there is speculation about a migration to southern Australia in late summer and autumn. The review of existing information and results of the bat surveys suggest that while the Yellow-bellied Sheath-tail Bat may infrequently occur in the region, it is unlikely to be a permanent resident there, considering the dispersive characteristics of the species. It is also unlikely that the species breeds in the region, as very few captured specimens in southern Australia have been in breeding

condition. The EES states that the impacts on Yellow-bellied Sheath-tail Bat as a result of the Project would likely be negligible.

## **6.4 Discussion**

The Inquiry notes the comprehensive nature of the flora and fauna surveys and considers that they provide adequate and more than satisfactory information with which to assess the impact of the Project on the biodiversity and habitat values of the Project area. The Inquiry also acknowledges the submission from the DELWP and correspondence from DELWP to the Inquiry Chair dated 11 November 2015, which further clarified a number of matters raised by the Inquiry in its Directions Letter (dated 30 October 2015).

Although not a submission to the EES, but rather to the NSW REF, the Inquiry has also taken into consideration the submission from the NSW OEH regarding the Masked Owl and the Sloane's Froglet, as relevant to the Victorian section of the Project.

The expert witness report prepared by Mr Lane (BLA) also clarifies and provides detailed responses to those matters raised by the Inquiry in the Directions Letter.

### **Native vegetation removal and offsets**

A total of 14.147ha of native vegetation will be removed (in the Victorian section of the Project) which comprises of 13.655 ha of remnant patch vegetation and 0.492ha of scattered trees (seven trees). There are 221 out of almost 700 LOTs proposed for removal recorded in the Victorian section of the study area. Two thirds of the hollow bearing trees recorded within the study area will remain.

VicRoads provided evidence that it has secured an offset for the native vegetation removal (document 7). As stated in DELWP's letter to the Inquiry (11 November 2015) *'This strategy would be required by DELWP prior to any native vegetation removal in accordance with the native vegetation policy'*.

### **Masked Owl**

In response to a question from the Inquiry, Mr Lane suggested that there is a moderate-high risk that the study area is used for breeding for the Masked Owl that has been recorded in the area during the site surveys, although Mr Lane suggests the Masked Owl could also have been a floater not a territorial pair. Mr Lane recommended a pre-construction assessment for this species and the Inquiry notes that the NSW OEH has recommended a pre-clearance survey for Masked Owl nests and review of the assessment of significance based on the survey results for the NSW component of the Project.

It is not the role of this Inquiry to make comment on the NSW section of the Project, however it is noted that there is a need for further assessment in both Victoria and NSW for this species prior to construction as put forward by Mr Lane and the NSW OEH.

### **Pale Flax-lily**

There is unlikely to be any significant impact on this species given that Pale Flax-lily is present in numbers too numerous to record throughout the study area and only a portion of this area is to be impacted by the Project. Furthermore, the Riverina is a large region where substantial areas of habitat for this species will remain after delivery of the Project. Pale



Flax-Lily is listed as vulnerable in Victoria on the DELWP Advisory List. The DELWP Advisory List has no statutory implications.

Overall, the Inquiry notes DELWP and Campaspe Shire Council's submission that the EES adequately addresses biodiversity matters.

No other submission on the EES was received in relation to biodiversity impacts. The NSW OEH provided a submission on the Review of Environmental Factors and where relevant to Victorian matters, this has been discussed above.

## 6.5 Findings

The Inquiry finds that, although there will be a total of 14.147ha of native vegetation removed (13.655ha of remnant patch vegetation and 0.492ha of scattered trees), the biodiversity assessments undertaken for the EES have been comprehensive and indicate that the vegetation is of low-moderate ecological value. The Inquiry also notes that when removing the native vegetation, VicRoads will consider the presence of hollow bearing trees. The Inquiry also accepts the finding in the EES that the Project would not contribute significantly at a regional scale to fragmentation of this wildlife corridor as habitat is already fragmented by historical land uses.

The Inquiry accepts that an offset has been secured by VicRoads, and that VicRoads and its contractors will endeavour to protect as many hollow-bearing and large old trees as possible, and that this mitigation measure is reflected in the *'Consolidated List of Mitigation Measures for the Echuca-Moama Bridge Project'* document (Appendix E) as well as in VicRoads Project Environment Protection Strategy (PEPS) document and the contractors Construction Environmental Management Plan (CEMP).

The Inquiry also accepts the evidence of Mr Lane in regard to the Masked Owl and suggests that a pre-construction survey for the Masked Owl be undertaken to determine if the species is breeding in the study area.

A bat survey and a peer review were undertaken for the South Eastern Long-eared Bat (listed under EPBC Act). Initially, based on the analysis of bat calls recorded during the bat surveys, it was determined that this species was present in the study area. BLA explained that a subsequent peer review of these findings found that the habitat present was not suitable and that the recorded calls could not be attributed to the South Eastern Long-eared Bat. The Inquiry accepts that advice has been provided by the Commonwealth regarding the South Eastern Long-eared Bat and that via peer review it has been determined that the South Eastern Long-eared Bat is unlikely to be present.

The Inquiry accepts the findings of the EES and additional information presented in Mr Lanes report and accepts that overall, the impacts on terrestrial flora and fauna are not expected to be significant.

The Inquiry also finds that the EES satisfactorily addresses the EES objective of:

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

## 6.6 Recommendations

The Inquiry makes the following recommendations in relation to biodiversity and habitat:

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.**
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.**
3. **Incorporate the mitigating 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.**
4. **Undertake a pre-construction survey for the Masked Owl to determine if the species is breeding in the study area.**

## 7 Aquatic flora and fauna

Chapter 10 of the EES (Vol 1) details the aquatic flora and fauna impact assessment. Detailed description of the survey methods used and the species that were surveyed for is included in EES Technical Appendix D – Aquatic Flora and Fauna Impact Assessment.

### 7.1 The issue

The potential aquatic biodiversity and habitat impacts associated with the Project include:

- Degradation to local and downstream aquatic habitat from increase in sedimentation (addressed in the next chapter of the Inquiry's report).

This issue relates to how well the following EES draft evaluation objective has been met:

- To avoid or minimise adverse effects on native vegetation and listed flora and fauna species and ecological communities, and address opportunities for offsetting potential losses consistent with relevant policy.
- To maintain floodplain functions...of proximate sections of the lower Campaspe and Murray Rivers.

### 7.2 EES Documentation

The Aquatic Flora and Fauna Impact Assessment (GHD, 2015; EES Technical Appendix D of the EES) examined the existing aquatic ecology of the study area and the potential impacts that the Project could have on aquatic flora and fauna.

The Murray River falls under NSW jurisdiction, however both the Victorian and NSW areas of the Project were assessed for any impacts to aquatic ecology in the EES.

#### Study area

The study area for the Aquatic Flora and Fauna Impact Assessment included the proposed Right-of-Way, as well as the intersecting waterways (Murray River and Campaspe River) and floodplain wetlands (e.g. unnamed wetlands in NSW), (See Figure 5). The preferred alignment traverses the Campaspe River floodplain and some of the Murray River floodplain.

A buffer of 5km out from the river edges was also allowed for in the study area. Consideration of the Murray River is required particularly because it is connected to the Campaspe River and the adjoining wetland systems in both Victoria and NSW. These systems are all integrated, and aquatic flora and fauna move freely throughout these water bodies.

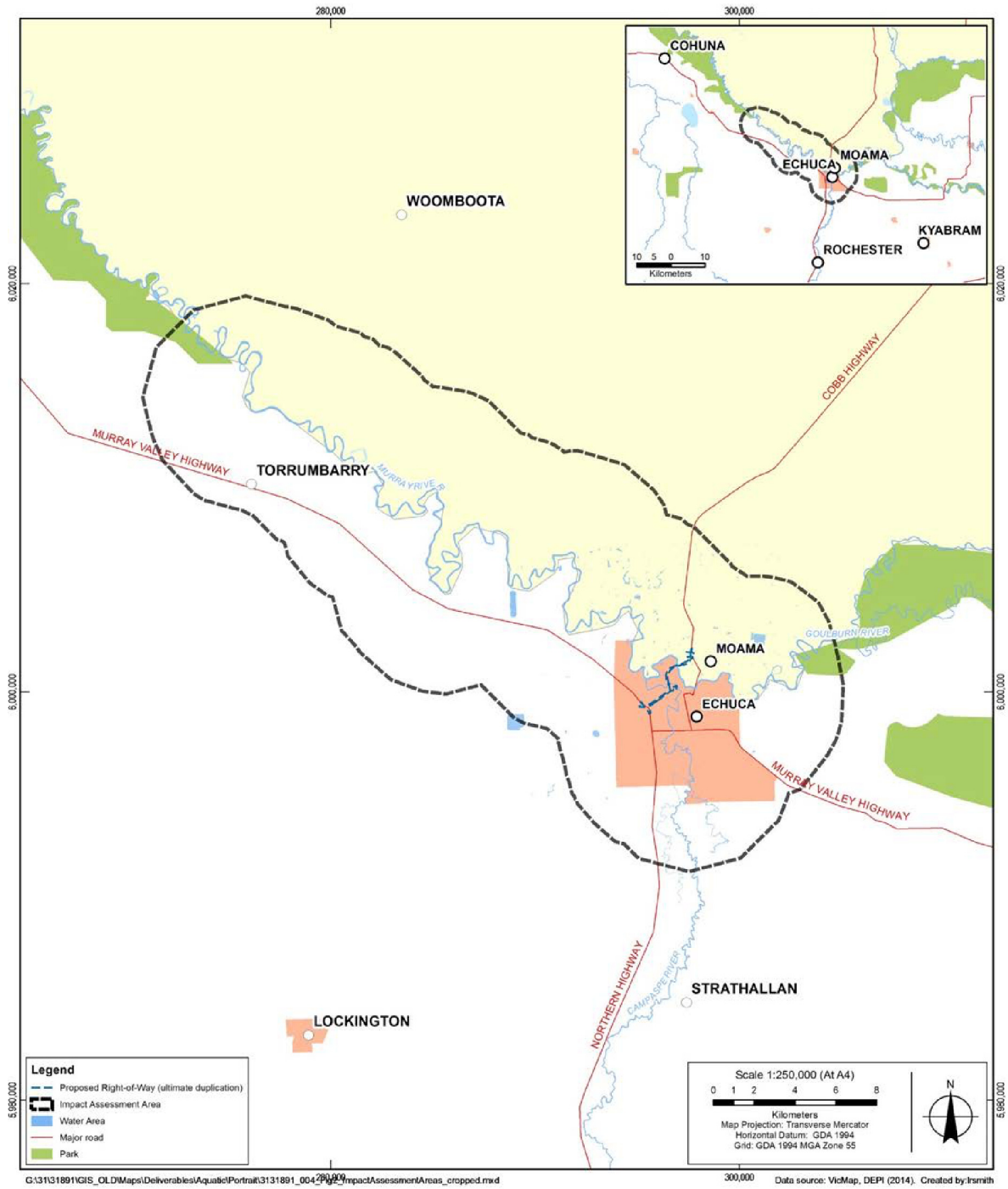


Figure 5 Aquatic flora and fauna study area

**Current conditions**

The Murray River aquatic habitat investigated included a 600m stretch of river centred on the boat ramp, located on the Victorian side of the River, which is approximately where the proposed bridge would be built.

In this reach of the Murray River, the River is unconfined and meandering, with a bed of fine-grained sediments. At the proposed crossing, the river is approximately 70-80m wide with

sloped banks on both sides. Sand deposition occurs on the Victorian side of the River, linked to existing erosion control measures (rock beaching). At the proposed bridge crossing there is no overhanging vegetation, or any large woody habitat on the banks.

Fauna habitat in this reach of the Murray River comprises low levels of in-stream wood or tree roots which provide shelter, breeding and ambush sites for many fish species. This lack of habitat, combined with the area being widely used for recreational activities such as fishing, power boating and paddle-steamers, is likely to result in this area being less preferred by many fish species.

The EES also states, regarding River health in this reach of the Murray River, the condition of macro invertebrate assemblages and fish assemblages are very poor to poor respectively.

### **EES findings**

No National or State threatened species were sighted during the field surveys by GHD of the study area, although desktop assessments listed 16 threatened flora and fauna species that could occur in the study area.

The four species that are likely to occur include:

- Murray Cod (EPBC vulnerable, FFG listed, on DELWP Advisory List)
- Silver Perch (EPBC critically endangered, FFG listed, on DELWP Advisory List)
- Golden Perch (on DELWP Advisory List)
- Murray Spiny Crayfish (FFG listed, on DELWP Advisory List).

The four species that could possibly occur include:

- Trout Cod (EPBC endangered, FFG listed, on DELWP Advisory List)
- Freshwater (Eel-tailed) Catfish (FFG listed, on DELWP Advisory List)
- Flat-headed Galaxias (on DELWP Advisory List)
- Murray River Turtle (on DELWP Advisory List).

The assessment found that construction of the Project had associated risks that could cause insignificant to minor adverse impacts on aquatic flora and fauna, including:

- Potential to encounter EPBC and Victorian threatened species and their habitat
- Contamination of water that could enter downstream wetlands
- Increased erosion
- Increased noise and vibration
- Destruction of riparian vegetation
- Infestation of aquatic weeds and introduction of pathogens
- Impeding the passage of aquatic fauna
- Impacts on floodplain habitat and ecological function.

The EES states that many of these minor impacts of the Project are considered unlikely to occur.

### **7.3 Evidence and submissions**

The submission from DELWP raised some matters relating to aquatic flora and fauna. These issues are:

- A threatening process under the *Flora and Fauna Guarantee Act 1988* that needs to be included in the list is infection of amphibians with Chytrid fungus, resulting in chytridiomycosis.
- It is preferable that the timing of noisy work avoids the breeding season of aquatic fauna to minimise impacts.
- Chapter 10 of the EES does not mention Chytrid fungus as a potential threat to frog populations on the floodplain and in the river channels. Mitigation measures to prevent spread of weeds and pathogens during construction (AQ15 in Table 10-3) should include specific measures in the Construction Environmental Management Plan to prevent introduction of this fungal pathogen into local frog populations.

VicRoads' document *Consolidated List of Mitigation Measures for the Echuca-Moama Bridge Project* includes a commitment to preventing the spread of the Chytrid fungus and mitigation measures are proposed. These will need to be reflected in the PEPS and contractor's CEMP.

The DELWP recommendation that the timing of noisy work avoids the breeding season of aquatic fauna to minimise impacts will also need to be reflected in this table, the PEPS and the contractor's CEMP.

The NSW OEH provided a submission on the Review of Environmental Factors document (REF exhibited with the EES) which raised issues regarding the potential impacts on the Sloane's Froglet, an aquatic species that the NSW OEH state has been found in the Victorian section of the study area.

The NSW OEH recommends assessment of the impact of the Project on Sloane's Froglet, as it is known to occur in the wetland habitats in the Murray Local Government Area (NSW). The OEH also noted that the Sloane's Froglet has been recorded 4km along the Murray River to the north west of the Project site and across the river in Echuca.

No expert witness statement was provided on aquatic biodiversity, although Mr Lane included the following statement in his expert witness statement regarding risks from weed and pathogens:

Risks from weed and pathogen outbreaks in the construction zone and adjacent habitats are expected to be minimised by implementation of hygiene measures. Experienced vegetation management contractors will be engaged to control any weed outbreaks.

## **7.4 Discussion and findings**

The Inquiry has reviewed the EES documentation and technical reports regarding aquatic biodiversity and agrees with the EES findings that impacts to the four species likely to occur within the River and wetland systems (Murray Cod, Silver Perch Golden Perch and the Murray Spiny Crayfish) will be minimal, and that the proposed mitigation measures to reduce potential impacts (which occur mostly during the construction period) are satisfactory.

It is suggested that the EES potential impacts (if any) to Sloane's Froglet in the Victorian Project area raised by NSW OEH be assessed prior to construction.

The Inquiry Panel finds that there are appropriate mitigation measures proposed in the 'Consolidated List of Mitigation Measures for the Echuca-Moama Bridge Project' document provided by VicRoads to ensure minimal impacts to aquatic flora and fauna during

construction. This list of mitigation measures is to be incorporated into VicRoads Project Environment Protection Strategy (PEPS) document and the contractors Construction Environmental Management Plan (CEMP).

## **8 Aboriginal cultural heritage**

Chapter 11 of the EES (Vol 1) details the Aboriginal Cultural Heritage Impact Assessment undertaken by Heritage Insight. A separate Cultural Heritage Management Plan (CHMP) has been prepared in consultation with the Yorta Yorta Nation Aboriginal Corporation (YYNAC) and approved for the Project. The CHMP was not exhibited with the EES. The technical document is found in EES Technical Appendix E – Cultural Heritage Report (Heritage Insight Pty Ltd).

### **8.1 The issue**

The potential Aboriginal cultural heritage impacts associated with the Project include:

- The potential for adverse effects on Aboriginal cultural heritage.

This issue relates to how well the following EES draft evaluation objective has been met:

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

### **8.2 EES documentation**

The Aboriginal Cultural Heritage Impact Assessment examined the potential for the Project to encounter and impact on places of Aboriginal cultural heritage value within Victoria.

#### **Study area**

The desktop assessment indicated people have occupied the Echuca region for at least 30,000 years. The study area for the Aboriginal cultural heritage impact assessment extends north and east of the proposed ROW to include the passive recreation area of Victoria Park, and also extends to include an area to the south of Warren Street and west of the Murray Valley Highway (see Figure 6 below).



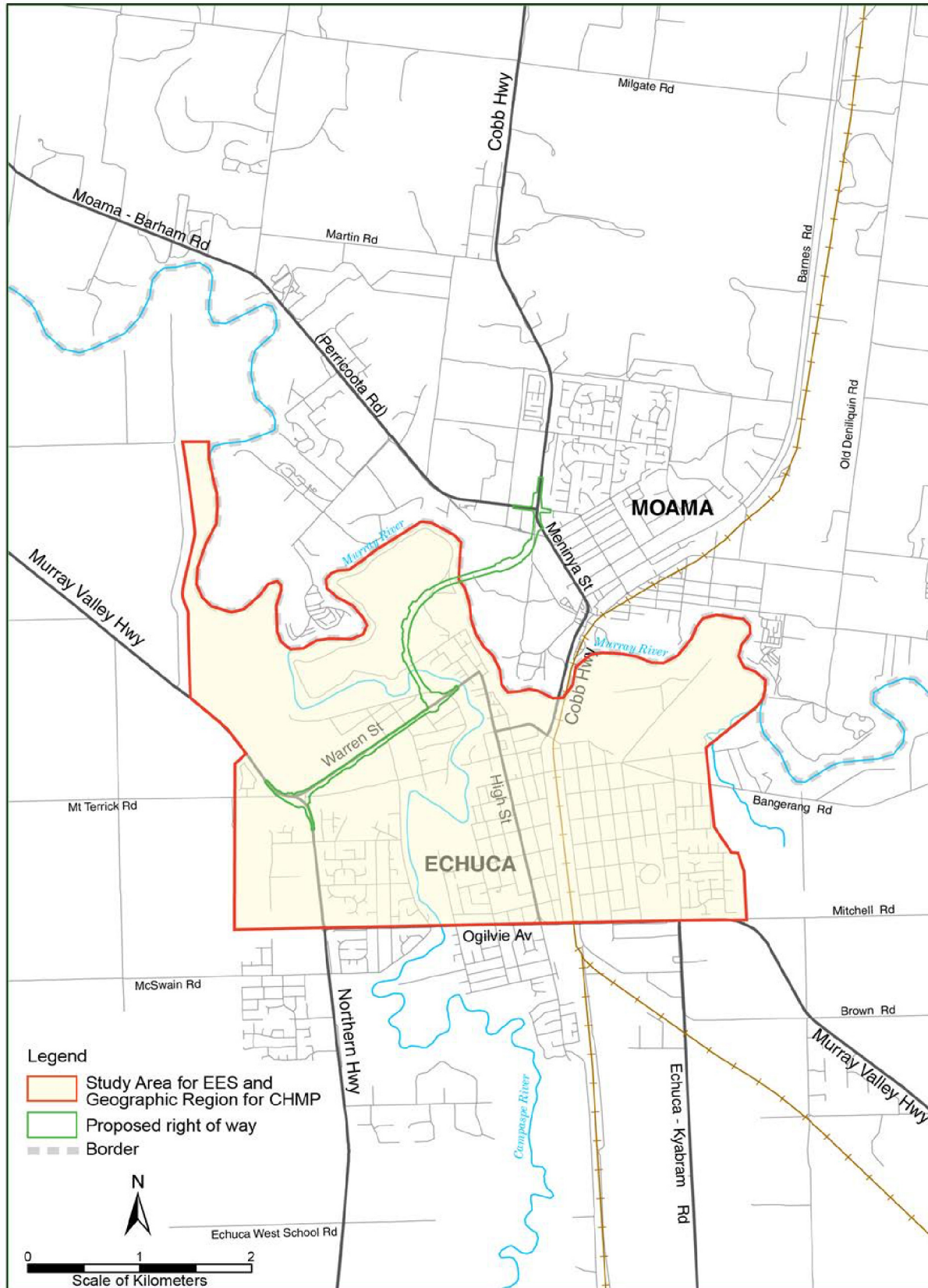


Figure 6 Aboriginal cultural heritage study area for the EES

**EES findings**

Heritage Insight found that there are 87 registered Aboriginal cultural heritage places located within the geographic region, including six scarred trees identified within and one just outside of the proposed Right of Way (ROW). Assessment of these trees using the Australian International Council on Monuments and Sites' Burra Charter criteria determined they are of considerable aesthetic, historical, scientific and social value both to the contemporary Yorta Yorta people, other Aboriginal communities and the wider Australian community.

Construction works for the initial alignment would have the potential to directly impact on one dead scarred tree and three live scarred trees within the proposed ROW, as well as one live tree located just outside of the proposed ROW. The dead tree would be relocated prior to construction, however, it is still considered that the Project could result in a moderate impact on this tree. The four live scarred trees would be retained in their current locations, with the Project design minimising any disruption to the water supply of these trees. It is therefore considered by Heritage Insight that the impact of the Project on these four live scarred trees would be minor.

Similarly, a live scarred tree is located adjacent to the proposed Murray River bridge structure. Although this tree would be retained as part of the Project, it would require lopping prior to construction of the ultimate duplication. The EES suggests that provided this was undertaken by a qualified arborist, it is expected the impact of the Project on this tree would also be minor.

A second dead scarred tree on the southern side of Warren Street would be retained as part of the initial alignment. The base of this tree is largely rotted out and VicRoads would monitor its condition and discuss options for treatment with the YYNAC if it was identified that the tree was at risk of collapse. To avoid further impacts, the tree would be relocated prior to construction of the ultimate duplication. Provided this was undertaken by a qualified arborist, it is expected the impact of the Project on this tree would be minor.

Sub-surface investigations identified two deposits of stone artifacts just north of the Campaspe River, within the proposed ROW and near to where the proposed bridge piers would be constructed.

One of these deposits, consisting of three stone artifacts, would most likely be disturbed during construction, but this is not considered to be significant given it is within highly disturbed soil.

**Sandhill area**

The sandhill near the former Echuca Secondary College site, the banks of the Murray and Campaspe Rivers and permanent spill or temporary sedimentation basin excavation areas have all been identified in the technical assessment as sensitive areas that may contain sub-surface Aboriginal cultural heritage places, including Aboriginal ancestral remains. Construction works at these locations would be undertaken in accordance with an approved CHMP. Additional approval of protocols for the protection of ancestral remains and other unidentified Aboriginal cultural heritage places would also be sought from the YYNAC.

No excavation other than minimal topsoil removal would occur at the sandhill location and a rigid road pavement would be used to minimise the potential for compression of the underlying sand deposits. Consultation would be undertaken with the YYNAC to determine the most appropriate arrangement for a new emergency access on or near the high point of the sandhill, and its use would be restricted to emergency services. Pavement material would be placed on top of the existing ground to enable access for emergency vehicles whilst minimising disturbance to the natural surface.

### CHMP activity area

VicRoads is required to prepare a CHMP for the section of the Project that is in Victoria, pursuant to the *Aboriginal Heritage Act*. A mandatory CHMP is required as the construction of the Project is considered a high impact activity, which would occur in areas of cultural heritage sensitivity that have not been subject to significant ground disturbance, as defined in the *Aboriginal Heritage Regulations 2007*. Areas of cultural heritage sensitivity include land within 200m of the Murray and Campaspe Rivers and land within 50m of any registered Aboriginal places.

### EES overall Aboriginal cultural assessment

Table 5 below from the EES (Vol 1) shows the assessment of the three options in terms of cultural heritage; orange represents an impact or intrusion on heritage sites; green represents a benefit (ability to protect and avoid intrusion into heritage sites); and light green represents no change. The impacts have been assessed for the ultimate duplication of the second crossing.

Overall, based on an assessment against the EES evaluation criteria, the EES concluded that from a cultural heritage perspective the Mid-West Option is the best performing of the three options, as it traverses less of the bushland area within Victoria Park and has less overall impact on registered Aboriginal sites. Importantly, it would avoid intrusion into the culturally sensitive sandhill and have the least severance of the sandhill area.

Aboriginal and Historic Heritage				
Evaluation criteria	Assessment criteria	Mid-West Option	MW2A	MW2B
Extent of impact on registered Victorian Aboriginal heritage places	Number of registered sites within corridor (scarred trees)	6	34	34
	Number of registered sites impacted	2	1	1
Extent of impact on potential Victorian Aboriginal heritage places	Extends across sand hill (high potential sensitivity for sites and ancestral remains)	Yes	Yes	Yes
	Severance of the sand hill	No	Yes	No
	Construction able to exclude intrusion into sand hill	Yes	No	Yes

Table 5 Aboriginal and historic heritage assessment

## 8.3 Evidence and submissions

No issues of concern were raised in submissions regarding Aboriginal cultural heritage. The Inquiry did ask for clarification on matters regarding the sandhill area, in particular what the rigid pavement/concrete slab treatment means and whether agreement had been reached

with the YYNAC on this treatment. The Inquiry also asked VicRoads whether it considered options that avoided the Sandhill area.

VicRoads provided an expert witness statement report from Mr David Rhodes of Heritage Insight Pty Ltd. Mr Rhodes' report responded adequately to the Inquiry's queries and importantly, the CHMP (10959) has been approved by the YYNAC, who are the Registered Aboriginal Party for the Echuca region. The management recommendations for Aboriginal heritage in the CHMP are now statutory compliance requirements for the Project.

In response to the sandhill area Inquiry question, Mr Rhodes provided the following:

The issue of the sandhill surrounding and within the premises of the former Echuca High School has been dealt with in detail both in the EES and CHMP. The sandhill is an area of very high sensitivity for Aboriginal ancestral remains and historical documentation and anecdotal historical evidence of human burials in the sandhill was uncovered during investigations for this EES and CHMP. There has been considerable discussion between the Yorta Yorta Nation Elders Council, VicRoads and the expert about the treatment to be applied to a short section of the sandhill traversed by the road. VicRoads has agreed to construct the road on an elevated pavement that requires minimal excavation, where the road crosses the bridge. The method for crossing the sandhill is specifically dealt with in Recommendation 9 of the CHMP....

Recommendation 9 – Balance of the Sandhill to the North of the former Echuca High School:

.....VicRoads must ensure that the proposed rigid pavement design is used for the road to cross over the section of the sandhill situated north of the former Echuca High School .... The design of the elevated pavement must follow the example contained in Figure 1. The purpose of the elevated pavement is to ensure that excavation to construct the road is minimised and also to reduce the load bearing down on the sandhill.

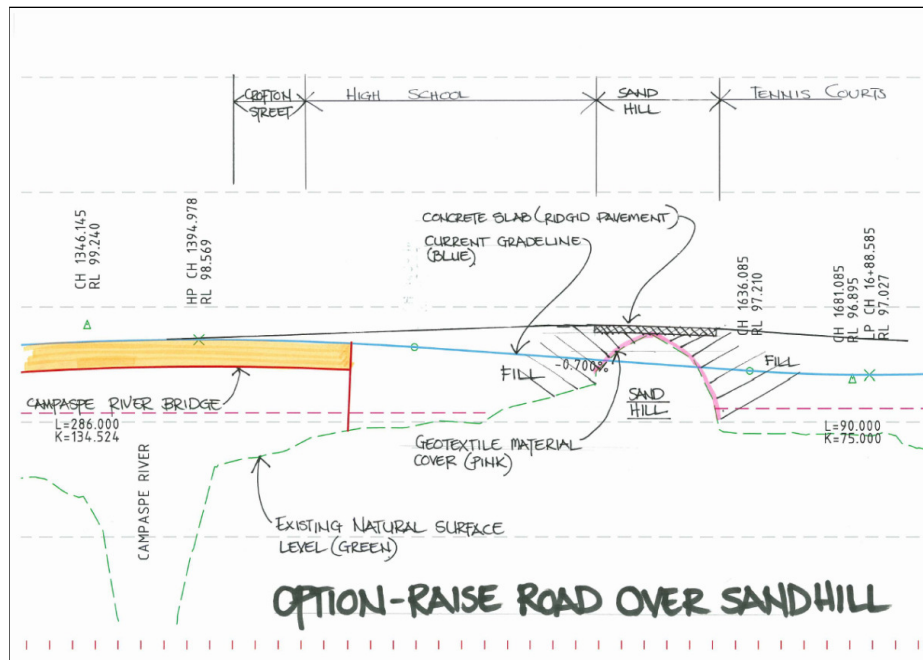


Figure E1: Proposed design for the elevated road across the sandhill (refer to Map 30 for location)

Prior to construction works commencing, the following actions must be carried out;

- Vehicle access tracks on the north side of the sandhill, which will be used to access the works area, must be covered with geotextile and gravel to provide a temporary access for construction vehicles and equipment and to prevent vehicles from sinking into the natural soil surface of the sandhill. After all works on the sandhill are completed, the gravel and geotextile must be removed and the paths restored to their original condition;
- Trees which must be removed from the sandhill to allow construction of the road, must be cut off at the base. No excavation to remove the root systems of the trees is permitted. There must be no other excavation to facilitate removal of the trees;
- Removal of surface vegetation and rubbish on the sandhill to facilitate construction of the road is permitted;
- A light soil scrape across the crest of the sandhill prior to construction works commencing is permitted. The excavation must be to a depth no greater than 200mm. Geotextile must be laid across the works area before road construction works commence;
- VicRoads or their contractors must engage representatives of the Yorta Yorta Nation to monitor all tree removal, soil removal and excavation works on the sandhill. The Yorta Yorta Nation must be provided with at least two weeks' notice prior to works commencing. Any suspected cultural heritage found must be treated in accordance with the contingency recommendations of the CHMP.

#### **8.4 Discussion and findings**

The Inquiry finds that VicRoads and its consultants have undertaken comprehensive consultation with the YYNAC in preparing the Aboriginal cultural heritage impact assessment and the CHMP for the activity area. The matters raised by the Inquiry have been adequately addressed and the Inquiry considers the EES objective of 'avoid or minimise adverse effects on Aboriginal and historic cultural heritage values' has been demonstrated.

## 9 Post European settlement heritage

Post European settlement historic heritage is discussed at Chapter 12 of the EES and Technical Appendix F.

### 9.1 The issue

The Post European settlement heritage issue identified in the EES is:

- The potential for the loss of significant historical heritage values.

This issue relates to how well the following EES objective has been met:

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

### 9.2 EES documentation

In relation to historic heritage, the EES indicated that there are no sites of State cultural significant listed on the Victorian Heritage Register or within the Victorian Heritage Inventory located within the project area.

In relation to the Campaspe Planning Scheme, several adjoining sites are located in the Heritage Overlay and protected locally through the relevant controls of the planning scheme. In particular, the following sites are of note and are located in proximity to the ROW:

- HO41 - St Leonards Homestead at 33 Crofton Street Echuca
- HO79 – Stand of Murray Pines at Victoria Park north of the former Echuca Secondary College
- HO68 – Dwelling at 279-281 Campaspe Esplanade Echuca
- HO43 and HO73– Cast Iron Gates and Echuca Cemetery

In addition to the above, planning scheme Amendment C101 proposes the extension of HO41 and HO79 into the ROW. The Panel hearing for Amendment C101 has concluded, however no report has yet been made public.

The entry to the former Echuca Secondary College includes palms trees, which do not benefit from heritage protection, and the EES states that there is no evidence to suggest that they are of heritage significance. Three of the palms are located in the ROW and would be impacted by the Project. Heritage Victoria has identified the trees as being potentially locally significant.

### 9.3 Evidence and submissions

The EES confirmed that VicRoads made a submission to the Amendment C101 Panel objecting to the inclusion of the land proposed for the ROW in the Heritage Overlay. In relation to HO41, Mr Rhodes gave evidence that it was unnecessary to extend the Overlay:

Since 2008, the property has changed hands and all of the historic structures and most of the vegetation have either been substantially modified or removed. The visual inspection showed that there were now no historic structures within the alignment.

In relation to HO79, VicRoads noted the heritage place is currently outside of the proposed ROW, however C101 would include HO79 within the ROW. Further, in its submission VicRoads noted:

A survey undertaken by the EES Biodiversity Consultant, Brett Lane and Associates, has identified in excess of 500 Murray Pines near the sandhill, 77 of which are likely to pre-date European settlement. Thirteen of those trees would be impacted by the project. The heritage consultant has assessed that heritage impact on the removal of the 13 trees as minor.

Therefore, it was the submission of VicRoads to the Panel that the boundary of the relevant HO matches that of the ROW.

In relation to historic cultural heritage, the Campaspe Shire Council, in its submission, provided background to Amendment C101 and a summary of its status. The Council reiterated its support for the VicRoads' submission for the HO not to be located within the ROW.

The Heritage Impact Assessment undertaken confirmed the palm trees on the former Echuca Secondary College site were found to have no evidence to confirm their significance. Based upon the significant consultation undertaken by VicRoads in relation to the Project, a commitment has been made within the EES to relocate the palm trees at the entrance to the former Echuca Secondary College to a location in consultation with the Campaspe Shire Council.

#### **9.4 Discussion**

The Inquiry notes the proposed Amendment C101 and the EES are running in parallel. Whilst the extent of the Heritage Overlay is not a matter that can be determined by the Inquiry, submissions made by VicRoads and the Council in relation to the impacts of the HO require consideration. Furthermore, the Inquiry notes the expert reports prepared by Mr Rhodes and Mr Lane and their content in relation to heritage and vegetation.

The Inquiry notes the items of heritage significance identified in the EES. The Inquiry notes that the Project will have an impact on 13 of the 77 Murray Pines within the area of the sandhill. The Inquiry does not consider the impacts upon the site will be significant. The Inquiry also note the issues and heritage significance of HO41 as being located outside of the ROW and the submissions made to the Panel for Amendment C101 by the Council and VicRoads.

#### **9.5 Findings**

The Inquiry finds that the Project will impact upon the historic cultural heritage values of the Murray Pines identified through HO79, however, such impacts will be minor in the context of the locality and that of Victoria Park more generally. This is based upon the number and extent of Murray Pines within the area of the sandhill.

In the event that a Heritage Overlay is included within the ROW through Amendment C101, it will not be fatal to the Project. The Inquiry is of the opinion, however, that there may be some value in reducing the extent of the mapping of HO41 and HO79, if possible, so not to unnecessarily affect the ROW.

## 10 Planning and land use

Planning and land use are discussed at Chapter 13 of the EES and Technical Appendix G.

### 10.1 The issue

The Planning and land use issue identified in the EES is:

- The potential for the project to unreasonably impact on existing recreational uses of the Crown land.

This issue relates to how well the following EES objective has been met:

- To minimise adverse social and land use effects, including impacts on existing uses of the Crown land.

### 10.2 EES documentation

The Planning and Land Use Assessment (Chapter 13 and Technical Appendices G) addressed the issues relating to land use, consistency with relevant State and local planning policies and on local infrastructure. The Planning and Land Use Assessment considered a wide breadth of policy and legislation as it relates to the Project. The assessment concluded that the Project is generally consistent with the State, regional and local planning policies which seek to improve links within and between the northern Victorian and southern NSW regions. The assessment also noted the town structure plan of the Campaspe Planning Scheme specifically identifies the need for a second river crossing to the west of Echuca.

#### Planning policy

The EES indicates that the Project would support urban growth and economic development through the improved connectivity and efficient movement between Echuca and Moama. It would also provide for support of the freight industry and improve access for interstate higher mass vehicles. This provides opportunity for growth in the planned highway commercial clusters on the Murray Valley Highway in proximity to Warren Street.

The EES also discussed the Echuca West Framework Plan that would benefit from the Project based upon the strategic direction it provides for residential and commercial growth. The Project would provide for increased traffic and greater connectivity for the locality.

#### Land acquisition

Land acquisition was considered by the EES, which confirms it has been minimised where possible. Of the land to be acquired, a large amount is presently undeveloped included in zones that provide for little development potential due to the risk of flood. The EES notes that the total area of land to be acquired as 19ha across Victoria and NSW (almost 10ha of Crown land). Of the land to be acquired, a number of the allotments are held in a consolidated ownership.

#### Operational impacts

The EES considers the operational impacts of the Project. These generally relate to amenity, access and disruption to recreation, community and tourism land uses. The EES notes that in the longer term properties located on the preferred alignment would experience greater levels of traffic noise and air emissions and some visual changes potentially reducing the



existing level of amenity. Consideration of these issues is discussed at Chapters 12 and 15. Access arrangements following completion of the Project will ensure all land continues to have access, some however will have it altered (eg. service road being provided on the west side of Warren Street).

### **Tourism and recreation**

The EES acknowledges whilst the Project will broadly have positive impacts for tourism and recreational uses, disruption would occur to the Echuca boat ramp, Victoria Park and the Echuca Holiday Park. The public toilet block would be removed because of the Project with a proposal for it to be replaced at completion of construction. The operation of the boat ramp and car parking facilities will continue through construction. Victoria Park and the active recreational facilities it provides, has been acknowledged by the EES. In particular, the Project would result in the loss of six lawn tennis courts currently on a lower level to the remaining 11 courts. The courts lost through the Project however will be replaced in a location that will be determined by an updated Victoria Park Master Plan, in consultation with the Shire of Campaspe. The EES notes the Echuca Holiday Park will not be directly impacted because of the Project, however, the surrounding environment and amenity would be affected by the Project. Impacts identified in the EES are visual and noise related impacts.

### **Draft Planning Scheme Amendment C103**

Draft planning scheme Amendment C103 seeks to apply the PAO over the area of land required for the Project, provide site-specific exemptions for the Project under clause 52.03 and introduce an Incorporated Document under clause 81.01 that provides specific conditions regarding the Project. The Amendment was not formally exhibited, however, its informal exhibition was undertaken in order to provide opportunity for interested parties to make comment on its content. The EES indicates that upon completion of the EES VicRoads are likely to make a request for the draft amendment to be implemented into the Campaspe Planning Scheme pursuant to section 20(4) of the *Planning and Environment Act 1987* and notes this is appropriate for the following reasons:

- The Minister must consider the Minister's Assessment of the EES
- The Project is of significance to the State of Victoria
- The environmental, social, and economic effects of the Project are considered through the EES process
- There has been extensive community consultation throughout the planning phases of this EES
- The EES process enables the views of the relevant parties to be considered and reviewed by an independent Inquiry
- Relevant draft planning scheme amendment and supporting documents are exhibited with the EES.

Based upon the assessment found in the Planning and Land Use Assessment, the EES drew an overall conclusion:

The Project would not result in any significant change of land use within the Project area would support urban growth (to the west of Echuca and Moama townships) and economic development within these towns and the surrounding region.

### 10.3 Evidence and submissions

No expert witness statements were provided in relation to planning and land use.

It was submitted by VicRoads that the Project is consistent with the State Planning Policy Framework (SPPF) of the Campaspe Planning Scheme and in particular clause 18.01-1 which relates to Transport and has the objective of:

To create a safe and sustainable transport system by integrating land-use and transport and 18.01-2:

To coordinate development of all transport modes to provide a comprehensive transport system.

In addition to this, the Campaspe Planning Scheme at its town structure plan at clause 21.04-4 identifies an investigation area for a second river crossing. (See Figure 7)

VicRoads also submitted that the Loddon Mallee North Regional Growth Plan supports the Project and that the existing bridge is identified as a 'key linkage' to surrounding regions. The submission also stated:

The Growth Plan notes Echuca's role in forming an important industrial, community, health, recreational, transport, and tourism hub for northern Victoria and southern New South Wales and is a significant tourist destination. It goes on to state that 'planning is also underway for a second river crossing for Echuca Moama to improve accessibility' and that 'major urban, industrial and commercial growth and development in the Campaspe community of interest will be focused on Echuca'.

Figure 8 is included in the Loddon Mallee North Regional Growth Plan, and depicts an indicative crossing point with the alignment to be confirmed.

### Echuca Town Structure Plan 1 – Echuca Central

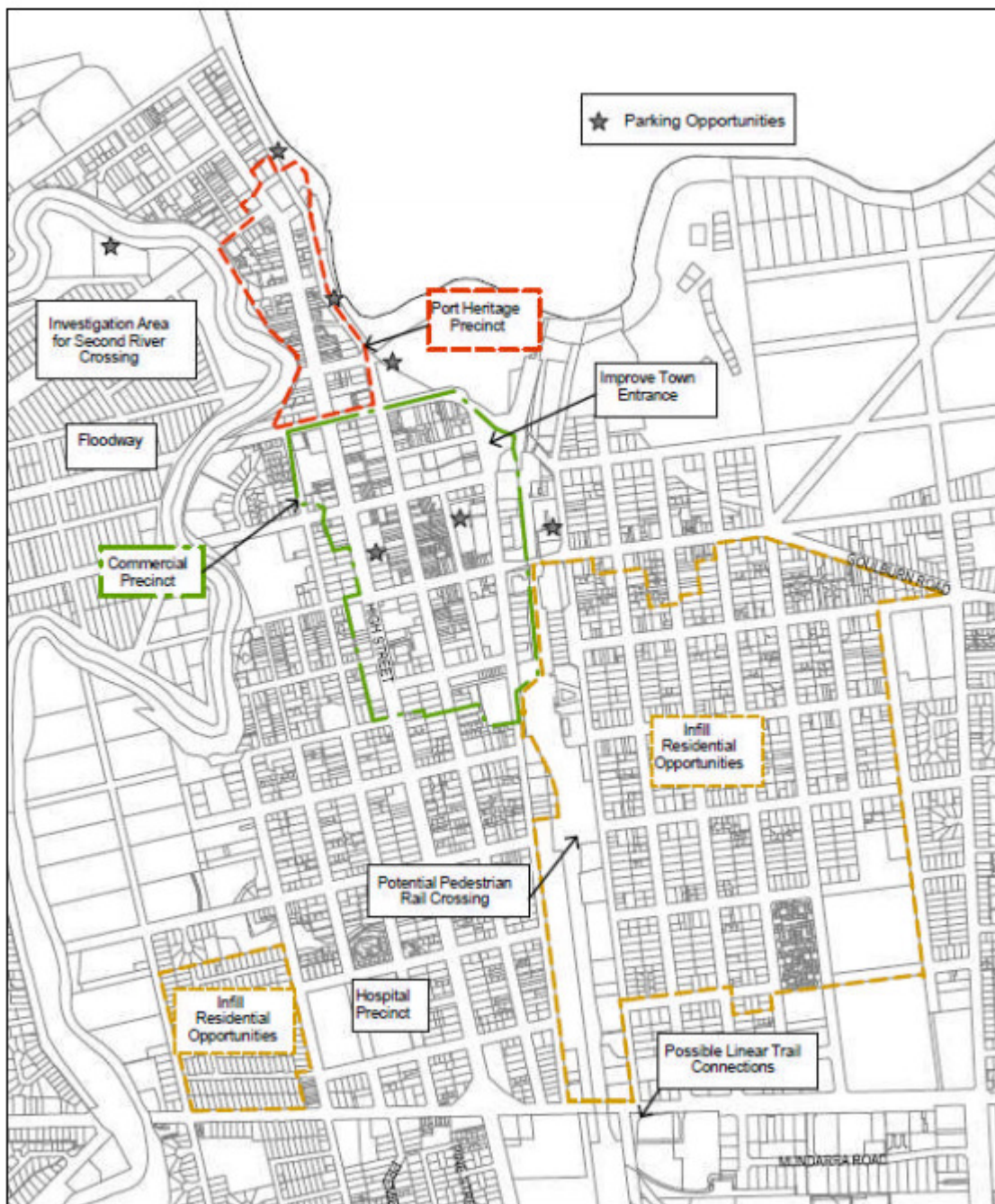


Figure 7 Echuca Town Structure Plan

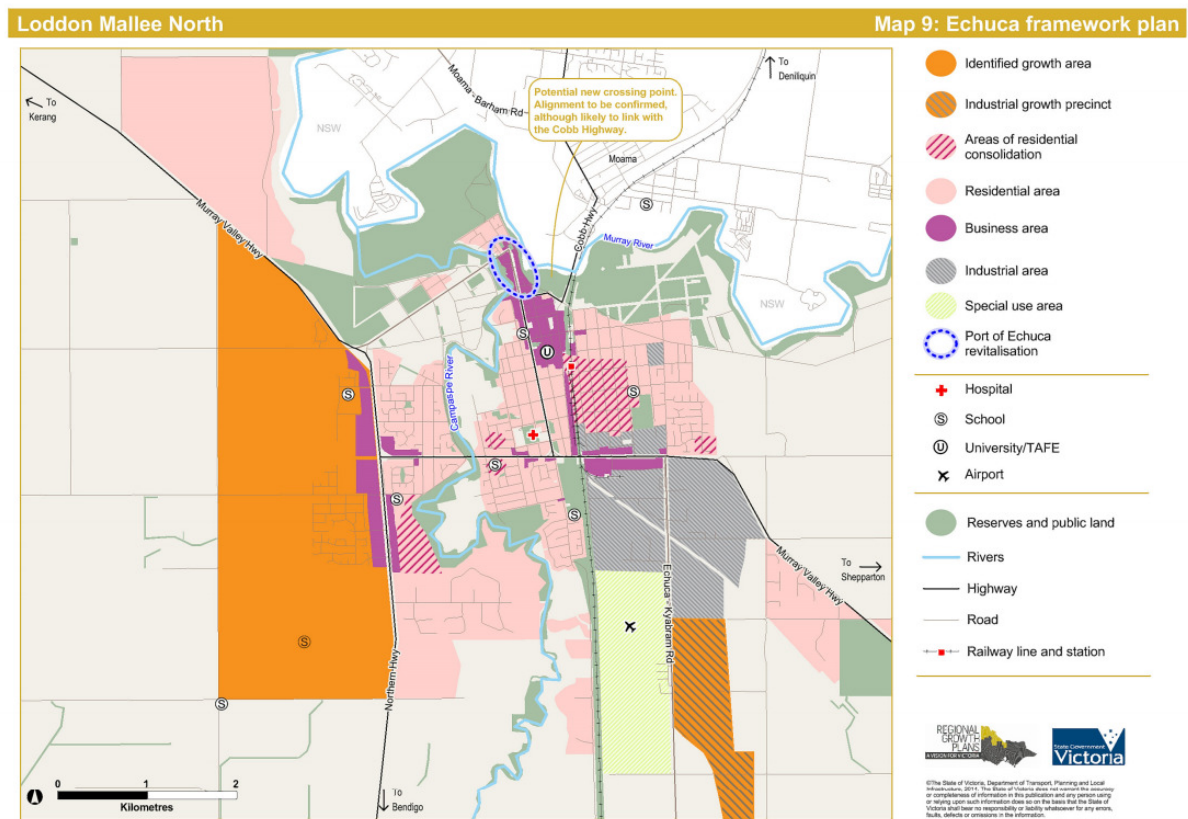


Figure 8 Loddon Mallee North Regional Growth Plan – Echuca Framework Plan

In its submission to the Inquiry, the Campaspe Shire Council submitted that all recommendations of the technical specialists be clearly incorporated into the Project approval either via the Incorporated Document, Environment Management Framework Plan or other suitable approval. In response to the submission, VicRoads accepted that the mitigation measures recommended by its consultants, as incorporated into the EES and technical appendices, be implemented. In relation to this matter, VicRoads submitted that:

The Inquiry should recommend to the Minister that those measures be implemented as part of the project, within the environmental management framework set out in the EES.

The purpose of requiring an environmental management framework to be approved as a condition in the Incorporated Document is to ensure that mitigation measures included in the EES and Technical appendices – and any additional measures recommended by the Minister in his assessment – are a precondition to project commencement. Specific reference to some of those measures within the Incorporated Document, as sought by Council, would pre-empt the Ministers assessment and unnecessarily (and selectively) double –up on the detail to be included in the environmental management framework.

The Council submitted that the proposal offers opportunities to improve current limitations to active and passive environments at Victoria Park. The ROW therefore provides an option for master planning in relation to Victoria Park recreation reserve to explore and plan for recreational facilities to the southern side of the new road alignment. The Council submitted that further consideration is required in relation to the Victoria Park boat ramp.

Submissions were made by the Council in response to the direction of the Inquiry regarding the status of planning scheme Amendment C101 as discussed in Chapter 9. The Council was supportive of the approach proposed by VicRoads in its submission to the Amendment C101 Panel for the ROW to remain clear of the Heritage Overlay mapping.

#### **10.4 Discussion**

There is undoubted strategic support for the Project and this was not contested in any submissions to the EES. Such support is found particularly within the Loddon Mallee North Regional Growth Plan and the Campaspe Planning Scheme. Each of the documents identify the Project and its general location.

Whilst land acquisition is required for the project (nine private landowners affected along with Crown land in Victoria and NSW), no opposing submissions were made by private landowners of land that would be acquired as part of the Project. For a project involving land acquisition, not to mention a project with a length bisecting numerous properties, this is an unusual circumstance.

Operational impacts of the Project generally relate to the amenity of adjoining land, and will include impacts from an increase in the volume of traffic. Such impacts will also be experienced by the active and passive recreational pursuits undertaken on land at Victoria Park. From a land use planning perspective, such impacts have been mitigated appropriately through the Project in the form of design, layout and treatments that will limit the impacts of the immediately adjoining landowners and occupiers. The mitigation measures proposed by VicRoads provide a sound basis for ensuring the documented recommendations of the EES are clearly identified and actioned, therefore ensuring limited impacts.

The alignment of the ROW creates separation between the active and passive uses of Victoria Park. 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 Park. Previous consideration of master planning for the locality has stalled given the uncertainty surrounding the Project and its alignment, which has resulted in uncertainty for the Victoria Park.

Matters relating to the proposed Incorporated Document are discussed in Chapter 20.

#### **10.5 Findings**

The Inquiry finds that the EES has considered matters in relation to planning and land use. Strategic support is provided for the Project through key policy documents and particularly the Campaspe Planning Scheme and the Loddon Mallee North Regional Growth Plan. The mitigation measures identified through the EES will be implemented through the procedures of VicRoads as discussed by the Inquiry in Chapter 6.

The Inquiry also finds that, in view of the separation created by the Project through Victoria Park, it would be appropriate for the previous master plan to be reviewed and updated.

## 11 Social issues

The Social Impact Assessment (Chapter 14 and Technical Appendices H) examined the existing social conditions in the study area and the potential impacts of the Project on individuals and the community.

### 11.1 The issue

The social impact issue identified in the EES is:

- The potential for the Project to unreasonably impact upon land, including existing recreational and non-recreational uses of crown land

This issue relates to how well the following EES objective has been met:

To minimise adverse social and land use effects, including impacts on existing uses of the Crown land.

### 11.2 EES documentation

The EES indicated the Project would provide a number of positive social benefits. The preferred alignment would relieve traffic congestion on the existing bridge and improve travel times for motorists and therefore increase the accessibility to the residents of Echuca and Moama. The EES noted the importance of this based on the numerous shared essential services by each community.

Other benefits identified in the EES include:

- The reduction in risks associated with disruptions to access across the Murray River, particularly in relation to traffic accidents
- Improvement of pedestrian and cyclist connectivity given the design of the roadway, and particularly to Victoria Park
- The potential for the Project to become a structure of note based upon the potential linkages with the Bridge Arts Project.

The EES indicated that initial delays in the identification of the preferred alignment had led to negative impacts for the Echuca community of such items as: social impacts through the indecision; the stalling of funding upgrades to sporting facilities thereby affecting the club operation; and the release of the former Echuca Secondary College site being delayed until the preferred alignment had been confirmed. Such items were echoed by the respective Councils and the Campaspe Shire Council indicated that the Master Plan for Victoria Park was on hold until a final decision was made on the Project.

The EES also indicated potential negative impacts upon the operation of the Southern 80 Ski Race, however, consideration has been undertaken through the design of the bridge and the willingness to cease construction for a period of time when the race is being conducted.

Some negative impacts would be experienced during construction for visitors to Victoria Park. Members of the Echuca Lawn Tennis Club will experience changes to the nature of the facility due to the requirement to relocate several tennis courts. Noise levels could also have a minor impact upon the Council owned and operated Echuca Holiday Park.

### **11.3 Evidence and submissions**

In its submission, VicRoads identified the current traffic volume on the existing bridge as being a significant issue that impacts negatively upon the community in terms of traffic delays at peak periods and when significant events are being conducted. The requirement for regular maintenance to be undertaken, given the age of the structure, was also identified as an issue. Maintenance currently requires partial closure of the bridge and creates significant delays. VicRoads submitted that even minor accidents cause delays given the limited road width.

Other issues associated with the single bridge crossing identified by VicRoads in its submission included:

- The limitation it places on population growth and distribution.
- Emergency service access given the majority of services being located in Echuca.
- Business growth and connectedness.
- Daily commuting between the two townships given their interdependence.

VicRoads submitted that the second river crossing is logical, necessary and an increasingly urgent proposition that will have benefits to the community, along with 24 hour access for oversized vehicles and agricultural machinery.

The Campaspe Shire Council submitted that the Project and the preferred alignment will offer the greatest reduction of traffic to the Historic Port precinct which will benefit both locals and tourists. It will also reduce the amount of traffic in the central business district (CBD) of Echuca and will remove a significant impediment to pedestrians and cyclists, therefore providing opportunity for better linkages between the CBD and Historic Port precinct. Notably, the Council submitted:

The community will not readily tolerate further delays or? false starts, regardless of the merit of the delay.

Pursuit of alternative alignments that require further consideration or approval due to Aboriginal Cultural Heritage are considered 'high risk' by the community and may result in resentment toward a part of the community. It is imperative for Council to retain this improved relationships with the community that have been built over the last decade in particular.

Echuca Regional Health submitted that it is a provider to acute health care throughout the region and presentations to its emergency department are time critical. In 2014-2015 20% of its presentations were from people residing in NSW. Echuca Health submitted that it strongly supports the Project as a means to providing better connection between Echuca and Moama and the delivery of its services.

### **11.4 Discussion and findings**

The social impacts (construction and operational), of the Project have been considered through the EES. The EES also considered the current operational issues associated with the single crossing between Echuca and Moama.

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 communities. The

Inquiry acknowledges the current congestion issue identified by VicRoads and Council at peak times, and the negative impact it has on the enhancement of the Historic Port precinct and CBD proposed by the Council. The Inquiry finds the Project will have positive impacts on the central area of Echuca by removing traffic and enable the Council to continue with the enhancement of the locality.

The Inquiry also acknowledges the impact that the current single crossing has on emergency services and access to critical community facilities. This was evidenced through the submission made by Echuca Regional Health, which provided data on the reliance of the communities in NSW on the services provided by Echuca Regional Health. The Project will enable an important alternate route for services such as ambulance, fire and police when required.

Consideration of the alignment and design for the Project has been undertaken over a significant period. The process has included considerable community and stakeholder consultation, and the Inquiry acknowledges the effort of VicRoads and its commitment to working with the community. The time taken to work through the Project options has enabled extensive consultation to be undertaken with the community and stakeholders, and has enabled identified issues to be addressed through refinement of the design.

The Inquiry agrees that the mitigating measures identified by the EES will achieve an acceptable outcome for the Project. Implementation of the measures through the Incorporated Document (as recommended in Chapter 17) will ensure the impacts of the Project will be appropriately addressed.



## 12 Landscape and visual amenity

Landscape and visual amenity issues are discussed at Chapter 15 of the EES and associated Technical Appendix E – Landscape and Visual Assessment.

### 12.1 The issue

The potential landscape and visual amenity impacts associated with the Project include:

- Potential for effects on the significant landscape values of the Murray and Campaspe River corridors and Victoria Park
- Potential significant visual impacts for nearby sensitive receptors.

The issue relates to how well the draft evaluation objective has been met:

- To minimise adverse landscape and visual amenity effects on values of the area, including the Murray and Campaspe rivers and floodplains.

### 12.2 EES Documentation

The Visual and landscape assessment identified the most significant landscape character types as being the Murray River, river floodplains and Victoria Park's active recreation area.

#### Sub-objectives

The EES considered the impacts of the Project with and without management measures in place in order for a comparative assessment to be made of the Project and in order to determine the final assessment against the sub-objectives established following consideration of the local elements of the Project. The sub-objectives adopted were:

- Protect the scenic amenity, cultural heritage and recreational values of the Murray River
- Protect the visual amenity use of the river floodplains
- Protect the recreational amenity of Victoria Park
- Protect the scenic amenity, natural heritage and recreational values of the Campaspe River
- Enhance existing networks that provide cycling and walkway accessibility and connectivity.

The EES noted that without any management measures the Project would have a moderate to high impact upon the scenic amenity, cultural and natural heritage and recreational values.

#### Recreational values of Victoria Park

The recreational values of Victoria Park were noted in the EES, and that the Project would have a high impact upon such values. This is due to vegetation removal, severance of walking paths and access roads, and the introduction of the highly visible road and bridge elements. Lighting and noise would also be associated with the construction and operation of the road. Mitigating measures in relation to such items were identified by reinstating shared path and access road connections, along with screen planting between the road and the affected areas of Victoria Park, thereby reducing the impacts to a moderate level.

### **Scenic amenity**

The EES noted there are no significant vantage points within or adjacent to the study area due to the locality being relatively flat and heavily treed. Views were identified as being either short or to the middle distance and always towards trees and vegetation. The Project is identified to have a moderate to high impact on the scenic amenity, natural heritage and recreational values of the Campaspe River. This was due to the removal of vegetation as well as in altered access to Campaspe Esplanade and the public areas along the River. On the basis of the bridge being clear span, along with indigenous screen plantings, the EES concluded that impacts would be reduced to a low to moderate level.

### **Connectivity**

The EES noted the existing cycling and pedestrian accessibility and connectivity throughout the project area and that the Project will contribute to the bicycle and walking networks through the provision of on-road bicycle lanes in both directions and off-road shared path. The EES therefore concluded that the Project met the sub-objective well whilst also noting improvements could be made by ensuring connections are made to all existing parts as well as providing shade and shelter along any off-road paths.

The EES also noted the environmental management measures that will be implemented through the Project as discussed in Chapter 17 of this report.

The EES considered implementation of the VicRoads standard environmental protection measures, project specific measures, project commitments outlined in Chapter 6 of the EES, additional project specific management measures in relation to the bridge design, minimising vegetation removal and including screen planting and reinstating existing shared paths.

## **12.3 Evidence and submissions**

VicRoads submitted that the design of the bridge presented an ‘elegant structure’ and submitted a photo montage of the crossing at the Murray River. The montage demonstrates the clear span across the river along with the significant height required for river traffic to pass under the structure. An example of a similar bridge was also provided of a ‘balanced cantilever’ construction of the Seacliff bridge at Wollongong.

The Campaspe Shire Council submitted that the Mid-West alignment represents the option with least detrimental impact on Victoria Park Reserve, Campaspe River environment and retains the largest continuous area of natural environment for passive recreational purposes and minimises segregation of the bushland area.

The Council, as the owner and operator of the Echuca Holiday Park, submitted that it needs to ensure that impacts arising from the increased noise and changes to the landscape are mitigated.

The Bridge Arts Project (BAP) submitted that it envisages significant infrastructure being built in and around the route of the bridge on the NSW side of the Project, predominantly with land being provided by the landowner to the BAP. The BAP submitted that it would like to participate in the design process for the bridge. The BAP submitted that the Project ‘has

the potential to elevate the bridge from a utilitarian traffic move to a regional and national destination in its own right’.

The Committee for Echuca Moama (C4EM) submitted that it supports the Project and that it should be completed as soon as possible. The C4EM submitted that the Project would provide an opportunity to leverage other projects in the area.

## **12.4 Discussion**

VicRoads have provided measures to be implemented to mitigate the identified impacts of the Project, a number of which relate to landscape and visual amenity impacts. These include: connection of bicycle and pedestrian paths; contribution to the update of Victoria Park master plan; consultation with the BAP; consideration of the design for roadside walls and retaining structures; visual integration of the bridge with the road and landform; avoidance of visual clutter; and provision of maximum open and light spaces beneath the structure.

The Landscape and Visual Amenity Assessment identified that the most significant issues would arise at construction stage. It was submitted by VicRoads that landscaping would be required following construction. The mitigating measures detailed are considered appropriate and will need to be implemented at the identified timing as outlined in the consolidated list of mitigation measures provided by VicRoads following the Hearing.

Whilst there will be negative visual impacts as a result of the Project, it also provides the opportunity to view areas of Victoria Park and the surrounding environs which is not currently available. The viewing opportunities will be enhanced through provision of cycling and pedestrian facilities within the Project.

The Inquiry notes the submissions made in relation to the implementation of mitigation measures and consider it necessary to provide certainty to the Project for such items to be included within the PEPS in order for there to be a clear and consolidated inventory for VicRoads and the stakeholders to be aware of through implementation of the Project.

## **12.5 Findings**

The Inquiry Panel finds that the landscape and visual impacts of the Project have been adequately addressed through the EES. This has been achieved through the alignment of the ROW making use of existing road infrastructure (where available), retention of existing vegetation where possible and inclusion of additional landscaping within the ROW. The Mid-West alignment will have the least impact on the landscape.

The Inquiry supports the inclusion of the required mitigating works within the PEPS and for it to be approved by the Minister. This will ensure all identified impacts will be addressed with clear responsibilities for undertaking the works.

The Inquiry supports the design of the bridge with a clear span across the Murray and Campaspe Rivers. Such a response will minimise vegetation removal and replanting will assist in screening the structure from the river bank areas.

## 13 Catchment values

Chapter 16 EES (Vol 1) details the catchment values associated with the Project area. The Specialist Hydrology Report (Cardno, 2015) is found in EES Technical Appendix J and the Soils and Geology Impact Assessment (VicRoads 2015) details groundwater conditions and impacts.

### 13.1 The issue

The potential impacts on catchment values associated with the Project include:

- Potential for the Project to have significant effects on the functions, values and beneficial uses of surface water and geomorphic stability of proximate sections of the lower Campaspe and Murray Rivers.
- Potential for the contamination of soils and groundwater from construction and operation activities, including the exposure and disposal of any waste or contaminated soils.

This issue relates to how well the following EES draft evaluation objective has been met:

- To maintain floodplain functions, hydrology, values of surface water, groundwater and geomorphic stability of proximate sections of the lower Campaspe and Murray Rivers.

### 13.2 EES documentation

The Specialist Hydrology Report (Cardno, 2015) examined the potential impacts of the Project on the surface water, existing flood patterns and the river systems of Echuca-Moama. The assessment explored the impact of the ultimate duplication on the existing flooding conditions for both the Murray and Campaspe Rivers. The Hydrology Report compared the existing hydraulic conditions without the Project against hydraulic conditions with the Project in place.

The existing conditions and impact assessment on groundwater are discussed in EES (Vol 3) Appendix K - Soils and Geology Impact Assessment (VicRoads 2015).

#### Existing conditions – catchment values

The Murray River is Australia's longest river at over 2,500km in length. The regulated nature of the system and the large catchment area result in long warning times for flooding and a slow rise in peak flood levels. Flood levels can remain elevated for long durations extending into weeks for widespread flood events upstream of Echuca. The Murray River floodplain at Echuca is over 1km wide.

Existing flood conditions for the study area presented in the EES were determined based on a previous study (SKM, 1997) that developed a flood frequency model extrapolated from over 100 years of flood data. These existing conditions were used to build a model to assess the impact of the Project on hydraulic conditions in the study area.

The velocity of floodwaters in the Murray and Campaspe floodplains is approximately 0.3 and 0.4m/s respectively. Within the main river channels velocities can reach above 1.0m/s however they are typically below 1.5m/s.

The existing conditions are presented in Figures 3-5 of EES (Vol 3) Appendix J.

### **Existing conditions – groundwater**

Within the study area, groundwater is contained in two shallow aquifers, with another two deep confirmed aquifers. The groundwater aquifers of most relevance to the Project are the Shepparton and Coonambidgal formations.

### **Study area**

The study area is comprised of two river systems, the Murray River floodplain and the Campaspe River floodplain. The Murray River is the larger of the two systems and the Campaspe River confluence with the Murray River is downstream of the Echuca-Moama township, and in close proximity to the new bridge.

The model of the Murray and Campaspe Rivers is required to extend over a large area to ensure that the model is representing the flood flows within the system accurately and to capture all impacts on the peak flood depths caused by the impacts of the Project at Echuca and Moama.

The Mid-West option travels along Warren Street and across the Victorian floodplains. It then crosses the Campaspe and Murray rivers and traverses the NSW floodplains adjacent to Moama.

The study area for the modeling is significantly larger than the proposed ROW to enable an appropriate analysis of the interaction between the Murray and Campaspe River catchment under a range of flood flow conditions through to the 200 year average recurrence interval (ARI) design flow. These scenarios are presented in the EES.

### **EES methodology**

The methodology undertaken for surface water described in the EES is as follows:

For surface water, the comparison of existing conditions and conditions once the Project is in place was achieved by building a hydraulic model of the study area. The process used to develop and utilise this model consisted of the following tasks:

- Review of hydrology studies by SKM (1997) and Cardno (2009, 2010, and 2013) as part of previous investigations of a second Murray River bridge crossing at Echuca-Moama
- Using hydrological information for the area as derived from the SKM (1997) flood study
- Compilation of the existing ground surface elevations using 2008 land survey data provided by VicRoads and a 2001 1m elevation grid (provided by the North Central Catchment Management Authority (NCCMA) but originating from the Murray Darling Basin Authority)
- Building the model using the SOBEK modelling package, which uses existing information including ground surface conditions, river cross sections, bridges and culverts
- Calibrating and validating the model in 2009 based on historical flood events. Re-calibrating and validating the model in 2012 after it was refined and extended to include a larger study area
- Selection of three flood events to model to provide flood levels for existing conditions.

The SKM Moama-Echuca Flood Study (1997) was used to derive the hydrology for the assessments which, due to the interaction of the Murray River and Campaspe River, is very complex. The hydrology for the Murray River and Campaspe River systems is stable and as such the EES states that the 1997 study is appropriate to provide the basis for the hydrology for the assessment.

The Project would involve bridge crossings of the Murray and Campaspe Rivers. Further bridging and culverts would be provided over low lying flood prone land, providing adequate clearance for movement of flood waters. The piers of the Campaspe and Murray River bridges would be constructed outside of the river channel (summer flow/low water mark extent).

The proposed bridge over the Campaspe River is designed to fully span the river, without support structures over the river channel. At the Campaspe River, bridge piers would be located clear of the river banks to the north and south of the river.

The EES describes the proposed bridge over the Murray River will be designed to span the summer water level river channel, and support structures would not be required within the river channel, but are placed on the river bank above typical baseflow river level. A cantilever structure is proposed over the Murray River, with piers in the river banks supporting a 90-95m clear span over the river channel. The piers would be located above the normal summer flow (summer river water level).

Some construction works may be required on or near the banks of the Murray River. The EES suggests that the construction process for Murray River bridge piers would involve the installation of coffer dams in dry conditions if possible.

The Project design includes provision for spill basins to be constructed adjacent to the alignment to capture run-off from the new roadway. VicRoads have incorporated the spill basins into the design consistent with discussions with the EPA and allow for the capture and/or treatment of run-off from the road surface and enable removal or release into the flood plain as required. The spill basins would be located as close to the road carriageway as possible to minimise the construction footprint of the Project. On the elevated carriageway from Warren Street in Echuca to Cobb Highway in Moama, the spill basins would be constructed within the batter slope.

### **EES findings – catchment values**

Construction of the Project has the potential to impact local water quality and the environment because of sedimentation. The EES states that with the implementation of appropriate mitigation measures, water quality impacts to the Campaspe and Murray Rivers associated with sedimentation and stormwater runoff during construction and operation are considered to be minor.

Construction of the bridge piers adjacent to the Murray River represent the greatest risk to catchment values through potential adverse impacts on water quality, damage or removal of riparian vegetation and destabilisation of the riverbank. The EES considered these impacts to be minor following the implementation of VicRoads' standard environmental protection measures and Project-specific environmental management measures, including the incorporation of adequately-sized spill basins.

Coffer dams would be installed at pier locations in the Murray River riverbanks in dry conditions if possible, to protect the construction works in the event of high river flow, and to minimise impacts on the environment. However, destabilisation of the riverbanks through construction activity is almost certain to still occur, and is considered to be a medium risk. The risk cannot be avoided but it can be effectively managed via VicRoads' standard environmental protection measures.

The EES concluded, based on the modeling, that modification of flood behaviour across the floodplains due to construction activity would be a rare occurrence.

Once operational, according to the EES documentation, the Project would change the flood conditions in Echuca-Moama, and management measures are required to be implemented to maintain existing flood levels and avoid increased flood damage due to changed flood conditions.

One of the main impacts of the Project on floodplain function is the raising of Warren Street. Warren Street is currently a hydraulic control across the Campaspe River floodplain, with culverts placed in the road to divert floodwaters under the street during a flood. To mitigate against impacts of the increased height of the road and to improve water flow in lower frequency events, culverts (or equivalent bridge structures) at the western end of Warren Street would be resized and placed 80m west of their current positions.

The Project would also raise the section of Warren Street near the Warren Street roundabout above the 100 year ARI level. To mitigate the impact of this, VicRoads suggest that culverts would be positioned and sized to allow for flood flows.

The bridge spans across the Campaspe and Murray Rivers and their floodplains have also been designed to mitigate any increases in flood levels. The spans allow the flow of flood waters up to the 100 year ARI level, plus freeboard. The impacts on the floodplain have been mitigated through the use of bridge spans over the Murray River and Campaspe River, with additional openings within the embankment between the bridge structures.

Overall, flood behaviour across the floodplains would not be significantly altered due to the Project, and the flood impacts can be mitigated so that existing flood levels are not exceeded. Therefore, flooding impacts are expected to be minor.

### **EES findings – groundwater**

The EES states that measured groundwater salinity levels in the study area would pose no risk to the construction of the Project, nor is the Project expected to increase the salinity levels in the aquifers.

The impact on the quality of the groundwater due to the construction of the bridge piers is likely to be minor when appropriate management measures are implemented.

The Project is mainly constructed on fill, requiring minimal excavation for piling.

Within the Geology and Soils Report (Appendix K of EES) it is noted that the groundwater (Coonambidgal Formation) has a saline content up to 20000mg/l TDS. Adjacent to the Campaspe and Murray Rivers the water table is close to the ground surface as this links directly with the water surface levels within the rivers.

During the pre-construction phase, VicRoads suggest that groundwater testing would be undertaken and appropriate construction measures identified. Therefore, VicRoads suggests in EES technical Appendix K, that the potential to encounter saline soils in any significant quantity is unlikely based on the land formations in the study area and the low volumes of material excavated for piling.

## Overall

The EES considers that overall, construction and operation of the Project will not lead to significant impacts on the function, values or beneficial uses and values of the Murray and Campaspe Rivers, or on groundwater. Flooding impacts would be minor and apply only to specific locations, and the design of Warren Street would increase flood protection for sections of this road. Importantly, the Project would provide a second flood evacuation route up to the 100 year ARI event for the townships of Echuca and Moama.

Risk No.	Impact pathway	Description of consequence	Initial risk rating
SW1	Construction at Murray River impacts on bank form, habitat or waterway health	Localised bank destabilisation at waterway crossings and detrimental impact on riparian habitat	Medium
SW2	Proposed works result in change to hydraulic conditions above acceptable levels	Potential for local disturbance to waterway banks, channels and flow. Potential for reduced aquatic habitat	Low
SW3	Construction at Campaspe River impacts on bank form, habitat or waterway health	Localised bank destabilisation and waterway crossings and detrimental impact on existing habitat	Low
SW4	Sediment from areas disturbed during construction impacts the waterways	Accumulation of sediment in the waterways during construction	Low
SW5	Pollutants in stormwater runoff during operation affect the water quality in the local waterways	Increase of sediment/pollutants in the waterways over time, reducing in water quality and potential impacts on waterway health	Low
SW6	Construction risk of impact on floodplain function during a flood event	Modification of the behaviour of the floodplains during construction	Negligible
GW1	Construction and/or operation impacts on existing groundwater levels	Potential for localised reduction in groundwater levels resulting in either land subsidence or impact to beneficial users	Low
GW2	Intersected groundwater discharges into waterways and impacts on surface water quality	Potential discharge of groundwater into Campaspe or Murray Rivers	Low

Table 6 Surface water and groundwater risks

The risk register in Appendix P provides a comprehensive environmental risk register, including surface water and groundwater impacts. Through proposed mitigation measures, these impacts are expected to be mostly low.

## 13.3 Evidence and submissions

One submission from the Murray-Darling Basin Authority (MDBA) was received on the EES that raised issues with the Specialist Hydrology Report (Cardno, 2015), particularly with the flood modelling used to determine the potential impacts on catchment values/flooding.



Although VicRoads does not consider there to be any residual hydrological issues to which the Project gives rise, an expert witness report was prepared by Mr Swan of Cardno Pty Ltd to respond to the issues raised by the MDBA.

One of the matters raised by the MDBA is that the Authority believed it should have been informed of the Project by virtue of clause 49 of Schedule 1 to the *Water Act 2007*. In VicRoads' submission, Ms Porter (Counsel for VicRoads) states:

That clause applies where a public authority 'is considering any proposal which may significantly affect the flow, use, control or quality of water in the River Murray'....

VicRoads relies on the evidence of Mr Swan that the project will not significantly affect flow, use, control or quality of water on the River Murray, on the basis that:

- a) it does not store or prevent the flow of water;
- b) there are no flow control structures proposed;
- c) the proposed crossing has been designed not to impact flood flows;
- d) the project does not extract water from the river; and
- e) the expected impacts on the quality of the water in the Murray are negligible.

Therefore it [VicRoads] was under no statutory requirement to notify the MDBA.

The MDBA questioned the risk rating of 'negligible' for the impact on flood levels during construction. In reply, Mr Swan provided the following reasons as to why this is a negligible risk:

The construction will occur for a relatively short period of time, lessening the likelihood of a major flood occurring during the construction phase when compared to the operation phase of the project;

There will be significant warning time to remove plant and machinery from the floodplain prior to the flood waters reaching the site. Flood warning times are in the order of days for the Campaspe and days to weeks for the Murray;

The construction of the bridges and culverts requires these areas be left open during the construction phase to facilitate their installation;

The post construction modelling indicates no significant impacts on flood levels with the culverts and bridge opening areas allowed for in the design. During construction, the active flow area for flood waters to pass will be greater than in the post construction phase.

In regard to the issues raised by MDBA on the post-construction flood levels, Mr Swan suggested that the statement in the EES that there is no change to the flood extent is based on the model results, using an envelope approach on the highest flood level reported from the three scenarios modelled (described in Appendix J of the EES). Mr Swan's statement also refers to the required planning level for flood impact assessment in Victoria is the 100-year ARI event.

In regards to the MDBA issue of potential impacts on upstream gauging stations operated by the Bureau of Meteorology, Mr Swan considered the likely impact on the closest gauging station at Echuca Wharf to be negligible for the following reasons:

- There are no structures directly in the channel of the Murray River. The bridge is a clear span across the channel. This means that the measurement of in-bank flows will not be impacted by crossing.
- At high flow rates, the measurable increase in flood level at the gauging station is less than 2.5 cm. For high flows, it is generally the level of the river that is measured to inform emergency response activities. Given the non-stationarity of flow rates at a specific gauge level, I consider that the impact of this change on the gauging network is negligible.

Although not part of its written submission on the EES, the MDBA provided further correspondence regarding Mr Swan's expert witness statement to DELWP Planning Group on 13 November 2015 (received by the Inquiry Chair on the 18 November 2015). This correspondence was not part of MDBA's written submission to the EES nor was it provided to the Inquiry directly or during the Hearing. However, the Inquiry does note the concerns expressed about Mr Swan's findings, but notes the MDBA did not offer any alternative evidence.

Regarding flood modelling, the methodology used by Cardno was based on the SKM Moama-Echuca Flood Study (1997). The EES stated that the hydrology for the Murray River and Campaspe River systems is stable and as such this study is appropriate to provide the basis for the hydrology for the assessment. The MDBA stated that there have been significant advancements in the assessment of hydrological risk since the SKM Moama-Echuca Flood Study (1997) and there had been significant flood events since 1997, including in 1998 and 2010-11. The MDBA raised concern that *'the modeling has not reflected current conditions'*.

In response, Mr Swan stated in his expert witness report:

I agree with the statement that there have been significant advances in the methods used to assess hydrological risk since 1997. The assessment I used to determine the impacts of the project is significantly more advanced than that used in the 1997 report by SKM, especially with regard to the hydraulic assessment of floodplain flows. The hydrological assessment provided in the SKM report is the most well developed and detailed description of the historical record relating to flow in the Murray and Campaspe Rivers.

The 1997 report analysed over 100 years of information on the Murray River and significant previous historical flood events. The statistical analysis indicated that the rating table used to estimate high flows at the Echuca Wharf Gauge, has significant limitation due to the particular influences of the Campaspe and Murray floodplains. The flood frequency analysis adopted in the SKM report, utilising over 100-years of data, is consistent with current best practice for hydrological analysis. Given the relatively long record, the impact of an individual flood is unlikely to significantly change the expected 100-year ARI flows.

In response to a question from the Inquiry, Mr Swan indicated that the methodology used had been accepted by the North Central Catchment Management Authority (NCCMA), had remained the same throughout the assessments and that the NCCMA provided comments on various versions of the technical reports. Ms Murray, representing DELWP Planning Group, stated in DELWP's written submission to the Inquiry that *'limited feedback was provided by the North Central CMA during the preparation of the report and EES chapter'*.

No submissions raised concerns with groundwater.

## 13.4 Discussion and findings

The Inquiry understands and accepts that the MDBA has no role in granting approvals in respect to the Project. The NCCMA is responsible for issuing approvals under the relevant Victorian legislation and it has also been party to the EES Technical Reference Group. The Inquiry understands that the Technical Reference Group has a role to provide advice on relevant policies, strategies, legislation and statutory provisions, regulation and guidelines that apply to the Project as well as providing advice on the design of and adequacy of EES technical studies, including methodologies.

The NCCMA is the floodplain manager. The NCCMA has advised VicRoads that the proposed crossing meets its requirements for development in relation to flood related impacts. Mr Swan's evidence is that the NCCMA accepts the methodology used and that previous contact with the MDBA (albeit in 2009) suggested that any requirements the MDBA may have for flood related impacts would be assessed by the NCCMA. DELWP stated in response to a question from the Inquiry, that the NCCMA is satisfied with the methodology and assessments undertaken as part of the EES, although the Inquiry notes DELWP's advice in its submission that limited feedback on reports was provided.

Notwithstanding the above, the MDBA is an important authority relevant to the Project, and the Inquiry suggests should have been kept in the loop. This may have avoided the queries being made through submission to the EES. The key role of the MDBA includes, but is not limited to:

- Preparing, implementing and reviewing an integrated plan for the sustainable use of the Basin's water resources
- Operating the River Murray system and efficiently delivering water to users on behalf of partner governments
- Measuring, monitoring and recording the quality and quantity of the Basin's water resources
- Supporting, encouraging and conducting research and investigations about the Basin's water resources and dependent ecosystems (<http://www.mdba.gov.au/about-us>, accessed 10/12/15).

The Inquiry finds that VicRoads and its consultants have undertaken comprehensive investigations regarding the catchment values associated with the Project and that proposed mitigation measures, such as construction measures within the waterways, are adequate to minimise residual impacts on the environment. The Inquiry accepts the evidence of Mr Swan, including that the flood modelling undertaken throughout the duration of the investigation work was to the satisfaction of the floodplain manager, the NCCMA.

## 14 Soils and geology

Chapter 17 EES (Vol 1) details the soils and geology associated with the Project area. The Soils and Geology Impact Assessment Report (VicRoads, 2015) is found in EES Technical Appendix K.

### 14.1 The issue

The potential soils and geological impacts associated with the Project include:

- Potential for the project to have significant effects on the ... geomorphic stability of proximate sections of the lower Campaspe and Murray Rivers.
- Potential for the contamination of soils .... from construction and operation activities, including the exposure and disposal of any waste or contaminated soils.

This issue relates to how well the following EES draft evaluation objective has been met:

- To maintain ... geomorphic stability of proximate sections of the lower Campaspe and Murray Rivers

### 14.2 EES documentation

The Soils and Geology Impact Assessment Report (VicRoads, 2015) assessed the potential impacts of the Project on the geology and geomorphology of the study area.

#### Existing conditions

The geology most likely to be of concern in the study area and design of the Preferred Alignment comprises the Wunghnu Group alluvial deposits of Quaternary age (subdivided into the Coonambidgal Formation and the Shepparton Formation, according to relative depositional environments and ages). Other geological units that may influence design of the Project are the underlying Palaeocene to Miocene age Murray Group carbonate rocks and Renmark Group lacustrine sandstones, siltstones and coals, and the bedrock strata of undifferentiated Palaeozoic rocks, such as Silurian and Devonian siltstone/sandstone at depth.

The soils and conditions from the two key geological units are generally comprised of gravel, sand, silt and clay and may have varying engineering properties due to depositional circumstance, although with standard design and management measures, including further investigations during detailed design, there is considered little potential for significant construction related issues arising from the Project (Mid-West Option).

The Project is located in the geomorphic region nominated as the Riverine Plain. The Riverine Plain of New South Wales and Victoria is a very extensive and complex alluvial plain associated with the Murray River and its tributaries. It developed following the retreat of the Pliocene sea from the Murray Basin.

There are two principal topographic zones in the vicinity of Echuca - the Riverine Plain and the Flood Plain of the Murray River.

The Riverine Plain is a uniform plain that slopes westwards at an average gradient of approximately 0.4m per km. This plain is cut into by a number of creek valleys between 0.6m and 3m below the level of the plain. The creeks themselves are ephemeral in nature,

the main permanent watercourses being the Murray River and Campaspe River (discussed in the previous chapter).

### **EES findings**

From a geotechnical and soils perspective, the EES found that there are no major impediments to the construction and long-term maintenance of the Project and no significant impacts to the geomorphic stability of the proximate sections of the lower Campaspe and Murray Rivers.

The EES suggests that during construction of the Project, exposure of potentially contaminated soils may occur by uncovering of contamination materials during earthworks or through the importation of contaminated fill. With respect to the known historic land use of the study area there are no known areas of contamination within the Project area of the Mid-West Option.

Notwithstanding this, the discovery of contaminated material in the study area during works shall be managed in accordance with VicRoads' and EPA Guidelines.

### **14.3 Evidence and submissions**

There were no submissions or evidence received on soils and geology.

### **14.4 Discussion and findings**

The Inquiry finds that VicRoads have undertaken adequate investigation regarding the soils and geology associated with the Project and the surrounding area and that proposed mitigation measures, such as implementation of the PEPS and Contractors CEMP to minimise residual impacts on the environment, would meet the relevant EES objective.

## 15 Air and noise

Chapter 18 of the EES (Vol 1) details the air and noise impacts assessment. A detailed report on these matters is included in EES Technical Appendix L and M.

### 15.1 The issue

The potential air and noise impacts associated with the Project include:

- The potential for increase in noise levels from the Project's operation to significantly affect amenity in adjacent residential and parkland areas.
- The potential for increased vehicle traffic to adversely affect local air quality, relative to SEPP.

The issue relates to how well the draft evaluation objective has been met:

- To minimise adverse noise, air quality and other amenity effects to the extent practicable.

### 15.2 EES documentation

The EES provided an assessment of the impact of the Project's impacts upon air quality which was undertaken by considering the potential impacts from the construction through to impacts from dust and emissions of exhaust gas. In order to determine if the air quality impacts could arise from the operational phase of the project, an air quality assessment was undertaken. Air quality was assessed using the VicRoads' Air Quality Screening Tool (AQST) model against the worst case concentrations of traffic air emissions using the ultimate traffic volumes from the traffic modelling for the year 2044 of between 4,000 to 20,000 per day which is a conservative approach.

EES Table 18–3 provides the predicted worst-case operational air quality emissions of the project and details the closest receptor location being at 12m. The table concludes compliance with State Environment Protection Policy (SEPP) Air Quality.

The EES assessment included noise and vibration during construction of the Project along with an assessment of operational noise impacts. The EES concluded that the noise impact assessment found that construction of the Project would have the potential to cause noise impacts at the nearest sensitive receptor. It was, however, determined that a combination of controls, including restrictions on working hours and VicRoads' standard protection measures, would reduce noise during construction to an acceptable level. It was found that the future operation levels for the Project would comply if mitigation measures, such as low noise road pavement and noise barriers, were applied for protection of residential properties in Crofton Street, Warren Street and the Echuca Holiday Park.

### 15.3 Evidence and submissions

The Campaspe Shire Council submitted on matters in relation to air quality and noise. The Council acknowledged the EES in relation to air quality identified the need for monitoring throughout construction and that will be included in the nominated management plan. The Council concluded it has no material concern in relation to the matters relating to air quality.

In relation to noise, the Campaspe Shire Council submitted that there would be changes in the noise levels to land adjoining the Project. The Council submitted that increase in noise is

unavoidable and the mitigating measures should be implemented as soon as practical through the construction period. The Council noted, in particular, the impacts that noise could have on the landowners proximate to the Project.

DELWP submitted that impacts from construction noise may have a negative impact upon the breeding cycle of aquatic fauna as discussed in Chapter 7 of this report.

#### **15.4 Discussion and findings**

The Inquiry notes the lack of submissions in relation to noise and air quality. On this matter, the Council submitted:

Council notes the very low number of submissions from the Echuca community in relation to the exhibited EES and associated documents and notably a lack of objections.

Council cannot confirm if 'silence is consent'.

It is Council's experience that when the community is dissatisfied with an issue that there is generally a high level of participation and clear communication of its dissatisfaction.

Air quality will, in the first instance, be managed through standard construction procedures and implemented as identified within the EES through such mechanisms as minimising land clearance and disturbance, clearly identifying haul roads, dust suppression and stockpile location. VicRoads has committed to monitoring of air quality throughout construction. The Inquiry supports this approach.

VicRoads have committed to the mitigating measures as provided for in the EES which include, at Crofton Street, a noise wall of 1.5m on the east side of the preferred alignment with a total length of 525m; a second noise wall of 2.0m on the east side of the preferred alignment having a total length of 620m adjacent to the Echuca Holiday Park; and use of noise reducing asphalt on the bridge of 1.7km. Based upon the content of the EES and associated technical appendix these key measures are accepted by the Inquiry and should be incorporated into the Project at an early stage.

The submission of DELWP in relation to noise impacts on aquatic fauna is discussed in Chapter 7.

## 16 Economic issues

Chapter 19 of the EES (Vol 1) details the economic impact assessment. A detailed report on these matters is included in EES Technical Appendix N.

### 16.1 The issue

The potential economic impacts associated with the Project include:

- The proposed new bridge will reduce economic inefficiencies that exist due to congestion and the limitations on freight crossing the border.

The issue relates to how well the draft evaluation objective has been met:

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

### 16.2 EES documentation

The potential economic impacts of the Project through construction were identified in the EES as being the disruption to business through construction vehicles and impacts on the Echuca Holiday Park due to its proximity to the ROW. It was noted that the Holiday Park, however, may benefit through accommodating construction workers. Similar matters were identified through the Social Impact Assessment.

#### **Murray River**

Whilst river based activities will continue to be able to navigate the river, the EES identified that any impacts on such activities or access to the river would be detrimental to such activities. Events in the Echuca-Moama locality are important to the economy. In particular, the Southern 80 Ski Race attracts in the order of 90,000 visitors and competitors to the region and generates approximately \$10 million in economic benefit. The location of the Murray River crossing is a key element in the race being the finish point where the boat ramp, car park and riverfront form an important area for competitors and race enthusiasts. VicRoads have committed to the cessation of construction activities within this locality for 2 weeks in order to ensure any negative impacts will be limited.

#### **Labour and accommodation**

The supply of labour and accommodation were identified as a further two key impacts. The EES noted the likely completion of other key infrastructure projects that would make available regionally based construction workers. The provision of commercial accommodation in the form of approximately 135 rooms would be required to support non-regional based construction workers employed on the Project. The demand placed on a market that is already at less than 1% vacancy would place significant pressure on supply and could force displacement of local residents.

#### **Business**

The EES identified the possible loss of business because of passing traffic being reduced through Echuca once the new bridge is operational. However, this was considered unlikely due to the existing bridge continuing to be available. Furthermore, the removal of traffic



from the CBD would enable opportunity for access and amenity improvements to be implemented by the Council in the Historic Port precinct and CBD.

Given the immediate proximity of the Project to the Echuca Holiday Park, the operational impacts through noise and visual amenity may lead to some financial loss through visitors favouring other options which provide a higher level of amenity.

### **16.3 Evidence and submissions**

The BAP submitted that it supports the Project and seeks to develop the NSW side of the locality where the Project will cross the Murray River. The BAP envisages significant infrastructure being established on the NSW side including a visitors' information centre, culture centre, exhibition space or gallery and possibly an education centre.

The Campaspe Shire Council submitted that the existing single crossing of the Murray River leads to many inefficiencies, primarily due to congestion and limitations to the movement of freight. The Project would remove these impediments and lead to opportunities for growth to industry. The Council submitted:

The total number of workers who need to cross the Murray River to get to and from work is almost 2,000 or about 23% of the working population in Echuca-Moama.

.....

Reduced congestion for commuters, suppliers and customers will benefit local businesses and industries, regardless of which alignment is progressed.

The Council submitted that Echuca-Moama has the potential to grow as a tourist destination and the preferred Mid-West alignment minimises impacts to the Victoria Park nature reserve. It was submitted that the alignment minimises impacts on the indigenous interpretive trail being implemented within the reserve that could leverage the growing nature based tourism market.

The Committee for Echuca Moama (C4EM) submitted they support the Project and that it has the potential as being the catalyst for instigating a more detailed works program for infrastructure and lifestyle projects identified within its 20 year master plan. The master plan presented by the C4EM details a number of projects that the organisation seeks to support through its advocacy and includes the Bridge Arts Project, marina development, bike and pedestrian linkages and Victoria Park redevelopment. The C4EM submitted the benefits of the second bridge crossing were significant and presents the opportunity for the establishment of an iconic structure. The C4EM submitted that there would be a Project benefit of enabling the Bridge Arts Project which seeks to establish a unique tourist attraction within linkages to art, education, history and indigenous culture.

VicRoads submitted that the economic benefits of the Project cannot be doubted and highlighted the significant employment that would be created through the construction program. VicRoads submitted that traffic in the Echuca town centre would be reduced by 40% which would lead to higher amenity and safety in the town centre. Higher levels of business revenues and employment are expected, including anticipated expansion in retail sales of approximately \$14.2 million per annum, as confirmed in the evidence of Mr Henshall.

Evidence presented by Mr Henshall identified the benefits and opportunities of the Project along with its impacts and associated mitigation measures for each of the construction and operational components of the Project. Mr Henshall's evidence was that:

Of the three options, the Mid-West option was determined to be the better-performing option when considering a balance between environmental, social and economic considerations, and was selected for detailed risk and impact assessment. This preferred option uses existing road reserves for part of its length, and has the least impact on biodiversity values, habitat values and cultural/heritage values, and satisfies the Project objectives. The EIA considered the three options and supports the Mid-West option as the preferred alignment.

## **16.4 Discussion and findings**

Chapter 14 of the EES and Chapter 11 of the Inquiry assessment provide consideration of matters relating to social impact which has a considerable inter-relationship with economic issues.

The EES and evidence presented to the Inquiry has demonstrated significant positive impacts as a result of the Project. Additional items to those previously identified include benefits relating to increased employment, tourism and business expansion. Such benefits specifically identified within the evidence of Mr Henshall include key items of 540 direct full time jobs through construction and 870 indirect full time jobs; and increased opportunity for local business and wage spending stimulus of approximately \$18 million during construction. Operational benefits include increased efficiency for industry and agriculture, reduction in traffic and increased tourism.

The Inquiry acknowledges the potential impact on the Echuca Holiday Park, however, as acknowledged by the Council, mitigating measures are proposed that will reduce the impacts.

## 17 Environmental Management Framework

The Environmental Management Framework (EMF) is discussed at Chapter 20 of the EES and the relevant technical appendices.

### 17.1 The issue

The key issue of relevance to ensuring compliance with an EMF is:

- Management of environmental effects during Project construction and operation that are sufficient to meet statutory requirements and sustain stakeholder confidence.

The issue with the Environmental Management Framework for the Project considered by the Inquiry relates to how well the following EES draft evaluation objective has been met:

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

### 17.2 EES documentation

Chapter 20 of the EES (Vol 1) describes the EMF that would be incorporated into the Echuca Moama Bridge Project Environment Protection Strategy (PEPS) and the Contractors Construction Environmental Management Plan (CEMP) during detailed design, construction and operational phases of the Project.

The purpose of the EMF is to provide a transparent framework with clear accountabilities for managing environmental effects and impacts associated with construction and operation of the Project.

This EES has assessed the combined level of impact associated with the construction area for both the initial alignment (construction of a two lane, two-way carriageway road including a bridge across each waterway) and the ultimate duplication (construction of a duplicated roadway and bridges, which would be constructed when future traffic demand warrants an increase in road capacity).

The environmental management requirements recommended in the EES and technical studies would apply to both the initial and ultimate duplication. The future upgrade would be managed in accordance with VicRoads' Environmental Risk Management Guidelines (2012).

Environmental sensitivities and potential impacts were identified and assessed through the specialist assessments for the EES and are found within the various EES technical appendices. As described in Chapter 5 of the EES (Vol 1), the risk assessment process for the EES was aimed at identifying significant environmental, social and economic risks and impacts associated with the Project.

Management measures have been proposed to address these risks and are presented in the EES chapters and reflected in the EMF. EES Technical Appendix P contains a copy of the Risk Register developed for the Echuca Moama Bridge EES.

The EES risk assessment would inform the contract Risk Register developed by VicRoads as part of the PEPS for project implementation. The PEPS would also include any commitments or requirements from the Minister's Assessment.

VicRoads would develop the PEPS that will detail the environmental management arrangements for the design, construction and operation of the Project. The EES describes the PEPS as a VicRoads' document that would be used by VicRoads to guide environmental management for the Project and to track implementation of overall environmental commitments and approval conditions.

The PEPS would include the contract Risk Register and commitments register as well as contain the environmental management measures and objectives described in this EES. The PEPS would be updated to reflect permit and approval conditions and any other measures or commitments identified through the Minister's Assessment and conditions of subsequent approvals, and consultation.

The exhibited Incorporated Document, which is part of draft Amendment C103 to the Campaspe Planning Scheme, includes reference at clause 5.2 for an EMF.

### **17.3 Evidence and submissions**

No submissions or evidence were received on this matter, apart from reference in Campaspe Shire Council's submission that it 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 heritage.

The Inquiry sought clarification from VicRoads in its Directions Letter regarding whether it is an EMF or a Construction Environmental Management Plan that is required to be submitted to the Minister for Planning for approval within the Incorporated Document. This question arises because the Inquiry determined that the EMF already exists within the EES as a high level set of environmental principles. The draft Incorporated Document provides that the EMF would be a separate document and contain detail regarding the environmental management and mitigation measures which the Minister for Planning would be responsible for approving.

Ms Porter for VicRoads suggested the clause:

...should instead refer to the Project Environment Protection Strategy (PEPS), which is described in section 20.4.3 of the EES. The PEPS would include the contract risk register (Technical Appendix P) and commitments register, as well as contain the environmental management measures and objectives described in the EES. The PEPS would be updated to reflect permit and approval conditions and any other measures or commitments identified through the Minister's assessment of the EES, and conditions of subsequent approvals and consultation.

The PEPS would then be used to set out the contractual requirements for the Contractor Environmental Management Plan...

Further correspondence received from Ms Porter on behalf of VicRoads in November 2015, suggested:

The Incorporated Document to Amendment C103 should be amended at clause 5.2 to include a requirement for a Project Environment Protection Strategy (PEPS) which must be approved by the Minister prior to the commencement of works. The PEPS will detail environmental management arrangements for the design, construction and operation of the project. It would be used to track implementation of overall environmental commitments and approval conditions. The PEPS would include the contract Risk Register and commitments register (including assurances sought by the Shire of Campaspe) as well as contain the environment management measures and objectives described in the EES. The PEPS would be updated to reflect permit and approval conditions and any other measures or commitments identified through the Minister's Assessment and conditions of subsequent approvals, and consultation.

The Inquiry also received a consolidated list of all environmental mitigation and management measures. This is contained in Appendix E of this report.

#### **17.4 Discussion and findings**

The Inquiry agrees with the explanation and wording regarding the EMF, PEPS and Contractors CEMP provided by Ms Porter of Counsel on behalf of VicRoads and that clause 5.2 of the exhibited draft Incorporated Document be amended to reflect this sequence as follows:

##### **5.2 Project Environment Protection Strategy (PEPS)**

Prior to commencement of any building and works associated with the Project, a PEPS, or equivalent document, must be prepared for the Project. The PEPS will detail environmental management arrangements for the design, construction and operation of the project including relevant requirements. The PEPS would include the contract Risk Register and commitments register as well as contain the environment management measures and objectives described in the EES. The PEPS would be updated to reflect permit and approval conditions and any other measures or commitments identified through the Minister's Assessment and conditions of subsequent approvals, and consultation.

#### **17.5 Recommendation**

The Inquiry makes the following recommendation:

- 5. Amend the Incorporated Document as shown in Appendix D of this report.**

## **18 Matters of Commonwealth interest**

### **18.1 The issue**

Both the Victorian and NSW components of the Project were referred together as a single project to the Commonwealth Government for a decision on the need for assessment and approval under the Commonwealth EPBC Act in April 2013. The referral was with respect to listed species, which potentially occur and may be impacted by the Project works, including the South Eastern Long-eared Bat, Macquarie Perch, Murray Cod and Murray Hardhead.

On 11 July 2013, the Commonwealth Department of Environment (DoE) determined the Project to be a controlled action under controlling provisions sections 18 and 18A (threatened species and ecological communities). The Commonwealth DoE accepted a variation to the Project, to include the Mid-West Option, on the 22 December 2014. The variation sought to include the Mid-West Option and exclude the roundabout at the Murray Valley Highway because it is remote to the habitat of the South Eastern Long-eared Bat and would allow for pre-construction activities to occur.

As the EES process applies to the Victorian component of the Project only, the EES has not been accredited as the assessment process under the Commonwealth-Victorian Assessment Bilateral Agreement, primarily because the Project affects two jurisdictions.

The Commonwealth therefore determined that the assessment approach under the EPBC Act for the Project would be via Preliminary Documentation. The Preliminary Documentation prepared for the Project was initially required to outline the construction and operational impacts on the South Eastern Long-eared Bat across the entire Project area.

Preliminary Documentation was exhibited concurrently with the EES, Amendment C103 and the NSW Review of Environmental Factors. The Preliminary Documentation was prepared based upon the peer review findings of the bat surveys that the habitat was not suitable for the South Eastern Long-eared Bat and the recorded calls could not be attributed to the South Eastern Long-eared Bat. The Commonwealth DoE accepted the Preliminary Documentation, which included the findings of the peer review, as outlined in the correspondence between the Commonwealth DoE and the DELWP on 06 November 2015 (refer to Document 3).

### **18.2 Submissions and evidence**

The Commonwealth DoE did not make a submission to the EES or Amendment C103.

### **18.3 Discussion and findings**

Clause 4 of the Inquiry's Terms of Reference clearly requires that this Inquiry is to produce a report to inform the Minister for Planning's Assessment of the Project under the EE Act and the proposed Amendment to Campaspe Planning Scheme. The Terms of Reference do not request the Inquiry to assess or make comment on matters of Commonwealth interest, including the Preliminary Documentation. Notwithstanding, the Inquiry discusses the matters raised in regard to the South Eastern Long-eared Bat in Chapter 6 of this report.

## 19 Integrated assessment

This part of the report provides the Inquiry's integrated assessment of the Project, particularly the VicRoads' preferred Mid-West option.

### 19.1 Introduction

The Inquiry's Terms of Reference at clause 28 include that the following relevant matters are to be included in its report:

- a) The Inquiry's findings regarding the likelihood, magnitude and significance of the potential environmental effects (impacts) of the preferred alignment...
- d) Advice on whether the preferred alignment will substantially meet evaluation objectives and deliver an appropriate balance of environmental, economic and social outcomes, having regard to the conclusions on the effects of the preferred alignment, and submissions and the rationale for selecting the Mid West Option over other options documented in the EES.

### 19.2 Discussion and findings

The EES framework, draft evaluation objectives and risk assessment process are discussed in Chapter 3 of this report.

Overall, the Inquiry considers the evaluation objectives adopted by VicRoads in the EES to be satisfactory and do not require further refinement or the need for additional objectives. The risk assessment approach, based upon AS/NZS/ISO 31000:2009 Risk Management, is also sound and follows the approach applied in other EES' in Victoria.

The table below summarises the Inquiry's findings and provides an integrated assessment in regard to the evaluation objectives being met for the Project.

Draft evaluation objective		Inquiry's integrated assessment
<b>Road safety capacity</b>	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.	The benefits of all three options are common with the Mid-West option having some small advantages in terms of removing a greater number of vehicles from the existing bridge and Historic Port area. There are some disadvantages to Warren Street for Mid-West option, however, with appropriate design measures implemented these are not considered to be significant.
<b>Biodiversity and habitat</b>	To avoid or minimise adverse effects on native vegetation and listed flora and fauna species and ecological communities, and address opportunities for offsetting potential losses consistent with relevant policy.	All three options would result in the removal of native vegetation and localised impacts to biodiversity, including on Masked Owl breeding habitat. The native vegetation to be removed for the Mid-West option is far less than the others and is of low-moderate ecological value and its removal would not contribute to significant impacts on a regional scale. VicRoads has secured an appropriate offset for the Mid-West option.

<b>Cultural heritage</b>	To avoid or minimise adverse effects on Aboriginal and historic cultural heritage values.	<p>The Mid-West option has less impact on the Aboriginal cultural sensitive sandhill area than the other options. A CHMP has been prepared and approved by the YYNAC and management recommendations to protect cultural heritage in the CHMP are statutory requirements for the Project.</p> <p>The Mid-West option has less impact on historic values with 13 of the 77 Murray Pines within the sandhill area to be removed, which is not considered significant.</p>
<b>Social and land use</b>	To minimise adverse social and land use effects, including impacts on existing uses of the Crown land.	<p>There is wide strategic support for the Project. Although there are land use and social impacts associated with Victoria Park, these impacts will be mitigated via construction of new tennis courts in consultation with Council. The EES has demonstrated that the Mid-West option will reduce traffic congestion on the existing bridge and in the Historic Port area and allow for improved emergency access considered to be an extremely positive social benefit for local residents and visitors.</p> <p>The Mid-West option also provides for improved pedestrian and cycling paths.</p>
<b>Landscape and visual amenity</b>	To minimise adverse landscape and visual amenity effects on values of the area, including the Murray and Campaspe rivers and floodplains.	<p>The new bridge structure across the Murray River will have a very high impact on its scenic, recreational, cultural and natural heritage values. To minimise these impacts, VicRoads propose to use design to reduce the visual and landscape impacts to being moderate, however it is acknowledged that the new bridge will be quite visible.</p>
<b>Catchment values</b>	To maintain floodplain functions, hydrology, values of surface water, groundwater and geomorphic stability of proximate sections of the lower Campaspe and Murray rivers.	<p>The assessments undertaken for catchment values and hydrology have been comprehensive and indicate that there will be negligible impact on floodplains during construction of the Project and that the floodplains will be maintained. Other potential issues such as changes to hydraulic conditions, sedimentation and pollution during construction, will be managed via appropriate construction mitigation measures and reflected in VicRoads PEPS.</p>



<b>Amenity</b>	To minimise noise, air quality and other amenity effects to the extent practicable.	Amenity issues, such as air quality and noise, are not considered to be significant impacts of this Project. Dust suppression will be applied during construction and noise walls are proposed in some sensitive locations to minimise noise impacts on residents. There will be greater amenity benefits from a 40% reduction in traffic in the Echuca town centre.
<b>Economic</b>	To provide road infrastructure that fosters a viable level of economic performance for the local and regional economy of Echuca-Moama.	There will be positive economic impacts including employment during construction of the Project. The Project will lead to tourism and business expansion, as well as leading to increased efficiency for industry and agriculture, reduction in traffic and increased tourism opportunities (e.g. Bridge Art Project).
<b>Environmental Management Framework</b>	To provide a transparent framework with clear accountabilities for managing environmental effects and hazards associated with construction, operation and rehabilitation phases of the Project, in order to achieve acceptable environmental outcomes.	The proposed EMF and PEPS to be prepared and approved by the Minister for Planning provide a satisfactory environmental management regime for the construction and operation of the Project.
<b>Sustainable development</b>	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.	Considering the achievement of the above evaluation objectives, the Inquiry finds the Project will contribute a net community benefit over the short and long term, whilst balancing environmental, economic and social outcomes.

In conclusion, the Inquiry supports the preferred Mid-West alignment for the following reasons:

- Overall, the Mid-West Option provides a balanced environmental, social and economic outcome for the communities of Echuca and Moama.
- The Mid-West option utilises existing road reserves for part of its length.
- Although the bridge will be visible in the landscape and cause some negative visual and landscape impacts to the Murray River environs, this is outweighed by the positive economic and social benefits of a second bridge crossing for the communities of Echuca and Moama.
- The Mid-West option has the least amount of impact on native vegetation removal and degradation of habitat values.
- The Mid-West option has minimal impact on the Aboriginal cultural sensitive sandhill area.

- The proposed EMF and PEPS to be prepared and approved by the Minister for Planning provide a satisfactory environmental management regime for the construction and operation of the Project.
- VicRoads Project objectives are met by the Mid-West option.

### **19.3 Recommendations**

The Inquiry makes the following recommendations:

- 6. Adopt VicRoads' preferred Mid-West Option as presented in the Echuca-Moama Bridge Environment Effects Statement.**
- 7. Implement all mitigation measures proposed in the Environment Effects Statement and subsequent table (Appendix E of this report).**
- 8. Include all mitigation measures in VicRoads' Project Environment Protection Strategy.**

## **PART C: DRAFT PLANNING SCHEME AMENDMENT**



## 20 Draft planning scheme Amendment C103

### 20.1 The draft Amendment

The material exhibited with the EES included draft planning scheme Amendment C103 to the Campaspe Planning Scheme.

The draft Amendment affects the land identified for the ROW through the Project area that is within Victoria. The draft Amendment has been produced to facilitate the acquisition of land, use and development of the Project and the removal of native vegetation associated with the Project.

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 Echuca-Moama Bridge Project (PA04) and designate the Roads Corporation as the acquiring authority for PA04
- 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 Maps 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.

### 20.2 Public Acquisition Overlay

#### (i) The Issues

Is the proposed Public Acquisition Overlay (PAO) appropriately applied?

#### (ii) Submissions

The PAO in the draft Amendment, as exhibited, does not include Crown land. The Council submitted that all land affected by the ROW should have the PAO applied to it. This was supported by VicRoads through its submission and presentation of an amended plan depicting a revised PAO (Doc 5). The plan was supported by a letter to DELWP and stated:

Since the exhibition of the draft PSA documents, the project team has received advice from the VicRoads property acquisition manager, that the draft PAO be extended to cover Crown land for the purposes of setting a defined process requiring the interests in the Crown land for the project in accordance with the statutory provisions of the land acquisition and compensation act 1986. Section 92(3) of the transport integration act 2010 requires the roads Corporation to compensate in respect of the use for management of Crown land, however should the negotiations not reach a resolution, the land acquisition and compensation act 1986, provides for a defined resolution process. For land/or the interest in land to be acquired, the land must be reserved for a certification must be sought.

The DELWP provided the following response:

The department acknowledges VicRoads desire to ensure a mechanism is in place to ensure an appropriate and equitable outcome is available for all parties in the event of a dispute over compensation for the acquisition of the land required to construct the proposed bridge.

The department supports the modification the draft PAO to include the Crown land within the project area.

The Council submitted that it supported the application of the PAO over all private and public land to better articulate the corridor of the Project through the Campaspe Planning Scheme. It submitted that this would provide clear identification of the Project and being included in the planning scheme maps would ensure the community, landowners and the like were aware of its location.

### **(iii) Discussion**

The planning scheme is a document which landowners and prospective landowners rely on for direction and it forms a basis for decision making on land use related matters. Whilst no submission was made by the broader public in relation to the extent of the PAO based upon the draft Amendment, the Advisory Committee can understand how the disjointed nature of the current mapping may cause uncertainty about the location of the Project. This is despite the Project alignment being clearly identified within the EES and associated documents.

The Advisory Committee notes the correspondence between VicRoads and DELWP and the support by the Council for such an approach.

### **(iv) Findings**

The Advisory Committee supports the proposal to apply the PAO to all land including Crown land affected by the Project.

## **20.3 Incorporated Document**

### **(i) The issues**

The issues associated with the Incorporated Document include matters relating to the content and title of the environmental management regime and the means to ensuring the mitigating measures identified in the EES are secured.

### **(ii) Submissions**

VicRoads submitted that the reference of the Incorporated Document to an Environmental Management Framework may suggest that it is the same document as contained in section 20 of the EES. VicRoads are of the opinion that the document should refer to a Project Environmental Protection Strategy (PEPS) as described at section 20.4.3 of the EES. VicRoads submitted:

The PEPS would include the contract risk register (Technical Appendix B) and commitments register, as well as contain the environmental management measures and objectives described in the EES. The PEPS would be updated to reflect permit and approval conditions and any other measures for commitments identified through the Minister's assessment of the EES, and conditions of subsequent approvals and consultation.

The PEPS would then be used to set out the contractual requirements for the contract environmental management plan, which is described in section 20.4.4 of the EES.

The impact upon Victoria Park and, in particular, the six tennis courts has been identified by the Campaspe Shire Council as a key area of concern, but only as it relates to the mechanism for them being replaced and when this will be. The Council submitted that the provision of the six replacement tennis courts and the provision of pedestrian/cycling infrastructure including connections to the existing network should be included in section 5 of the Incorporated Document (unless provided for elsewhere).

VicRoads through the EES clearly identified its intent to replace the courts prior to commencement of construction as identified within its consolidated list of mitigation measures provided post-hearing.

Similar to the above, the Council submitted that the various recommendations of the specialist studies included in the EES be captured within the approvals and that they be implemented in full and as soon as practical.

In response to the matters submitted by the Council, VicRoads requested a recommendation that the mitigating measures are included as a requirement of the PEPS and that this not be approved before such items are included.

DELWP submitted that clause 5.4 of the Incorporated Document be amended to reflect the responsibility of decision making in relation to offset requirements. In doing this, it was submitted that the Secretary should be referenced under the appropriate legislation in his capacity as the body corporate established by the *Conservation Forests and Lands Act 1987*.

DELWP submitted that the draft Amendment was reviewed by DELWP prior to being finalised for exhibition, with robust discussion regarding the necessary content and in particular the scope and specific parameters of draft conditions in the Incorporated Document. DELWP submitted:

The condition requiring an EMF document was discussed in detail, i.e. the relevance of a construction environmental management plan (CEMP) versus an EMF. In the end, DELWP agreed to the exhibition of VicRoads' proposed Incorporated Document that included a condition requiring an EMF, although the scope and necessary content of such a document (be it an EMF or CEMP) is yet to be fully resolved and will be determined through the outcome of the Advisory Committee and Minister's Assessment.

After the Hearing, VicRoads provided a consolidated list of mitigation measures. This is attached as Appendix E.

### **(iii) Discussion and findings**

The matters submitted in relation to the Incorporated Document largely revolved around the terminology and content of clause 5.2. The clause requires a plan to be established, prior to the commitment of the Project, that addresses the relevant requirements of the Minister's Assessment of the Project. Furthermore, the document must be approved by the Minister.

As presently drafted, the clause does not capture the relevant recommendations of the EES including the items in the Council's submission in relation to the tennis courts or

pedestrian/cycle paths. The clause simply requires a plan to be submitted to the Minister for approval.

As detailed in Chapter 17 of the Inquiry's report, the Inquiry agrees with the explanation and wording regarding the EMF, PEPS and Contractors CEMP provided by Ms Porter of Counsel on behalf of VicRoads and that clause 5.2 of the exhibited draft Incorporated Document be amended to reflect this sequence:

5.2 Project Environment Protection Strategy (PEPS)

Prior to commencement of any building and works associated with the Project, a PEPS, or equivalent document, must be prepared for the Project. The PEPS will detail environmental management arrangements for the design, construction and operation of the project including relevant requirements. The PEPS would include the contract Risk Register and commitments register as well as contain the environment management measures and objectives described in the EES. The PEPS would be updated to reflect permit and approval conditions and any other measures or commitments identified through the Minister's Assessment and conditions of subsequent approvals, and consultation.

## **20.4 Use of section 20(4) of the Planning and Environment Act 1987**

### **(i) The issue**

VicRoads advised that it intends to seek approval of Amendment C103 to the Campaspe Planning Scheme through section 20(4) of the *Planning and Environment Act 1987*.

### **(ii) Submissions**

VicRoads submitted:

VicRoads seeks a recommendation from the Committee that Amendment C103 to the Campaspe Planning Scheme be approved by the Minister as planning authority, subject to the amendment noted above, the minor amendment suggested by DELWP and agreed to by VicRoads and any additional amendment agreed between DELWP, VicRoads and Council.

VicRoads submitted that both the Campaspe Shire Council and the Minister for Planning have agreed to this approach. The Minister provided a letter to the Minister for Transport, which provided in principle agreement to the Amendment being considered under section 20(4) subject to a favourable assessment of the EES.

The Campaspe Shire Council submitted that it supports the Minister being the Planning Authority for the Amendment. The Campaspe Shire Council made no specific submission in relation to the support of otherwise for the Amendment being considered under section 20(4).

### **(iii) Discussion**

Section 20(4) of the Act provides for the Minister to exempt himself from any requirements of sections 17, 18 and 19 of the Act and the regulations in respect of an amendment that the Minister prepares. In effect, should such exemptions be applied, it allows an amendment to be approved without the need for the normal notification requirements.

The Practice Note that applies in relation to this section of the Act sets out criteria when the Minister will consider using the powers enabled. In response to the criteria, the Advisory Committee notes the following:

- It has been demonstrated through the EES and Technical Appendices, in particular in the evidence of Mr Henshall that the Project will have significant benefits not only to the immediate townships but also to the greater region
- The establishment of the second crossing of the Murray River at Echuca-Moama is identified in the significant policy document being the Loddon Mallee North Regional Growth Plan and notes the significant positive impacts that the Project will have on the region
- A process enabling the public and stakeholders to be involved in consideration of the draft Amendment documentation has been undertaken. This was achieved through exhibition of the draft Amendment with the EES.

The Advisory Committee notes the detail of the draft Amendment was included in the EES material that was placed on exhibition. This has enabled all stakeholders to review the material associated with the Amendment and its associated detail.

#### **(iv) Findings**

The Advisory Committee is of the opinion that use of the Minister's powers under section 20(4) of the *Planning and Environment Act 1987* would be appropriate in order to facilitate the inclusion of the controls to the Campaspe Planning Scheme.

### **20.5 Recommendation**

- 9. 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 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 Nov 2015 (Document 5).**
  - b) Amend the Incorporated Document as shown in Appendix D of this report.**



## **Appendix A Inquiry and Advisory Committee Terms of Reference**

## Terms of Reference

### Echuca Moama Bridge Project Inquiry and Advisory Committee

A combined Inquiry appointed pursuant section 9(1) of the *Environment Effects Act 1978* and Advisory Committee appointed pursuant to Part 7, Section 151 of the *Planning and Environment Act 1987* to report on the Echuca Moama Bridge Project.

#### Name

1. The combined Inquiry and Advisory Committee is to be known as the 'Echuca Moama Bridge Project Inquiry and Advisory Committee' (the Inquiry).
2. The Inquiry is to have members with the following skills:
  - a. Traffic and transport
  - b. Statutory and strategic planning (including amenity, noise and landscape issues)
  - c. Hydrology.

The Inquiry may seek additional specialist expert advice if required.

#### Purpose

3. The purpose of the Inquiry is to investigate and provide an integrated assessment of the potential effects of the Echuca Moama Bridge Project (the project) on the environment<sup>1</sup>.
4. The Inquiry is to produce a report to inform the Minister for Planning's Assessment of the project under the *Environment Effects Act 1978* (the EE Act) and will also assist the Minister to make a decision about the proposed amendment to the Campaspe Planning Scheme to facilitate the project.

#### Background

##### *Project*

5. VicRoads and New South Wales (NSW) Roads and Maritime Services propose to construct a new crossing of both the Murray and Campaspe Rivers; an elevated roadway and extensive bridging and/or culverts across the Murray and Campaspe River floodplains; and improvements to existing approach roads in Victoria and NSW. The new crossing connects the Murray Valley Highway at Echuca with the Cobb Highway in Moama.
6. VicRoads was responsible for the preparation of the Environment Effects Statement (EES). The EES includes a preliminary assessment of three options and an integrated detailed assessment of the preferred alignment. The options investigated by VicRoads include:
  - a. The Mid West Option (the preferred alignment);
  - b. The Mid West 2A Option; and

<sup>1</sup> 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 within which humans live.

c. The Mid West 2B Option.

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

7. 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 per hour. Sufficient land would be reserved to enable the construction of a four lane road (two lanes in each direction). VicRoads advises that the timing of the ultimate duplication to four lanes is not known and is dependent on future growth and traffic needs.
8. The Mid West Option requires limited reservation of land given the construction of the new alignment is predominantly on Crown land reserved for recreational purposes.
9. Construction would involve minimal excavation as extensive lengths of the new alignment would be subject to bridging or constructed on fill material. New road infrastructure would also include an off-road shared pathway, noise attenuation and lighting.

### **EES Decision**

10. On 14 June 2013, the former Minister for Planning decided that an EES was required for the project under the EE Act. The decision was issued with procedures and requirements for the preparation of the EES under section 8B(5) of the EE Act.
11. The EES has been prepared by the proponents in response to the Minister's decision and the Scoping Requirements issued for the project in June 2014.
12. The EES was placed on public exhibition, together with the draft amendment to the Campaspe Planning Scheme, the draft NSW Review of Environmental Factors (REF) and Commonwealth Preliminary Documentation, from 27 August to 9 October 2015.

### **Commonwealth decision**

13. Both the Victorian and NSW components of the project were referred together as a single project to the Australian Government for a decision on the need for assessment and approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
14. On 11 July 2013, the project was determined to be a controlled action that requires assessment and approval under the EPBC Act because of its potential impacts on matters of national environmental significance. The controlling provisions under the EPBC Act relate to listed threatened species and ecological communities (sections 18 and 18A). A variation to the proposal, to include the Mid West Option, was made on 22 December 2014.
15. Given that the EES process applies to the Victorian component of the project only, it has not been accredited as the assessment process under the Commonwealth-Victorian Bilateral Agreement relating to environmental assessment<sup>2</sup> primarily because the project affects two jurisdictions.
16. The assessment approach under the EPBC Act is via Preliminary Documentation. The Preliminary Documentation was jointly exhibited with the EES.

<sup>2</sup> The new bilateral agreement under section 45 of the *Environment Protection and Biodiversity Conservation Act 1999* came into operation on 26 December 2014 and provides for the accreditation of specified Victorian statutory processes to ensure an integrated and coordinated assessment

**NSW approval**

17. The NSW component of the project requires environmental assessment and approval under the *Environment Planning and Assessment Act 1979*. A REF has also been prepared by Roads and Maritime Services to examine the significance of likely environmental impacts of the NSW component. The REF was jointly exhibited with the EES.

**Planning approval process**

18. VicRoads has prepared a draft amendment known as Amendment C103 to the Campaspe Planning Scheme for the Mid West Option. The draft amendment proposes to:
- a. Apply a Public Acquisition Overlay to land required for acquisition for the project as shown on Planning Scheme Map Nos. 7PAO and 8PAO;
  - b. Amend the Schedule to Clause 45.01 Public Acquisition Overlay to identify and reserve land for the Echuca Moama Bridge Project (PAO4) and designate the Roads Corporation as the acquiring authority for PAO4;
  - c. 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;
  - d. Amend the Schedule to Clause 61.03 to include new Planning Scheme Maps 7PAO and 8PAO into the Campaspe Planning Scheme; and
  - e. Amend the Schedule to Clause 81.01 to introduce a new incorporated document titled *Echuca-Moama Bridge Project, Incorporated Document, June 2015*.

**Other approvals**

19. Under Victorian law, the project requires a number of other approvals and consents, as outlined in the EES, including an approved Cultural Heritage Management Plan under the *Aboriginal Heritage Act 2006* to manage works in areas of cultural sensitivity.

**Method**

20. The Inquiry may apply to vary these Terms of Reference in writing any way it sees fit prior to submission of its report.
21. The Inquiry may inform itself in anyway it sees fit, but must consider all relevant matters, including but not limited to:
- a. The exhibited EES and supporting technical reports and information.
  - b. The draft amendment to the Campaspe Planning Scheme.
  - c. Any submissions and evidence provided by VicRoads, State agencies, Campaspe Shire and Murray Shire Councils and the public.
  - d. Information provided by the VicRoads, which addresses, to the extent practicable, the submissions provided by the public.
  - e. Any other relevant information provided to, or obtained by, the Inquiry, having regard to relevant statutory provisions, policies and plans.
22. The Inquiry must consider all relevant submissions.



23. The Inquiry must conduct a public hearing and may make other such enquiries as are relevant to it consideration of the potential environmental effects of the project.
24. The Inquiry must conduct its hearing in accordance with the following principles:
  - a. The hearing will be conducted in an open, orderly and equitable manner, in accordance with the rules of natural justice, with a minimum of formality and without the necessity for legal representation.
  - b. The Inquiry process will aim to be exploratory and constructive and adversarial behaviour should be minimised.
  - c. Parties without legal representation will not be disadvantaged. Cross examination will be strictly controlled and prohibited where deemed not to be relevant by the Inquiry Chair.
  - d. The Inquiry may commission specialist advice on other matters if required, particularly in the areas of biodiversity and habitat, and Aboriginal cultural heritage.
25. The Inquiry will meet and conduct its hearing when there is a quorum of at least two of its members present, including the Inquiry Chair.

### Submissions are public documents

26. The Inquiry must retain a library of any written submissions or other supporting documentation provided to it directly to it until a decision has been made on its report or five years has passed from the time of its appointment.
27. Any written submissions or other supporting documentation provided to the Inquiry must be available for public inspection until the submission of its report, unless the Inquiry specifically directs that the material is to remain confidential and be heard 'in camera'.

### Report

28. The Inquiry must produce a written report addressing the following:
  - a. The Inquiry's findings regarding the likelihood, magnitude and significance of the potential environmental effects (impacts) of the preferred alignment.
  - b. Advice regarding feasible mitigation measures or procedures to avoid, minimise or offset environmental effects, including those proposed by VicRoads or in submissions, and likely effectiveness of such measures.
  - c. Advice on the draft framework for environmental management for the project described in the EES.
  - d. Advice on whether the preferred alignment will substantially meet evaluation objectives and deliver an appropriate balance of environmental, economic and social outcomes, having regard to the conclusions on the effects of the preferred alignment, and submissions and the rationale for selecting the Mid West Option over other options documented in the EES.
  - e. Recommendations on any feasible modifications to the preferred alignment, including in relation to the micro-alignment, design, and or other specific measures necessary to avoid, minimise or offset likely adverse impacts.
  - f. Recommendations on appropriate conditions under Victorian law, such as in the proposed Incorporated Document, necessary to achieve acceptable environmental outcomes in the context of applicable legislation and policy, relevant best practice and the principles and objectives of ecologically sustainable development.

Terms of Reference | Echuca Moama Bridge Project Inquiry and Advisory Committee

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- g. Planning advice on the draft amendment for the preferred alignment, including the appropriateness of the content of the proposed incorporated document.
- h. Relevant information and analysis in support of the Inquiry's conclusions and recommendations.
- i. A description of the proceedings conducted by the Inquiry and a list of those consulted and heard by the Inquiry.

### Timing

- 29. The Inquiry is required to submit its report in writing as soon as practicable but no later than 40 business days from the last day of its hearing.

### Fee

- 30. The fee for the Inquiry will be set at the current rate for a Panel appointed under Division 1 of Part 8 of the *Planning and Environment Act 1987*.
- 31. The costs of the Inquiry will be met by VicRoads.

### Project Manager

- 32. Day to day liaison for this Inquiry process will be through Greta Grivas, Senior Project Officer, Planning Panels Victoria, on ph. (03) 8392 6393 or by email at greta.grivas@delwp.vic.gov.au.
- 33. Any queries about the EES process should be directed to Fiona Murray, Senior Regional Planner, Department of Environment, Land, Water & Planning on ph. (03) 4433 8056 or by email at fiona.murray@delwp.vic.gov.au.



Richard Wynne MP  
Minister for Planning

Date:

15/9/15

## Appendix B List of Submitters

No	Date
1	Echuca Regional Health
2	Ms Leoni McDonald
3	Murray Darling Basin Authority
4	Bridge Art Project Inc.
5	Echuca Cemetery Trust
6	Ms Glenda and Mr Michael Black
7	Campaspe Shire Council
8	Committee for Echuca Moama Inc.
9	NSW Office of Environment and Heritage
10	Department of Environment Land Water and Planning
11	Murray Shire Council (NSW)
12	Yorta Yorta Nations Aboriginal Corporation

## Appendix C Document List

No	Date	Description	Presented by
1	16 Nov 2015	DELWP Submission	Ms Fiona Murray, Senior Regional Planner, Planning Group, DELWP
2	16 Nov 2015	DELWP Submission attachments	Ms Murray, DELWP
3	16 Nov 2015	VicRoads Submissions	Ms Emily Porter of Counsel representing VicRoads, instructed by Ms Perlstein, Norton Rose Fulbright
4	16 Nov 2015	Confidential report on estimated project costs	Ms Porter, representing VicRoads
5	16 Nov 2015	Correspondence from Mr Kersting, VicRoads' Regional Director Northern Region to Ms Johnson, Program Manager, DELWP dated 13 Nov 2015 regarding draft Amendment C103 to Campaspe Planning Scheme	Ms Porter, representing VicRoads
6	16 Nov 2015	Correspondence from Ms Johnson, DELWP to Mr Kersting, VicRoads dated 13 Nov 2015 in reply	Ms Porter, representing VicRoads
7	17 Nov 2015	Correspondence from Mr Kols, VicRoads to Mr Brennan, Brett Lane & Associates regarding native vegetation offsets, dated 13 Nov 2015	Ms Porter, representing VicRoads
8	17 Nov 2015	Shire of Campaspe Submissions	Ms Anne Howard, Shire of Campaspe
9	17 Nov 2015	Echuca Moama Master Plan 2035 (Nov 2014)	Mr Geoff Kelly, Committee for Echuca Moama Inc
10	17 Nov 2015	Bridge Art Project Echuca- Moama	Mr Kelly
11	17 Nov 2015	Committee for Echuca Moama Inc submissions	Mr John Kenley, Committee for Echuca Moama Inc



## **Appendix D Panel Preferred Incorporated Document**

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## Echuca-Moama Bridge Project

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### Incorporated Document

Incorporated document pursuant to section 6(2)(j) of the *Planning and Environment Act 1987*.

| JUNE-December 2015

## 1.0 INTRODUCTION

This document is an incorporated document in the Campaspe Planning Scheme under section 6(2)(j) of the *Planning and Environment Act 1987*.

The land identified in this document may be used and developed in accordance with the control in this document.

The control in this document prevails over any contrary or inconsistent provision in the Campaspe Planning Scheme.

## 2.0 PURPOSE

The purpose of the control in this document is to allow the use and development of land for the purposes of the Echuca-Moama Bridge Project, Mid-West Option (the Project), which includes but is not limited to:

- The construction of a carriageway and associated works.
- The construction of bridges over waterways and roads.
- The provision of ~~off-road~~ bicycle and pedestrian paths.
- The construction of grade separated crossings.

The Project will be constructed in a minimum of two stages, being:

- The initial alignment to a rural highway standard (Austroads Class 3) two lane – two way carriageway (comprising one lane in either direction).
- The ultimate duplication to a four lane divided carriageway (a duplicated highway).

## 3.0 LAND

The control contained in clause 4.0 of this document applies to the land required for the construction of the Project, within the Shire of Campaspe, and as shown as the Project Area in Figure 1 of this document.

## 4.0 CONTROL

Despite any provision to the contrary or any inconsistent provision in the Campaspe Planning Scheme, no permit is required for and nothing in the Campaspe Planning Scheme operates to prohibit or restrict, the use and development of land within the Project Area for the construction of the Project. The Project includes the following use and development:

- The removal, destruction and lopping of vegetation, including native vegetation.
- ~~Within the Project Area, a~~ Activities ancillary to the construction and operation of the Project including but not limited to:
  - Establishing and using lay down areas for construction purposes.
  - Constructing and utilising temporary work sites, offices, storage and amenity areas.
  - Constructing fences, walls or barriers.
  - Constructing access roads and shared pathways, to the satisfaction of the responsible authority.
  - Creating or altering access to a road.
  - ~~Altering Works on~~ waterways, to the satisfaction of the relevant water authority and catchment management authority.
  - Demolishing and removing buildings, structures and works.

- Undertaking earthworks including to construct the road, create bunds, mounds, batters, wetlands and landscaping, excavate land and otherwise to excavate land, salvage artefacts and alter drainage and utilities.
- Subdividing and consolidating land.

This control is subject to the conditions in clause 5.0 of this document.

The Project may proceed in stages. Each stage must be completed in accordance with the conditions in clause 5.0 of this document.

## 5.0 CONDITIONS

### 5.1 Project to be undertaken by or on behalf of the Roads Corporation

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

### 5.2 Project Environment Protection Strategy (PEPS)

Prior to commencement of any building and works associated with the Project, a PEPS, or equivalent document, must be prepared for the Project. The PEPS will detail environmental management arrangements for the design, construction and operation of the project including relevant requirements. The PEPS would include the contract Risk Register and commitments register as well as contain the environment management measures and objectives described in the EES. The PEPS would be updated to reflect permit and approval conditions and any other measures or commitments identified through the Minister's Assessment and conditions of subsequent approvals, and consultation. The PEPS must be submitted to, and approved in writing, by the Minister for Planning.

### 5.2 Environmental Management Framework

Prior to the commencement of any buildings or works associated with the project, an environmental management framework must be prepared for the project, including relevant requirements as described in the Minister for Planning's Assessment under the *Environment Effects Act 1978*. The environmental management framework must be submitted to and approved in writing, by the Minister for Planning.

### 5.3 Construction Environmental Management Plan

Prior to the commencement of any works, a Construction Environmental Management Plan (CEMP) must be prepared in consultation with the Department of Environment, Land, Water & Planning, the relevant Catchment Management Authority and the responsible authority to the satisfaction of be approved in writing by the Minister for Planning, which is consistent with the Environmental Management Framework in the Environment Effects Statement and includes any requirements as described in the Minister for Planning's Assessment of the Environment Effects Statement for the Project.

The CEMP may be prepared in stages and amended from time to time to the satisfaction of the Minister for Planning. The Project must be carried out in accordance with the approved plan.

### 5.3.4 Native Vegetation Offset Strategy

Prior to the removal of native vegetation, an Offset Strategy must be prepared for the Project to the satisfaction of the Secretary to the Department of Environment, Land, Water & Planning and must be submitted to and approved by the Minister for Planning. The plan must show offsets matching the clearing for any stages under the Project.

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 the Department of Environment, Land, Water & Planning.

5.45 Threatened Species Management Plan

Prior to the commencement of works, a Threatened Species Management Plan be prepared in consultation with the Commonwealth Department of Environment and endorsed by the Secretary to the Department of Environment, Land, Water & Planning (as constituted under Part 2 of the Conservation, Forests and Lands Act 1987).

**6.0 EXPIRY**

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

- The first stage development allowed by the control is not started by 31 December 2021
- The final stage of 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-12 months afterwards.

DRAFT



## **Appendix E      Consolidated List of VicRoads' Mitigation Measures**



## CONSOLIDATED LIST OF MITIGATION MEASURES FOR THE ECHUCA MOAMA BRIDGE PROJECT

Note: This list excludes standard project environmental management measures as specified in VicRoads Standard Contract Section 177

Impact	Commitment	Project Timing	Responsible party	Additional Comments
Social - Impacts on six existing lawn tennis courts in the Victoria Park Sports and Recreation precinct, operated by the Echuca Lawn Tennis Club.	VicRoads has committed to relocation and reinstatement of the six impacted tennis courts, prior to the existing courts being decommissioned.	Pre-construction	VicRoads in consultation with Shire of Campaspe and the Echuca Tennis Club	Liaise with the tennis club and the Campaspe Shire Council to determine the most appropriate timing, location and configuration of the new tennis courts consistent with the draft Victoria Park and Environs Master Plan.
Social - Construction impacts on Easter Tennis Club Tournament	VicRoads has committed that the project construction will not disrupt the staging of the Tennis Tournament as far a practical.	Pre-construction and Construction	VicRoads in consultation with Shire of Campaspe and the Echuca Tennis Club. Contractor	VicRoads to incorporate management measures for staging of Easter Tennis Tournament in construction contract requirements.
Social - The preferred alignment would impact on the existing public toilet block in the Victoria Park boat ramp car park.	VicRoads has committed to reinstatement of this infrastructure as part of the Project .	Pre-construction and Construction	VicRoads in consultation with Shire of Campaspe	VicRoads will liaise with Campaspe Shire Council to determine the most appropriate location and timing for the new toilet block.
Social - Provision of shared pedestrian and cycle facilities	VicRoads has committed to the provision of shared pedestrian and cycle facilities and connections to existing paths as shown on the exhibited EES documents. Reinstatement any damage to existing pedestrian infrastructure that is to be retained.	Pre-construction and Construction	VicRoads in consultation with Shire of Campaspe and Murray Shire Council	.
Social - Victoria Park Master Plan	VicRoads is agreeable to meeting reasonable costs to update the draft Master Plan to consider impacts on the Victoria Park facilities arising out of the implementation of the Mid-West option.	Pre-construction	Shire of Campaspe	Update of Master Plan to be undertaken and managed by Shire of Campaspe.
Social - The preferred alignment would impact on the Moama Lions Park, located on the corner of Meninya Street and Boundary Road.	VicRoads and Roads and Maritime Services have committed to relocating the children's playground and any other infrastructure in the park that would be directly impacted by the Project.	Pre-construction	VicRoads and Roads and Maritime Services in consultation with Murray Shire Council	The land is owned by Murray Shire, and the local Lions Club has made a financial contribution to support development of the infrastructure there, including the children's playground, barbeque facilities and seating.
Social and Economic • Bridge Arts Project Incorporated (BAPI)	VicRoads is supportive of the project and has actively participated in the preliminary development of the proposal. It is not intended that VicRoads or RMS contribute directly to funding the proposal. VicRoads and RMS, whilst supportive, will need to ensure that the BAPI does not compromise the safe operation and maintenance of the bridge structure. VicRoads is supportive of consultation with BAPI during the detailed design development of the bridge and opportunities to incorporate the BAPI proposal where feasible.	Pre-construction and Construction	VicRoads and Roads and Maritime Services and Contractor	
Economic • Employment	In order to maximise business and employment opportunities, and minimise impacts on the local community, VicRoads and Roads and Maritime Services have committed to: <ul style="list-style-type: none"> <li>Encouraging the construction contractor to work with the Shire of Campaspe and Murray Shire Council to identify suitable accommodation for workers who would be temporarily living in Echuca-Moama during construction of the Project</li> <li>Encouraging participation of the successful construction contractor, Shire of Campaspe and Murray Shire to brief interested local parties on Project works and timing in order to enable local businesses to understand sub-contract opportunities associated with the Project, and provide advice and assistance to local businesses with</li> </ul>	Construction	VicRoads and Roads and Maritime Services, in consultation with the Shire of Campaspe and Murray Shire Council	One of the positive impacts of the Project is the anticipated generation of employment. The assessment identifies the potential for 4,240 fulltime equivalent (FTE) direct and indirect jobs and a wage spend of approximately \$18 million over the three-year construction period. In any given year over the construction period, it is estimated that up to 540 direct FTE jobs would be created, and up to 870 indirect FTE jobs would be supported by the Project. Potentially this labour could be sourced locally or regionally.



Impact	Commitment	Project Timing	Responsible party	Additional Comments
	the tendering process.			
Economic <ul style="list-style-type: none"> <li>River Based Businesses</li> </ul>	In consultation with river-based businesses, minimising the number, extent and duration of river closures during construction of the proposed bridge. This would include providing sufficient and safe access for all river users (especially paddle steamers) during construction.	Pre-construction and Construction	VicRoads and Roads and Maritime Services, in consultation with the river based businesses.	VicRoads to incorporate river management measures in construction contract requirements.
Economic <ul style="list-style-type: none"> <li>Southern 80 Ski Race</li> </ul>	Suspension of construction works in the vicinity of the Southern 80 Ski Race over a two-week period required for event set-up, event staging and decommissioning of the site.	Pre-construction and Construction	VicRoads and Roads and Maritime Services and Contractor	VicRoads to incorporate management measures for staging of Southern 80 Ski Race in construction contract requirements.
Traffic Management <p>Traffic Management Plans</p> <ul style="list-style-type: none"> <li>The majority of adverse impacts would be expected to occur during the construction of the Project, including potential impacts on road safety associated with heavy vehicle movements.</li> </ul>	VicRoads and Roads and Maritime Services standard contract provisions will address traffic Management. However the use of the local road network for haulage and site access will be in agreement with Campaspe and Murray Shire Councils. Additional management measures would include public communication and traffic management plans.	Pre-construction and Construction	VicRoads and Roads, Maritime Services & Contractor	VicRoads to incorporate agreed haulage routes and site access and public communication on traffic management in construction contract requirements.
Traffic Management <ul style="list-style-type: none"> <li>Access to cemetery</li> </ul>	VicRoads has committed to the provision of and extended dedicated right turn lane (approx 400m long) for the safe storage of funeral corteges accessing the cemetery.	Construction	VicRoads and Contractor	
Biodiversity <ul style="list-style-type: none"> <li>The key impacts arising from the Project would be to threatened fauna species through removal of habitat, and particularly hollow bearing trees</li> </ul>	Prepare and implement a Contractor Environmental Management Plan inclusive of salvage and translocation of tree dwelling fauna species, Dianella and similar flora species and management measures.	Construction	VicRoads and Roads, Maritime Services & Contractor	
	Engage a suitably qualified and skilled ecologist to prepare a management plan, or update any existing management plan for the Victoria Park Reserve, ensuring that any predicted future threats arising from edge effects, reduced area, etc are managed. The plan should be prepared in consultation with the Shire of Campaspe.	Pre-construction	VicRoads in consultation with Shire of Campaspe and Murray Shire Council. Contractor	Agreed management measures to form part of Contractor Environmental Management Plan.
	In order to minimise Squirrel Glider road mortality and facilitate ease of movement across the preferred alignment, it is recommended that an appropriate number of crossing zones be established. Crossings should be approximately one hundred metres long and designed in consultation with Rodney Van der Ree, Centre for Urban Ecology and Shire of Campaspe (the relevant managing authority). A preliminary crossing strategy has been prepared in consultation with Roads and Maritime Services NSW (refer to Attachment 12 in EES technical Supplements Appendix C). The location of crossing zones in Victoria should be determined in accordance with the project wide strategy. The following features should be incorporated into any crossings. <ul style="list-style-type: none"> <li>Suitable Squirrel Glider vegetation to be retained as close to the road as practical.</li> <li>Artificial land /launch poles to be strategically placed to facilitate glider road crossing; and/or</li> <li>Aerial rope bridges to be constructed over the road to facilitate glider road crossing.</li> </ul>	Pre-construction and construction	VicRoads and Roads, Maritime Services in consultation with Rodney Van der Ree, Shire of Campaspe and Murray Shire Council.	Agreed management measures to form part of Contractor Environmental Management Plan.
	Erect signage to alert drivers to risks of traffic to wildlife and fencing where appropriate to exclude animals. Minimal lighting adequate for public safety to be installed and used in operation of road.	Pre-construction and construction	VicRoads and Roads, Maritime Services & Contractor	Road lighting to be confined to intersections. Lighting on bridge structures to be adequate to ensure public safety. Design of lighting will be specified in construction contract.
	Provision of sedimentation basins and design bridge with guttering that diverts all oil-based run-offs (including during	Construction	VicRoads and Roads, Maritime Services & Contractor	Provision of sedimentation basins will be in accordance with concept designs as exhibited for

Impact	Commitment	Project Timing	Responsible party	Additional Comments
	high rainfall events and accidental spills) away from environmentally sensitive areas and preferably trapped within spill basins that can be effectively cleaned out periodically by road maintenance contractors.			the Initial Alignment and Ultimate Duplication.
	Noisy construction works avoid the breeding season of two threatened fauna species (the Masked Owl and White Bellied Sea Eagle) where feasible and practical.	Pre-construction and construction	VicRoads and Roads, Maritime Services & Contractor	Presence of these species in work study area to be determined by suitably qualified and skilled ecologist as part of pre-construction investigations. Agreed management measures to form part of Contractor Environmental Management Plan.
	Avoid the removal of hollow bearing trees where possible.	Pre-construction, design	VicRoads and Roads, Maritime Services & Contractor	
	Bridge piers and permanent bridge infrastructure to be constructed outside normal river flow. Erosion controls must be adopted for these areas during construction to ensure that there is no change in water quality and flow.	Pre-construction, design	VicRoads and Roads, Maritime Services & Contractor	
	Implement salvage and translocation of Dianella and similar flora species.	Pre-construction	VicRoads and Roads, Maritime Services & Contractor	
	<ul style="list-style-type: none"> <li>• Additional recommendations that should be considered                             <ul style="list-style-type: none"> <li>• Environmentally sensitive areas to be retained should be identified at two metres from their edge and appropriately signed. All machinery and earthworks are to be excluded from these areas.</li> <li>• Any tree pruning should be undertaken by an experienced arborist to prevent disease or unnecessary damage to trees or disturbance to understorey vegetation during tree trimming.</li> <li>• Any stockpiling must occur outside retained native vegetation and away from any drainage lines.</li> <li>• All machinery should enter and exit works sites along defined routes that do not impact on native vegetation or cause soil disturbance and weed spread.</li> <li>• All machinery brought on site should be weed and pathogen free. This is important for environmental and agricultural protection. Weeds and/or pathogens can be easily transported by machinery.</li> <li>• Chytrid Fungus is a frog disease that can be easily transported by machinery and personnel. To ensure that this disease is not spread, all machinery and personnel working involved in the construction of the project should be weed and pathogen free prior to entering the site. Wash down methods including disinfecting of footwear and machinery tyres is recommended when working in or adjacent to areas of native vegetation or wetlands.</li> <li>• All machinery wash down, lay down and personnel rest areas should be defined (fenced) and located in disturbed areas well away from wetlands and waterway banks.</li> <li>• Best practice erosion control should be established where an erosion hazard is identified.</li> </ul> </li> </ul>	Construction	VicRoads and Roads, Maritime Services & Contractor	Recommendations are generally covered in VicRoads standard management measures. Additional management measures to form part of Contractor Environmental Management Plan.
	<ul style="list-style-type: none"> <li>• Additional recommendations that should be considered                             <ul style="list-style-type: none"> <li>• Weed control should be carried out along disturbed areas after construction to control any weed outbreaks in adjacent areas of native vegetation.</li> <li>• Any areas of temporary disturbance along the Campaspe and Murray Rivers should be revegetated with appropriate indigenous plants of local genetic provenance following construction. This measure is</li> </ul> </li> </ul>	Construction and Post – Construction	VicRoads and Roads and Maritime Services	Weed control will be carried out as part of VicRoads and Roads and Maritime Services normal roadside maintenance obligations. Locally sourced indigenous species will be used as part of revegetation and landscaping works.

Impact	Commitment	Project Timing	Responsible party	Additional Comments
	<p>aimed at minimising any potential long-term adverse impacts that the proposed development may have on the health and functionality of these watercourses.</p> <ul style="list-style-type: none"> <li>The use of local indigenous plant species, (from seed and plant species sourced within a given radius of 50 kilometres of the Project Area), should be considered in the landscaping of any development on the site. Locally indigenous species generally have low water-use requirements, high survival rates and provide habitat to local fauna species.</li> </ul>			
Aboriginal Cultural Heritage	Compliance with all recommendations and measures in the approved Cultural Heritage Management Plan (CHMP).	Pre-construction and construction	VicRoads in consultation with YYNAC. Contractor	Management measures to form part of Contractor Environmental Management Plan.
Aboriginal Cultural Heritage	Implement mitigation measures as outlined in EES Cultural Heritage Report and approved CHMP.	Pre-construction and construction	VicRoads in consultation with YYNAC. Contractor	Agreed management measures to form part of Contractor Environmental Management Plan.
Aboriginal Cultural Heritage <ul style="list-style-type: none"> <li>Road impacts on registered Aboriginal scarred tree 7825-0386 VAHR</li> </ul>	<p>This scarred tree is a stump and would be directly impacted by the road option. It is recommended that the stump be removed and re-instated at a location to be agreed with Yorta Yorta Nations and any other relevant management authorities. The tree is largely rotted out at the base and could be carefully removed by sliding an excavator bucket under the base of the tree, while holding the stump upright.</p> <p>The tree removal must be monitored and assisted by representatives from the Yorta Yorta Nations, in consultation with a qualified arborist.</p> <p>After the tree is removed, it must be transported to a location agreed to with Yorta Yorta Nations to undergo conservation treatment (eg. removal of rotted wood and pests, impregnation with pest resistant chemicals, capping of the stump). The tree must then be re-erected at the agreed location, probably on a cement or concrete base. The conservation work and the re-erection of the tree must be carried out or supervised by a qualified arborist in association with Yorta Yorta Nations community representatives.</p>	Pre-construction	VicRoads in consultation with YYNAC	Tree to be relocated prior to construction works as per CHMP agreement.
Aboriginal Cultural Heritage <ul style="list-style-type: none"> <li>Road impacts on registered Aboriginal scarred trees 7825-0371 VAHR, 7825-0372 VAHR, 7825-0396 VAHR and newly discovered Aboriginal -scarred tree 7825-0482</li> </ul>	<p>Scarred trees 7825-0371, 0372 and 0396 VAHR are situated in the Victoria Park section of the road. Scarred trees 7825-0371 and 7825-0396 VAHR are situated within the road reserve adjacent a bridge structure and outside the road embankment and must be retained within the road reserve. Scarred tree 7825-0372 must be retained within the road reserve. Scarred tree 7825-0482 VAHR is situated on Crown Land on the south side of Warren Street near an area where a roundabout would be constructed. The trees are all live and the way in which the trees are conserved in the road reserve must ensure the long-term health of the tree. Detailed design would need to minimise the extent of earth embankments within the drip line of the trees, through the final positioning of bridge structures. While the design is not yet finalised, it is recommended that the following must occur to help ensure the long-term conservation of the trees:</p> <p>a) The trees must be inspected by a qualified arborist in association with representatives from the Yorta Yorta Nations and their condition assessed, prior to any measures to conserve the trees. The arborist and Yorta Yorta Nations representatives</p>	Pre-construction and construction	VicRoads in consultation with YYNAC. Contractor	

Impact	Commitment	Project Timing	Responsible party	Additional Comments
	<p>must make an assessment of requirements to conserve the trees.</p> <p>b) The final design of the road embankment around site 7825-0372 VAHR, must ensure that the tree and its root system are not damaged by the weight of soil (load) in the adjacent road embankment and that there is adequate drainage around the tree root system. Any other issues identified by the arborist must be addressed in the design.</p> <p>c) The final design of the road embankment adjacent the trees, must not cause detrimental impacts on Aboriginal scarred trees 7825-0371-0372 VAHR, 7825-0396 VAHR and Mid-West Scarred 7825-0482 VAHR. The final design must be reviewed by an arborist and presented to Yorta Yorta Nations for consideration at least two months prior to construction works commencing. The Yorta Yorta Nations must confirm in writing that the design complies with the management recommendations in the CHMP and that the design avoids harm to the scarred trees.</p> <p>d) The scarred trees must all be fenced with temporary webbing which extends at least as far as the crown of the trees, in order to protect both the trunk and root system. The temporary webbing must be installed prior to construction.</p>			
<p>Aboriginal Cultural Heritage</p> <ul style="list-style-type: none"> <li>Option impacts on registered Aboriginal scarred tree 7825-0372 VAHR. Tree impacted by lopping of tree branches.</li> </ul>	<p>Branches would need to be lopped from this tree when the road is duplicated in future as they would overhang the road and pose a risk to vehicles. The tree itself would be retained in the road reserve. Lopping of the tree branches must be carried out by a qualified arborist with the assistance of representatives from the Yorta Yorta Nations.</p> <p>It would be preferable if lopping could be carried out prior to any future construction works for duplication of the road.</p> <p>The lopping of branches must be carried out in such a way as to not endanger the long-term health of the tree.</p>	Pre-construction and construction	VicRoads in consultation with YYNAC. Contractor	
<p>Aboriginal Cultural Heritage</p> <ul style="list-style-type: none"> <li>Road impacts on registered Aboriginal scarred tree 7825-0399 VAHR</li> </ul>	<p>This is a whole dead tree situated on the south side of Warren Street. It would not be impacted by the initial road construction and may safely be retained in the road reserve in the short term. There are two options for treatment of the tree:</p> <p>a) The tree can be retained in its current position within Warren Street for the immediate future. However, it must be noted that the base of the tree is rotted and although it is not in immediate danger of collapse, it may fall over at some point in the future, before (or if) Warren Street is duplicated.</p> <p>If the tree is retained in its current location, a barrier or fence must be erected around the tree, since construction of the road would make the tree considerably more visible and exposed than at present and there would be greater pedestrian access to the tree. Vic Roads, as the agency responsible for maintenance of the road reserve, must ensure that the condition of the tree is monitored regularly (at least once per year) to assess the likelihood of the tree collapsing. If it appears likely, at any point in time, that the tree will collapse, VicRoads must contact the Yorta Yorta Nations to discuss treatment of the tree. It is likely, however, that it would be necessary to move the tree, as it may pose a risk to public safety if left within the road reserve. This is because there would be increased pedestrian as well as</p>	Pre-construction	VicRoads in consultation with YYNAC	Tree to be relocated prior to construction works for initial construction as per CHMP agreement.

Impact	Commitment	Project Timing	Responsible party	Additional Comments
	<p>vehicle access along Warren Street after the road is built.</p> <p>b) If the Yorta Yorta Nations wish the tree to be moved prior to construction of the road, the removal of the tree must be carried out by a qualified arborist in consultation with and the assistance of representatives from the Yorta Yorta Nations. After the tree is removed, it must be transported to a location agreed to with Yorta Yorta Nations to undergo conservation treatment (eg. removal of rotted wood and pests, impregnation with pest resistant chemicals, capping of the stump). The tree must then be re-erected at the agreed location, probably on a cement or concrete base. The conservation work and the re-erection of the tree must be carried out or supervised by a qualified arborist in association with Yorta Yorta Nations community representatives.</p>			
<p>Aboriginal Cultural Heritage</p> <ul style="list-style-type: none"> <li>Construction encounters previously unregistered ancestral remains.</li> </ul>	<p>Additional negotiation and approval from Yorta Yorta Nations regarding protocol for protection of ancestral remains. Implement CHMP management measures and recommendations.</p> <p>All work must cease in the area where the remains are found and statutory procedures for reporting the discovery that are contained in the contingency recommendations for the CHMP must be followed.</p>	Pre-construction and construction	VicRoads in consultation with YYNAC. Contractor	To include geotechnical and other preconstruction activities. Protocols for protection of ancestral remains is in signed CHMP.
<p>Aboriginal Cultural Heritage</p> <ul style="list-style-type: none"> <li>Construction encounters previously unidentified Aboriginal cultural heritage place</li> </ul>	The contractor shall undertake all works under the Contract consistent with the approved Cultural Heritage Management Plan in Victoria. Additional negotiation and approval from Yorta Yorta Nations regarding protocol for protection of burial sites. Implement CHMP management measures and recommendations.	Pre-construction and construction	VicRoads in consultation with YYNAC. Contractor	To include geotechnical and other preconstruction activities. Protocols for protection of ancestral remains is in signed CHMP.
<p>Aboriginal Cultural Heritage</p> <ul style="list-style-type: none"> <li>Option impacts on sensitive area (sandhill)</li> </ul>	<p>A rigid pavement/concrete slab (or other treatment agreed with Yorta Yorta Nations) must be constructed over the section of sandhill to the north of the former Echuca College subject to approval in the CHMP. Bridge piers must be sunk into the north bank of the Campaspe River south of Scenic Drive and at the bridge abutment at the north end of the bridge. There must be no disturbance to the Aboriginal Heritage Places 7825-0485 VAHR identified during sub-surface testing, other than any disturbance allowed by the CHMP in future.</p> <p>The contractor shall undertake all works under the Contract consistent with the statutory contingency recommendations in an approved Cultural Heritage Management Plan in Victoria, including immediately stopping work and reporting if an Aboriginal cultural heritage burial/place is encountered. Additional negotiation and approval from Yorta Yorta Nations regarding protocol for protection of burial sites. Implement CHMP management measures and recommendations.</p>	Pre-construction and construction	VicRoads in consultation with YYNAC. Contractor	Protocols for protection of ancestral remains is in signed CHMP.
<p>Aboriginal Cultural Heritage</p> <ul style="list-style-type: none"> <li>Fill for the road construction is obtained from a source where excavation impacts on Aboriginal sites.</li> </ul>	Fill for the roadworks must be sourced from a licenced existing quarry. Any other fill sources are subject to the provisions in the CHMP.	Construction	VicRoads in consultation with YYNAC. Contractor	
<p>Historic heritage</p> <ul style="list-style-type: none"> <li>The preferred alignment would impact on three large Canary Island palm trees on the former Echuca Secondary College site.</li> </ul>	VicRoads has committed to relocating these trees. The trees will be relocated in accordance with provisions in the Cultural Heritage Management Plan.	Pre-construction	VicRoads in consultation with Shire of Campaspe	VicRoads will liaise with the Campaspe Shire Council to determine if there is an appropriate location for the trees within the Shire.

Impact	Commitment	Project Timing	Responsible party	Additional Comments
Hydrology <ul style="list-style-type: none"> <li>Flooding impacts</li> </ul>	<p>Implement minimum flood relief structures as detailed below.</p> <p>Bridge spans (100 year ARI plus freeboard)</p> <ul style="list-style-type: none"> <li>NSW floodplain – 45m bridge</li> <li>Murray River Crossing – 650m bridge</li> <li>Victorian floodplain (near caravan park) – 65m bridge</li> <li>Campaspe River crossing – 300m bridge</li> </ul> <p>Warren Street structures. Provision of culverts or bridge structures with same waterway area.</p> <ul style="list-style-type: none"> <li>Location A – 97m<sup>2</sup></li> <li>Location B – 97m<sup>2</sup></li> <li>Location C – 136m<sup>2</sup></li> <li>Location D – 164m<sup>2</sup></li> </ul>	Construction	VicRoads and Roads, Maritime Services & Contractor	
Hydrology <ul style="list-style-type: none"> <li>Pollutants in stormwater may affect the quality of water in local waterways</li> </ul>	Incorporate spill basins in design as required to capture pollutants.	Pre-construction and construction	VicRoads and Roads, Maritime Services & Contractor	Provision of sedimentation basins will be in accordance with concept designs as exhibited for the Initial Alignment and Ultimate Duplication.
Noise <ul style="list-style-type: none"> <li>Construction noise and vibration</li> </ul>	Compliance with VicRoads Noise Guidelines Construction and Maintenance Works 2007, New South Wales Road Policy.	Construction	VicRoads and Roads, Maritime Services & Contractor	Agreed management measures to form part of Contractor Environmental Management Plan.
Noise <ul style="list-style-type: none"> <li>Operational noise impacts</li> </ul>	<p>Implement, as a minimum, operational noise mitigation measures as detailed below.</p> <p>Crofton Street, Echuca Holiday &amp; Caravan Park</p> <ul style="list-style-type: none"> <li>Option 2 (preferred) Adjacent Crofton Street: 1.5m high noise wall on the east side of the alignment having a length of approximately 525m.</li> <li>Adjacent Echuca Holiday and Caravan Park 3: 2.0m high noise wall on the east side of the alignment having a length of approximately 620m.</li> <li>Stone mastic asphalt on bridge extending approximately 1.7km.</li> </ul> <p>2 Boundary Rd &amp; Madison Spa Resort</p> <ul style="list-style-type: none"> <li>Option 2 (preferred) Architectural treatment to 2 Boundary Road.</li> <li>Adjacent Madison Spa Resort: 3.5m high noise wall on the east side of the alignment having a length of approximately 150m.</li> <li>Dense graded or Stone mastic asphalt extending approximately 255m.</li> </ul>	Pre-construction, Construction and Post-construction	VicRoads and Roads, Maritime Services & Contractor	Contractor will be required to ensure design and operational noise limits complies with requirements of VicRoads and RMS noise policy.
Landscape and Visual amenity –	<p>In addition to standard VicRoads mitigation measures consider the following design recommendations and landscape mitigation measures</p> <ul style="list-style-type: none"> <li>All roadside walls or retaining structures should utilise materials, pattern, colour and texture which are sympathetic to the setting and congruous with their surrounds.</li> <li>Bridge structures should: <ul style="list-style-type: none"> <li>Provide correct geometric relationships in the overall structural arrangement and display visual integration of the deck, beams, piers, railings, barriers, lighting, associated furniture and abutments;</li> <li>Display visual integration of the structure with the road and landform;</li> <li>Ensure lines that delineate elements of the structure are smooth and unbroken in both the horizontal and vertical planes;</li> <li>Make use of the haunched main and adjacent spans to</li> </ul> </li> </ul>	Pre-construction and construction	VicRoads and Roads, Maritime Services & Contractor	Design of structure to consider recommendations where feasible and practical.

Impact	Commitment	Project Timing	Responsible party	Additional Comments
	<ul style="list-style-type: none"><li>○ integrate with the piers and frame the river visually.</li><li>○ Surface treatments are in harmony with the structural shape and scale such that visual clutter is avoided;</li><li>○ Provide maximum open, light spaces beneath the structure; and</li><li>○ For motorists, passengers, pedestrians and cyclists travelling over the bridge, provide views out beyond the sides of the bridge.</li></ul>			