



# Minister for Roads and Ports



DPCD

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The Hon Justin Madden MP  
Minister for Planning  
Level 17, 8 Nicholson Street  
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**RECEIVED**  
21 DEC 2009  
MINISTER FOR PLANNING

Our Ref

14 DEC 2009

Dear Minister *Justin,*

## SECOND MURRAY RIVER CROSSING AT ECHUCA-MOAMA – ENVIRONMENT EFFECTS STATEMENT REFERRAL

I enclose a copy of the Environment Effects Statement (EES) Referral for the "Second Murray River Crossing at Echuca-Moama" for your consideration

Additional information for the EES Referral has been forwarded to staff of the Environmental Assessment Unit at the Department of Planning and Community Development

Should your staff require any further information regarding this matter, Mr Clive Mottram, VicRoads' Manager – Planning Investigations (Tel 9811 8160), would be pleased to assist

Yours sincerely

*[Signature]*  
**Tim Pallas MP**  
Minister for Roads and Ports

**MINISTERIAL BRIEFING & CORRESPONDENCE**  
21 DEC 2009  
DPCD

ENCL.

# REFERRAL OF A PROJECT FOR A DECISION ON THE NEED FOR ASSESSMENT UNDER THE *ENVIRONMENT EFFECTS ACT 1978*

## REFERRAL FORM

The *Environment Effects Act 1978* provides that where proposed works may have a significant effect on the environment, either a proponent or a decision-maker may refer these works (or project) to the Minister for Planning for advice as to whether an Environment Effects Statement (EES) is required

This Referral Form is designed to assist in the provision of relevant information in accordance with the *Ministerial Guidelines for assessment of environmental effects under the Environment Effects Act 1978* (Seventh Edition, 2006) Where a decision-maker is referring a project, they should complete a Referral Form to the best of their ability, recognising that further information may need to be obtained from the proponent

**It will generally be useful for a proponent to discuss the preparation of a Referral with the Department of Planning and Community Development (DPCD) before submitting the Referral.**

If a proponent believes that effective measures to address environmental risks are available, sufficient information could be provided in the Referral to substantiate this view. In contrast, if a proponent considers that further detailed environmental studies will be needed as part of project investigations, a more general description of potential effects and possible mitigation measures in the Referral may suffice

In completing a Referral Form the following should occur:

- Mark relevant boxes by changing the font colour of the 'cross' to black and provide additional information and explanation where requested.
- As a minimum, a brief response should be provided for each item in the Referral Form, with a more detailed response provided where the item is of particular relevance Cross-references to sections or pages in supporting documents should also be provided Information need only be provided once in the Referral Form, although relevant cross-referencing should be included
- Responses should honestly reflect the potential for adverse environmental effects A Referral will only be accepted for processing once DPCD is satisfied that it has been completed appropriately.
- Potentially significant effects should be described in sufficient detail for a reasonable conclusion to be drawn on whether the project could pose a significant risk to environmental assets Responses should include:
  - a brief description of potential changes or risks to environmental assets resulting from the project,
  - available information on the likelihood and significance of such changes,
  - the sources and accuracy of this information, and associated uncertainties
- Any attachments, maps and supporting reports should be provided in a secure folder with the Referral Form.
- A CD or DVD copy of all documents will be needed, especially if the size of electronic documents may cause email difficulties **Individual documents should not exceed 2MB.**

- A completed form would normally be between 15 and 30 pages in length Responses should not be constrained by the size of the text boxes provided. Text boxes should be extended to allow for an appropriate level of detail
- The form should be completed in MS Word and not handwritten.

The party referring a project should submit a covering letter to the Minister for Planning together with a completed Referral Form, attaching supporting reports and other information that may be relevant This should be sent to.

Postal address

**Minister for Planning  
PO Box 500  
EAST MELBOURNE VIC 3002**

Couriers

**Minister for Planning  
Level 17, 8 Nicholson Street  
EAST MELBOURNE VIC 3002**

In addition to the submission of the hardcopy to the Minister, separate submission of an electronic copy of the Referral via email to [ees.referrals@dpcd.vic.gov.au](mailto:ees.referrals@dpcd.vic.gov.au) is encouraged This will assist the timely processing of a referral

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## PART 1 PROPONENT DETAILS, PROJECT DESCRIPTION & LOCATION

### 1. Information on proponent and person making Referral

<b>Name of Proponent:</b>	VicRoads
<b>Authorised person for proponent:</b>	Clive Mottram
<b>Position:</b>	Manager Planning Investigations
<b>Postal address:</b>	1 <sup>st</sup> Floor, 3 Prospect Hill Road, Camberwell
<b>Email address:</b>	planning.investigations@roads.vic.gov.au
<b>Phone number:</b>	9811 8158
<b>Facsimile number:</b>	9811 8248
<b>Person who prepared Referral:</b>	Gina Solomon
<b>Position:</b>	Acting Planning Studies Manager
<b>Organisation:</b>	VicRoads
<b>Postal address:</b>	1 <sup>st</sup> Floor, 3 Prospect Hill Road, Camberwell
<b>Email address:</b>	planning.investigations@roads.vic.gov.au
<b>Phone number:</b>	9811 8210
<b>Facsimile number:</b>	9811 8248
<b>Available industry &amp; environmental expertise:</b> (areas of 'in-house' expertise & consultancy firms engaged for project)	<p>Project Management – VicRoads, Network and Asset Planning, Planning Investigations</p> <p>Specialist studies undertaken include</p> <p>Geotechnical Risk Register – Technical Consulting, VicRoads</p> <p>Landscape and Visual Assessment – CPG Australia Pty Ltd</p> <p>Noise Monitoring Survey – Renzo Tonin &amp; Associates Pty Ltd</p> <p>Noise Impact Assessment – Renzo Tonin &amp; Associates Pty Ltd</p> <p>Land Use Study – URS Australia Pty Ltd</p> <p>Regional Economy Study – Essential Economics Pty Ltd</p> <p>Detailed Social Impact Study – URS Australia Pty Ltd</p> <p>Detailed Hydrology Study - Cardno Lawson Treloar Pty Ltd</p> <p>Detailed Traffic Modelling – Sinclair Knight Merz Pty Ltd</p> <p>Detailed Flora and Fauna Study – Brett Lane &amp; Associates Pty Ltd</p> <p>Detailed Aboriginal Cultural Heritage – Heritage Insight Pty Ltd</p> <p>Detailed European Cultural Heritage – Heritage Insight Pty Ltd</p>

## 2. Project – brief outline

### **Project title: Second Murray River Crossing at Echuca-Moama**

**Project location:** (describe location with AMG coordinates and attach A4/A3 map(s) showing project site or investigation area, as well as its regional and local context)

Echuca-Moama is situated on the Murray River on the border of Victoria and New South Wales. The existing Murray River bridge crossing at Echuca-Moama provides an important link for local traffic between the two towns, Echuca in Victoria and Moama in New South Wales and the surrounding regions. This is the only bridge crossing of the Murray River in the Echuca-Moama area, the nearest alternative bridge is at Barmah.

The study area extends from the Murray Valley Highway intersection with Warren Street at Echuca in Victoria to the Cobb Highway intersection with Perricoota Road and Meninya Street at Moama in New South Wales.

**Attachment 1 – Map of the Mid West Corridor Study Area**

#### **MGA Coordinates:**

Locality A – Intersection of Murray Valley Highway / Warren Street – E 295500, N 5999250

Locality B – Intersection of Warren Street / new Link Road – E 296700, N 6000120

Locality C – New bridge crossing of Murray River – E 296940, N 6001270

Locality D – Intersection of new Link Road / Cobb Highway – E 297620, N 6001840

#### **Short project description (few sentences):**

The project involves the construction of a second Murray River crossing at Echuca-Moama on an alignment downstream of Warren Street. It comprises a new bridge across the Murray River and a new bridge across the Campaspe River together with a new road across the Murray and Campaspe River flood plains, plus improvements to existing approach roads in Victoria and New South Wales.

## 3. Project description

### **Aim/objectives of the project (what is its purpose / intended to achieve?)**

The purpose of the project is to provide a second crossing of the Murray River at Echuca-Moama.

#### **Project Objectives**

- to improve accessibility and connectivity for the people of Echuca-Moama and the wider region by providing for existing and future traffic demand and traffic safety needs,
- to meet current road design standards while maintaining existing navigation clearances for boats on the Murray River and access to properties,
- to provide road infrastructure that fosters a viable level of economic performance for the local and regional economy of Echuca-Moama,
- to protect existing land uses and the character of landscapes, open space and recreation values to the extent practicable,
- to protect residents' amenity and well-being by avoiding or minimising dislocation and severance of residential and recreational areas to the extent practicable,
- to avoid or minimise impacts on Aboriginal cultural heritage and negotiate appropriate mitigation measures to the extent practicable,
- to avoid or minimise impacts on European cultural heritage and provide appropriate mitigation measures to the extent practicable,
- to minimise impacts on biodiversity and provide appropriate mitigation measures to the extent practicable,
- to minimise impacts on surface water quality, flood risks and groundwater, and

- to minimise the noise impacts on residents and provide appropriate mitigation measures in accordance with relevant Government noise reduction policy

**Background/rationale of project** (describe the context / basis for the proposal, eg for siting)

The existing bridge across the Murray River was built in 1878 and operated as a combined road/rail bridge until 1989 when a separate rail bridge was built immediately upstream of this historic bridge. This existing Murray River crossing is close to the centre of the Echuca and Moama townships and provides an important link between the townships for local traffic and surrounding regions. This is the only bridge crossing in the Echuca-Moama area, the nearest alternative bridge at Barmah to the east requires a round trip of 101km.

Agricultural production is the major economic activity at Echuca-Moama. Tourism is a significant contributor to the economy of the area, with the historic Port of Echuca, river-based activities and recreation being the main attractions.

There are three major highways that intersect at Echuca-Moama, the Northern Highway and the Murray Valley Highway in Victoria, and the Cobb Highway in New South Wales. These highways are all significant transport routes. The existing Murray River bridge structure is narrow with one lane in each direction and has little capacity to cater for the long term traffic needs of the region. The existing bridge is unable to provide an ongoing suitable level of service for the increasing volume of traffic in the area during peak tourist events. The existing bridge also requires extensive rehabilitation which would result in partial closure of the bridge while work is being carried out. The proposed second Murray River crossing will act as an alternative access between Echuca and Moama, provide relief for traffic congestion on the existing bridge and approach roads through the central business districts of Echuca and Moama, and more secure access for emergency services response.

An Environment Effect Statements (Victoria)/Environmental Impact Statement (New South Wales) (EES/EIS) was prepared for a second bridge crossing in 2000/2001. Three corridor options were considered in detail – the Western Corridor, the Central Corridor, and the Eastern Corridor. The Western Corridor was recommended by the Independent Panel and the then Minister for Planning in her assessment and subsequently adopted by the then Minister for Transport, but planning could not be finalised due to Aboriginal cultural heritage issues. As a result, VicRoads has been unable to proceed with the construction of a second Murray crossing on the Western alignment.

Following discussions between VicRoads and key stakeholders – the Yorta Yorta Nation Aboriginal Corporation (YYNAC), the Campaspe Shire Council and the Murray Shire Council, agreement in principle was reached in December 2007 to a preliminary investigation being undertaken into a potential corridor downstream of Warren Street, leading to the development of the current Mid West Corridor study area.

**Main components of the project** (nature, siting & approx dimensions, attach A4/A3 plan(s) of site layout if available)

The project involves a second Murray River crossing at Echuca-Moama within a Mid West Corridor study area downstream of Warren Street. It comprises new bridges across the Murray River and the Campaspe River together with a new road across the Murray and Campaspe River flood plains, plus improvements to existing approach roads in Victoria and NSW.

The concept design being investigated within the Mid West Corridor is an ultimate 4 lane divided road extending from the Murray Valley Highway intersection with Warren Street, within the existing Warren Street road reserve west of the Campaspe River, and then on a new Link Road alignment north-west from Warren Street, dual bridges across the Campaspe River, dual bridges across the Murray River at a location immediately downstream of the Victoria Park boat ramp, and then north-easterly to the Cobb Highway at the intersection with Ferricoota Road and Meninya Street. Planning and environmental assessment is being carried out to allow land reservation for an ultimate duplicated facility.

Initial stage construction is planned generally as a 2-lane 2-way road, consisting of the north-western carriageway (existing road alignment) along Warren Street, and the eastern carriageway and eastern bridges across both rivers along the new Link Road. Based on traffic predictions, it is likely that duplication will not be necessary for many years (ie well beyond the 30 year

predictions) Construction of the duplicate carriageway would only be implemented when justified by traffic demand in the future.

The concept design has been developed with a horizontal alignment to avoid and minimise impacts on key constraints (in both the ultimate and initial stages). For the section along Warren Street, several vertical alignments have been assessed for hydraulic performance and amenity impacts (Refer Section 4)

**Attachment 2** – Concept design drawings (showing both the ultimate duplication and the initial stage)

**Ancillary components of the project** (eg upgraded access roads, new high-pressure gas pipeline, off-site resource processing)

A new shared pathway will be provided along the length of the project, including on bridges over the Murray River and the Campaspe River, and with links to existing recreational pathways

Campaspe Esplanade will be truncated on both sides of the new Link Road. Alternative vehicle access from Warren Street to Campaspe Esplanade will be retained via both Homan Street and Redman Street

The existing bus turn around bay at the end of Crofton Street will be relocated and access retained to Victoria Park via a deviated track under the Campaspe River bridge which will extend over Crofton Street

A new local service road will be constructed to provide vehicle access to properties along the north-west side of Warren Street between Homan Street and the new Link Road

Access to the Scenic Drive roadway in Victoria Park will be retained beneath the new Link Road bridges over the Campaspe River and the Murray River

Existing pedestrian paths and shared footways in Victoria Park will be retained. The new Link Road bridges over the Campaspe River and the Murray River will overpass some pathways. A replacement path access will be provided under the new Link Road embankment between the Campaspe River bridge and the Murray River bridge

VicRoads will work with the Campaspe Shire and Victoria Park Users Group to refine the above proposals as necessary

Forbes Street in Moama will be truncated at the new Link Road. Alternative vehicle access to Forbes Street will be retained from the south via Blair Street and Hunt Street

Provision will be made for emergency services vehicles to access the adjacent floodplain areas from the Link Road

Boundary Road in Moama will be truncated on both sides of the new Link Road. Vehicle access to properties in the western section of Boundary Road will be retained from the west. Vehicle access to the Madison Spa Resort in the eastern section of Boundary Road will be retained from Meninya Street.

The above proposals are shown on the concept design drawings

**Key construction activities:**

The main construction activity will be civil and structural works associated with the construction of new bridges across the Murray River and the Campaspe River, construction of earthworks and flood relief structures for the new Link Road across the Murray River and Campaspe River floodplains and improvements to existing roads and intersections on approaches in Victoria and New South Wales, including upgrading of flood relief structures along Warren Street

Intersection improvements include the construction of a large diameter roundabout at the Murray Valley Highway / Warren Street intersection and the provision of duplicate sections of

Carriageways and traffic signals at the new Link Road intersections with Warren Street in Echuca and with Meninya Street and Perricoota Road in Moama

Construction activities will include clearing of vegetation, general earthworks (including topsoil stripping, excavation, filling and topsoil spreading), relocation of utility services, drainage installation, pavement construction, bridgeworks, landscaping, installation of noise barriers and installation of traffic controls, lighting and signage

**Key operational activities:**

The main operational activity will be ongoing road maintenance consistent with VicRoads' practices and standards, including the maintenance of landscape, stormwater drains, road pavement, bridges, electrical assets, traffic signals, road furniture and line marking

**Key decommissioning activities (if applicable)**

Not applicable

**Is the project an element or stage in a larger project?**

No  Yes If yes, please describe the overall project strategy for delivery of all stages and components, the concept design for the overall project, and the intended scheduling of the design and development of project stages)

**Is the project related to any other past, current or mooted proposals in the region?**

No  Yes If yes, please identify related proposals

This project is related to previous studies which investigated the Central Corridor, Western Corridor and Eastern Corridor for a second Murray River crossing at Echuca-Moama

The Central Corridor extended from the intersection of Ogilvie Avenue/Sturt Street in Echuca to the intersection of Perricoota Road/Cobb Highway in Moama. Although this corridor was the preferred VicRoads and Roads and Traffic Authority option, it was not supported by the Shires of Campaspe and Murray and was not recommended by the Independent Panel in 2003

The Western Corridor extended from the Murray Valley Highway west of Echuca to the intersection of Martin Road/Cobb Highway north of Moama. This corridor was supported by both Campaspe and Murray Shires and was recommended by the Independent Panel in 2003. VicRoads has been unable to finalise the planning due to Aboriginal cultural heritage issues

The Eastern Corridor extended from the intersection of the Murray Valley Highway/Mitchell Road east of Echuca to the Cobb Highway north of Moama. The Eastern Corridor which was not supported by either Campaspe or Murray Shires, was considered to be the least favourable of the three corridors due to its significant capital cost, low benefit to traffic and potential impact on sites of Aboriginal cultural heritage significance. This corridor was dismissed from further investigations in 2000

**Attachment 3** – Map of corridors previously investigated

#### 4. Project alternatives

**Brief description of key alternatives considered to date** (eg locational, scale or design alternatives. If relevant, attach A4/A3 plans)

In January 2005 VicRoads sought agreement from the Yorta Yorta Nations Aboriginal Corporation (YYNAC) to undertake investigations for the Western Alignment (W1) as recommended by the Minister for Planning. The YYNAC advised VicRoads that agreement would not be given to allow investigations to proceed

In March 2005, VicRoads met with the key stakeholders, including representatives of the Shires of Campaspe and Murray, YYNAC and the Moama Local Aboriginal Land Council, to discuss ways



to enable the project to continue. This included options

- Downstream of W1,
- Potential corridor options between the Central and Western Alignments, and
- Upstream of existing bridge

In June 2007, VicRoads engaged an independent facilitator to discuss potential alternatives with the key stakeholders. As an outcome of these discussions, preliminary investigations including a walkthrough were undertaken into a potential corridor downstream of Warren Street. The area of investigation included potential corridors along the Mid West corridor and to the north of (behind) the Echuca Cemetery.

Following consideration of the preliminary investigations an in principle agreement was reached in early December 2007 with the key stakeholders to investigate a potential alignment within the Mid West Corridor. In December 2007 the Minister for Roads and Ports announced that a planning investigation would commence on a potential alignment for a second Murray River crossing within the agreed Mid West Corridor.

The adopted horizontal alignment is at an optimum location within the Mid West Corridor study area to avoid and minimise impacts on key constraints.

The following vertical alignment options along Warren Street have been investigated

- Option 1 – Warren Street at approximately existing road level (below 1 in 20 year flood level);
- Option 2 – Warren Street between the Murray Valley Highway and the new Link Road at approximately existing road level (below 1 in 20 year flood level), and Warren Street east from the new Link Road to the existing Campaspe River bridge raised to approximately the 1 in 100 year flood level,
- Option 3 – All of Warren Street raised above the 1 in 100 year flood level, and
- Other options to provide flood free scenarios for the 1 in 20 year flood and the 1 in 50 year flood

Option 2 is proposed after taking into account hydraulic performance, costs and visual and amenity impacts, and is shown on the concept design drawings.

**Brief description of key alternatives to be further investigated (if known):**

N/A

## 5. Proposed exclusions

**Statement of reasons for the proposed exclusion of any ancillary activities or further project stages from the scope of the project for assessment:**

None

## 6. Project implementation

**Implementing organisation (ultimately responsible for project, ie not contractor):**

VicRoads is the responsible authority for works within Victoria. The RTA is the responsible authority for works within New South Wales. VicRoads is undertaking the Planning Study in conjunction with the RTA for the purposes of determining a suitable location for a second Murray River crossing at Echuca-Moama.

VicRoads will also be the responsible authority for managing the project construction phase.

**Implementation timeframe:**

The actual timing of construction (for the initial stage) will be dependent upon planning approvals and on the availability of funds and other competing priorities in Victoria and New South Wales.

The construction timeframe is in the order of 30 to 36 months upon award of contract

**Proposed staging** (if applicable)

Generally, only one 2-lane 2-way carriageway of the planned ultimate dual carriageway facility will be constructed in the first stage. Additional traffic lanes will be provided at intersections in the initial stage works. Based on traffic predictions, it is likely that duplication throughout the project length will not be necessary for many years (ie well beyond the 30 year predictions)

Planning and environmental assessment is being undertaken for the ultimate duplicated facility. Where there is a significant difference in environmental impact between the initial stage works and the ultimate stage, this is documented throughout this referral.

**7. Description of proposed site or area of investigation**

**Has a preferred site for the project been selected?**

No  Yes If no, please describe area for investigation  
If yes, please describe the preferred site in the next items (if practicable)

**General description of preferred site**, (including aspects such as topography/landform, soil types/degradation, drainage/ waterways, native/exotic vegetation cover, physical features, built structures, road frontages, attach ground-level photographs of site, as well as A4/A3 aerial/satellite image(s) and/or map(s) of site & surrounds, showing project footprint)

**Topography / Landform**

The study area is generally across flat low lying land, within a rural, semi-rural and semi-urban environment. Land use varies from commercial, Crown land, public and private bushland, recreation and tourism and residential.

There are two principal topographic zones in the vicinity of Echuca and Moama, the Riverine Plain and the Flood Plain of the Murray River. The Riverine Plain is a relatively uniform plain with a shallow gradient (0.4%) downwards towards the west.

**Soil**

The geological formations and soils in the study area consist of the Wunghnu Group alluvial deposits of Quaternary age (subdivided into the Coonambidgal Formation and the Shepparton formation). The Coonambidgal Formation consists of fluvial river deposits represented along existing river courses. The Shepparton Formation, present along the Riverine Plain, typically consists of fluvial deposits of clay, sand and silt which are highly variable laterally. Underlying the above are Palaeocene to Miocene age Murray Group carbonate rock and Renmark Group bedrock of sandstones, siltstones and coals.

**Drainage / Waterways**

The study area is intersected by two permanent water bodies, the Murray River and Campaspe River.

**Native/Exotic Vegetation**

A large proportion of the study area supports native vegetation including a large contiguous area of woodland vegetation between the Campaspe and Murray Rivers. Native vegetation in the Victorian part of the study area consists of Riverine Chenopod Woodland Ecological Vegetation Class 103 (EVC103), Grassy Riverine Forest (EVC106) and Riverine Grassy Woodland (EVC295). In Victoria, the study area occurs across the boundary of the Victorian Riverina and Murray Fans bioregions.

**Site area** (if known)

The study area for investigation purposes covers approximately 69 ha (approximately 48.6 ha in Victoria).

The concept design for the road and bridge works shows a development footprint for the ultimate duplicated facility of approximately 23 ha (approximately 16 ha in Victoria), and a development footprint for the initial stage works of approximately 19.2 ha (approximately 13.2 ha in Victoria).

**Route length and width** (for linear infrastructure)

The study area has a length approximately 4.5 km, and width approximately 100-200 metres

**Current land use and development:**

Land use within the study area in Victoria consists predominantly of semi-rural flood-prone land in mainly undeveloped recreational areas and undeveloped residential areas

**Attachment 4 – Land Use Study**

**Description of local setting** (eg adjoining land uses, road access, infrastructure, proximity to residences & urban centres)

Land uses adjoining the study area in Echuca include undeveloped urban floodway areas along Warren Street, Echuca Cemetery abutting Warren Street, residential areas abutting Warren Street, residential area on the south side of Crofton Street, existing Echuca Secondary College educational facilities west end of Crofton Street (the Echuca Secondary College site is to close at the end of 2009), sporting and recreational facilities in Victoria Park and Echuca Caravan Park in Victoria Park

Echuca is located at the confluence of the Campaspe and Murray Rivers in northern Victoria within an area of flat terrain. Subsequently, the two rivers and their associated floodplains have had a major influence on the development of the urban form. The Echuca Central Business District (CBD) is located between the two rivers at the location of the existing Murray River bridge crossing. Urban development has primarily occurred to the south and west of the Echuca CBD, with some development occurring to the north including the Port of Echuca tourist precinct and the residential area bounded by Warren Street, Campaspe River, Crofton Street and the Murray River

**Planning context** (eg strategic planning, zoning & overlays, management plans)

The study area in Victoria is zoned Road Zone 1 (RDZ1), Residential 1 Zone (R1Z), Urban Floodway Zone (UFZ), Public Use Zone 2 (PUZ2), Public Conservation and Resource Zone (PCRZ) and Public Park and Recreation Zone (PPRZ).

Overlays include: Land Subject to Inundation (LSIO), Flood Overlay (FO) and Heritage Overlay (HO)

**Attachment 5 – Land Use Plan**

**Local government area(s):**

Campaspe Shire (Victoria) and Murray Shire (New South Wales)

## 8. Existing environment

**Overview of key environmental assets/sensitivities in project area and vicinity** (cf general description of project site/study area under section 7):

Key environmental constraints, including the current built form and community assets of Echuca and Moama, significant native vegetation, Aboriginal archaeological sites and European cultural heritages sites have been taken into consideration in the development of the concept design within the study area.

**Flora**

No flora species or ecological communities listed under the *Environment Protection and*

*Biodiversity Conservation Act 1999 (EPBC Act)* or the *Flora and Fauna Guarantee Act 1988 (FFG Act)* were recorded in the study area

Two EPBC listed flora species, the Slender Darling-pea (vulnerable) and Western Water-starwort (vulnerable) have the potential to occur within the Victorian section of the study area. Three FFG listed flora species, the Silky Swainson-pea (threatened), Slender Darling-pea (threatened) and Western Water-starwort (threatened) have the potential to occur within the Victorian section of the study area. None of these species were detected during the spring survey and targeted surveys. It is considered unlikely that these species would occur in the study area and that the project would have a significant impact on these species

The study area supports approximately 51 ha of native vegetation (36 ha in Victoria), consisting of three Ecological Vegetation Classes (EVCs)

- *Riverine Chenopod Woodland (EVC 103)* which has a Vulnerable conservation status in the Victorian Riverine bioregion,
- *Grassy Riverine Forest (EVC 106)* which has a Depleted conservation status in the Victorian Riverine bioregion, and
- *Riverine Grassy Woodland (EVC 295)* which has a Vulnerable conservation status in the Victorian Riverine bioregion

#### **Fauna**

No fauna species listed under the EPBC Act or the FFG Act were confirmed to be present in the study area

Six FFG listed fauna species have the potential to occur within the Victorian section of the study area, the Squirrel Glider (endangered), Bush Stone-curlew (endangered), Barking Owl (endangered), Brush-tailed Phascogale (vulnerable), Carpet Python (endangered) and Bandy Bandy (lower risk near threatened). None of these species were detected during the spring survey and targeted surveys. Due to the lack of recent sightings the Barking Owl, Brush-tailed Phascogale, Carpet Python and Bandy Bandy are considered unlikely to be impacted by the project. The Squirrel Glider is considered highly likely to occur in the study area due to the presence of suitable habitat and regular sightings in the region

The Campaspe River is likely to support the Silver Perch (listed as threatened under FFG Act) and the Campaspe and Murray Rivers may support the Murray Cod (listed as vulnerable under EPBC Act and threatened under FFG Act) Murray Hardyhead (listed as vulnerable under EPBC Act and threatened under FFG Act) and the Macquarie Perch (listed as endangered under EPBC Act and threatened under FFG Act). However, there is unlikely to be a significant impact on these fish, provided appropriate erosion, sediment and run-off controls are implemented during construction and operation of bridges over the rivers

Habitats within the study area include River Red-gum woodland forest and Black Box woodland, considered to be of moderate to high quality for native fauna, aquatic habitat of the Campaspe River and Murray River are of high value habitat mostly for fish and some modified and highly disturbed areas are unlikely to support threatened species

A Detailed Flora and Fauna Study, including a spring survey and targeted surveys, has been undertaken

#### **Attachment 6 – Detailed Flora and Fauna Study**

##### **European Cultural Heritage**

There are no historically documented buildings or structures within the study area. The study area potentially impacts on two sites listed on the Campaspe Planning Scheme Heritage Overlay. One site is the St Leonards Homestead at 33 Crofton Street (HO41), and the second involves small areas of the Echuca Historic Precinct (HO1)

Concept designs indicate that direct impact on the St Leonards Homestead would be avoided. Concept designs would have two minor effects on the Echuca Historic Precinct (one where the new Link Road bridge is over the Campaspe River and would be elevated above the north-west corner of HO1 at Crofton Street, and the second at the western approach to the existing Warren Street bridge over the Campaspe River) with no direct impact on buildings or tourism amenity

within the historic port

Along Warren Street, the study area abuts but does not include the Echuca Cemetery. The cemetery has local historical and social value but is not listed on the heritage overlay. The project would have no direct impact on the cemetery site.

A Detailed European Cultural Heritage Study, including field surveys, has been undertaken.

**Attachment 7 – Detailed European Cultural Heritage Study**

**Aboriginal Cultural Heritage**

There are no previously recorded historic archaeological sites or Aboriginal archaeological sites within the Victorian section of the study area.

Site surveys identified 29 Aboriginal archaeological sites, all scarred trees, along the Murray River and Campaspe River floodplains in Victoria within the study area and over a wider area to approximately 500 m north and west of the study area.

There are 15 scarred trees within the study area in Victoria. The concept design avoids all scarred trees. Retaining walls and temporary protective barriers are proposed at two sites to ensure that they remain unaffected.

The project alignment crosses an area of high potential sensitivity for Aboriginal archaeological sites, a small remnant sand hill of potential sensitivity between the Echuca Secondary College site and the tennis courts. The original concept design required excavation of up to 2.5 m depth through the small remnant sand hill.

An alternative higher gradeline and concrete pavement option has been developed in this area in order to leave the remnant sand hill intact and protect potential artefacts and human remains. Yorta Yorta Nation Elders have indicated support for the option and have consented to the road gradeline being raised over the remnant sand hill, without exploratory investigations, to minimise disturbance of the underlying area. The YYNAC in a letter dated 3 October 2009 has agreed to the alternative gradeline to go over the sandhill, thus minimizing any subsurface disturbance.

A Detailed Aboriginal Cultural Heritage Study, including field surveys, has been undertaken.

**Attachment 8 – Detailed Aboriginal Cultural Heritage Study and letter of agreement from YYNAC**

**Waterways**

The study area is intersected by two permanent water bodies, the Murray River and the Campaspe River. The rivers in this area provide continuity in habitat and therefore are high value habitat corridors, mostly for fish, including a number of native fish species.

**9. Land availability and control**

**Is the proposal on, or partly on, Crown land?**

No  Yes. If yes, please provide details.

There is Crown land within the study area. This consists of Public Conservation and Resource Zone (PCRZ) land encompassing the Campaspe River and its embankments and the Victorian embankment of the Murray River. The project would include bridges over these rivers and no bridge piers within normal summer flows.

**Current land tenure** (provide plan, if practicable).

**Attachment 9 – Plan of current landowners within the study area in Victoria**

**Intended land tenure** (tenure over or access to project land)

It is intended that required land would be compulsorily acquired by VicRoads (in Victoria) and the RTA (in NSW). The required land includes land in local Council and public authority ownership.

There is privately owned land that will need to be acquired between Warren Street and the Campaspe River, between the Campaspe River and Crofton Street, across the Murray River floodplain.

**Other interests in affected land** (eg easements, native title claims)

Several sporting and recreational groups have occupancy of affected local Council land (see Section 15, Social Environments)

## 10. Required approvals

**State and Commonwealth approvals required for project components** (if known)

***Environment Protection and Biodiversity Conservation Act***

No fauna and flora species or ecological communities listed under the *EPBC Act* were recorded during surveys. It is considered that the proposed development is unlikely to have a significant impact on EPBC listed species which could potentially occur within the study area. The Commonwealth Department of the Environment, Water, Heritage and the Arts (DEWHA) has confirmed by letter dated 12 January 2009 that a Referral under the *EPBC Act* is not required for this project.

**Attachment 10** – Department of the Environment, Water, Heritage and the Arts letter

**Planning Scheme Amendment**

A Planning Scheme Amendment (PSA) to the Campaspe Planning Scheme in Victoria is required to control development of the land required for the project and to enable land to be acquired prior to construction.

For the NSW section of the project, discussions with the RTA indicate that the NSW planning process for the project would be a Review of Environmental Factors (REF). However if an EES is required in Victoria, the RTA has advised that it would prepare an Environmental Impact Statement (EIS) in order to be consistent with the Victorian planning process.

It is proposed that the planning processes for the project would be carried out in both Victoria and NSW at the same time and as a combined public process, regardless of the level of planning process/environmental assessment adopted.

**Have any applications for approval been lodged?**

No  Yes. If yes, please provide details.

**Approval agency consultation** (agencies with whom the proposal has been discussed)

The project has been discussed with the Campaspe Shire, Murray Shire, RTA, Department of Planning and Community Development (DPCD), and DEWHA.

**Other agencies consulted:**

Parks Victoria, Murray River Skipper's Association, tourism operators, local businesses in Echuca and Moama, NSW Maritime Authority, North Central Catchment Management Authority, YYNAC, MLALC and emergency services (Police, Country Fire Authority, ambulance)

## PART 2 POTENTIAL ENVIRONMENTAL EFFECTS

### 11. Potentially significant environmental effects

**Overview of potentially significant environmental effects** (identify key potential effects and comment on their significance and likelihood, as well as key uncertainties)

#### **Removal of native vegetation**

The affected native vegetation consists of areas of three Ecological Vegetation Class (EVC)

- *Riverine Chenopod Woodland (EVC 103)*, which has a Vulnerable conservation status in the Victorian Riverine bioregion and an Endangered conservation status in the Murray Fans bioregion,
- *Grassy Riverine Forest (EVC 106)*, which has a Depleted conservation status in the Victorian Riverine and Murray Fans bioregion; and
- *Riverine Grassy Woodland (EVC 295)*, which has a Vulnerable conservation status in the Victorian Riverine and Murray Fans bioregion

Removal of approximately 13.4 ha (6 habitat ha) of native vegetation would be required for the initial stage works in Victoria. Removal of a further 1.6 ha (0.7 habitat ha) of native vegetation would be required for the ultimate stage works in Victoria. Refer to Section 12, Native Vegetation, for further details.

#### **Potential impact on Aboriginal Cultural Heritage sites**

Although there are 15 Aboriginal scarred trees within the study area in Victoria, care has been taken in the concept design to avoid all known sites. Two sites are within close proximity to the proposed footprint of the project. Where there are proposed works close to a scarred tree, permanent retaining walls and/or temporary protective barriers would be used to ensure that the site can remain unaffected.

The project alignment crosses an area of high potential sensitivity for Aboriginal archaeological sites, a small remnant sand hill of potential sensitivity between the Echuca Secondary College site and the tennis courts. The original concept design required excavation of up to 2.5 m depth through the small remnant sand hill. Any excavation through the remnant sand hill could potentially impact buried Aboriginal artefacts and possibly human remains.

An alternative higher gradeline and concrete pavement option has been developed in this area in order to leave the remnant sand hill intact and protect potential artefacts and human remains. Yorta Yorta Nation Elders have indicated support for the option and have consented to the road gradeline being raised over the remnant sand hill, without exploratory investigations, to minimise disturbance of the underlying area.

Refer to Section 15, Cultural Heritage, for further details. A Cultural Heritage Management Plan (CHMP) would provide for ongoing protection of all scarred tree sites and for non-excavation through the sandhill, and a Project Environment Protection Strategy (PEPS) would provide effective environmental management during construction of the project.

#### **Social Impacts**

Identified social impacts include:

- Direct impact on the Echuca Tennis Club where 6 grass courts (of a total of 17 grass courts) would need to be acquired for the project. The 6 courts would be relocated/replaced by new courts immediately to the east of the project alignment and adjacent to other courts which are not directly affected. Consultation has occurred with the Echuca Tennis Club and Campaspe Shire,
- Potential indirect impacts of increased traffic noise and loss of visual amenity for several sporting clubs and recreational land use activities in Victoria Park – the football/cricket oval with grandstand, player change rooms & social rooms, the Echuca Tennis Club 17 courts and clubrooms; 2 cricket practice nets; 3 netball courts; CFA training track and administration, Murray River boat ramp and trailer parking, and bush walking and riding trails. The above community facilities would remain on the east side of the new Link Road and would continue to be accessible via existing routes from the urban areas of Echuca. Noise barriers and

landscape treatments would be used to mitigate the indirect impacts. The bush walking and riding trails, together with the Scenic Drive vehicle roadway would remain in Victoria Park to the north and west of the proposed new Link Road, and vehicle and pedestrian access across the new Link Road would be retained or restored,

- Potential indirect impact of increased traffic noise and loss of visual amenity for the Echuca Caravan Park. No land would be required from the caravan park. Noise barriers and landscape treatments would be used to mitigate the indirect impacts,
- Potential loss of amenity and perceived increased isolation for approximately 35 residences in the Warren Street residential area (north-west side of Warren Street). There would be no severance of vehicle or pedestrian access to these properties. A proposed local service road would restore vehicle access to residences on the north-west side of Warren Street between Homan Street and the new Link Road. Campaspe Esplanade would be truncated on either side of the new Link Road, but vehicle access from Warren Street would be retained as currently exists via both Homan Street and Redman Street, and
- Potential loss of amenity through a higher Warren Street roadway would be minimal (approximately 0.2m higher between the Murray Valley Highway and the new Link Road and up to 2m higher in the short distance between the new Link Road and the Campaspe River). Traffic noise impacts would be mitigated through noise barriers.

Refer to Section 15, Social Environments, for further details.

### **Visual Impacts**

The community has expressed concerns regarding the visual impacts of the project, as the new Link Road would consist of elevated roadway/embankment and bridges across the Murray River and the Campaspe River and the associated floodplains, and widening and potential higher roadway for Warren Street.

Identified landscape impacts include

- Changes to existing views from paddle steamers, houseboats, the boat ramp and picnic area in Victoria Park,
- Changes to the recreation and public open space resources of Victoria Park,
- Changes to existing views of the river floodplains from within Victoria Park,
- Changes to the recreation and tourism values of the Murray River at the boat ramp in Victoria Park,
- Potential severance of existing trails within Victoria Park, and
- Relocation/replacement of 6 tennis courts of a total of 17 from the Echuca Tennis Club.

Landscape treatments would be provided to mitigate these impacts. A landscape concept design would be prepared for the preferred option.

Removal of existing vegetation would be minimised and planting would be provided to screen the Campaspe River bridge structure from Crofton Street and a combination of landform and planting would be provided to screen the road alignment from adjacent residences. An architectural screen would be provided to reduce views of the road alignment from the tennis courts. Views to Victoria Park would be protected and views would be provided beyond the bridges for motorists, passengers, pedestrians and cyclists travelling over the bridges.

Access to the Scenic Drive roadway in Victoria Park and existing pedestrian paths and shared footways in Victoria Park would be retained. Path access would also be provided under the new Link Road embankment between the Campaspe River bridge and the Murray River bridge.



## 12. Native vegetation, flora and fauna

### Native vegetation

<p><b>Is any native vegetation likely to be cleared or otherwise affected by the project?</b> <input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, answer the following questions and attach details</p> <p><b>What investigation of native vegetation in the project area has been done?</b> (briefly describe)</p> <p>A Detailed Flora and Fauna Study, including a spring survey and targeted surveys and a net gain assessment, has been undertaken by Brett Lane &amp; Associates Pty Ltd</p> <p><b>What is the maximum area of native vegetation that may need to be cleared?</b> <input type="checkbox"/> NYD Estimated area is 15 ha (6.7 habitat ha) for the ultimate stage works</p> <p>Removal of approximately 13.4 ha (6 habitat ha) of native vegetation would be required for the initial stage works in Victoria. Removal of a further 1.6 ha (0.7 habitat ha) of native vegetation would be required for the ultimate stage works in Victoria.</p> <p><b>How much of this clearing would be authorised under a Forest Management Plan or Fire Protection Plan?</b> <input checked="" type="checkbox"/> N/A approx percent (if applicable)</p> <p><b>Which Ecological Vegetation Classes may be affected?</b> (if not authorised as above) <input type="checkbox"/> NYD <input checked="" type="checkbox"/> Preliminary/detailed assessment completed If assessed, please list The affected native vegetation consists of areas include Riverine Chenopod Woodland (EVC 103), Grassy Riverine Forest (EVC 106) and Riverine Grassy Woodland (EVC 295) For further information on EVCs which may be affected refer to Section 8</p> <p><b>Have potential vegetation offsets been identified as yet?</b> <input checked="" type="checkbox"/> NYD <input type="checkbox"/> Yes If yes, please briefly describe</p> <p>Offset measures will be developed and sites identified in consultation with the Department of Sustainability and Environment (DSE) and other relevant authorities</p> <p><b>Other information/comments?</b> (eg. accuracy of information)</p>
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NYD = not yet determined

### Flora and fauna

<p><b>What investigations of flora and fauna in the project area have been done?</b> (provide overview here and attach details of method and results of any surveys for the project &amp; describe their accuracy)</p> <p>A Detailed Flora and Fauna Study, including a spring survey and targeted surveys, has been undertaken by Brett Lane &amp; Associates Pty Ltd</p> <p>Further details of the methodology and results are set out in <b>Attachment 6</b></p> <p><b>Have any threatened or migratory species or listed communities been recorded from the local area?</b> <input type="checkbox"/> NYD <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, please</p> <ul style="list-style-type: none"><li>List species/communities recorded in recent surveys and/or past observations</li><li>Indicate which of these have been recorded from the project site or nearby</li></ul>
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There are 27 records of the Squirrel Glider within the search region ranging from 1980 to 2000. Two of these locations are close to the study area. This species is considered to be highly likely to occur within the study area, with the highest quality habitat being along Warren Street, and between Warren Street and the Campaspe River. The Squirrel Glider was not detected during the spring survey and targeted surveys. The project will require the removal of native vegetation and large old trees. This would result in a reduction in the potential habitat for the species. Mitigation

measures that minimise the area of vegetation and number of trees to be removed and incorporate habitat linkages will assist in mitigating impacts on this species

There are three records of the Bush Stone-curlew within close proximity to the study area. One of the records is from 2006 from the Echuca Secondary College. It is considered likely to occur in the Black Box and River Red-gum woodland habitats within the study area. The species was not detected during the targeted surveys and based on information from the Community Consultative Group it is considered unlikely to occur in the study area.

There is one historical record of the Carpet Python species in the Victorian Fauna Database (VFD) from 1951. It is considered most likely to occur in the Black Box woodland habitat, although it may also be present in the River Red Gum habitat in the Victorian section of the study area.

There are two records of the Bandy Bandy species in the VFD from 1951 from the same location as the Carpet Python record. It is considered likely to occur in the same habitats as the Carpet Python within the study area. Due to the lack of recent records of the Carpet Python and Bandy Bandy, it is considered unlikely that the project would impact on these species.

The Silver Perch have been recorded a number of times from the Campaspe River in 1995 and 2000. The Murray Perch and Murray Cod may also occur in the Campaspe and Murray Rivers, although there are no records of these species from VFD within the search region.

Provided the project does not prevent movement opportunities for native fish impacts are considered to be temporary and not significant for these aquatic fauna. The concept design provides long span bridge structures with abutments set well back from river embankments, no piers within waterways and the use of specialised bridge construction techniques. Consequently, the proposal will not prevent movement opportunities for native fish.

**If known, what threatening processes affecting these species or communities may be exacerbated by the project?** (eg loss or fragmentation of habitats) Please describe briefly.

The project may potentially exacerbate the processes of degradation of native vegetation, loss and fragmentation of habitats, and increased sediment input into the Murray and Campaspe Rivers. The project may provide opportunities for better control of indiscriminate vehicular access to Victoria Park and the degradation of native vegetation associated with such activities.

Measures for mitigation of potential effects on indigenous flora and fauna are outlined below.

**Are any threatened or migratory species, other species of conservation significance or listed communities potentially affected by the project?**

NYD  No  Yes If yes, please

- List these species/communities.
- Indicate which species or communities could be subject to a major or extensive impact (including the loss of a genetically important population of a species listed or nominated for listing) Comment on likelihood of effects and associated uncertainties, if practicable.

Refer to the descriptions above of species recorded in the study area.

**Is mitigation of potential effects on indigenous flora and fauna proposed?**

NYD  No  Yes If yes, please briefly describe

Adopted mitigation measures recommended in the Detailed Flora and Fauna study include

- Siting the alignment as close to the already disturbed and built up areas as possible to avoid impacting high quality fauna habitat,
- Loss of large old trees and hollow bearing trees along Warren Street and between Warren Street and the Campaspe River should be minimised,
- If removal of habitat trees is unavoidable pre-construction surveys should take place to determine fauna presence. Any fauna discovered should be translocated to similar nearby habitat,
- Loss of hollow trees should be mitigated against by the introduction of nest boxes, designed to prevent colonization by feral bees and exotic bird species

- Logs to be removed and any trees to be felled should be moved to similar nearby habitat to provide habitat for ground-dwelling fauna where appropriate,
- Potential for building wildlife underpasses or crossing structures overhead should be investigated to avoid road kill,
- Specific road lighting should be used to avoid impacts on surrounding fauna, and
- Erosion, sediment and run-off controls to be implemented to prevent impact to the Campaspe River and Murray River

Other information/comments? (eg accuracy of information)

### 13. Water environments

**Will the project require significant volumes of fresh water (eg. > 1 Gl/yr)?**

NYD  No  Yes If yes, indicate approximate volume and likely source.

**Will the project discharge waste water or runoff to water environments?**

NYD  No  Yes If yes, specify types of discharges and which environments

No runoff will flow directly into the Murray River or the Campaspe River from the bridges or roadways. Runoff will be treated prior to discharge into the rivers. Consequently, there will be no individual impacts, or cumulative impacts from crossings of both the Murray River and the Campaspe River

**Are any waterways, wetlands, estuaries or marine environments likely to be affected?**

NYD  No  Yes If yes, specify which water environments, answer the following questions and attach any relevant details

The study area is intersected by two permanent waterways, the Murray River and the Campaspe River. The road and bridge proposals are across areas prone to inundation during flooding. A Detailed Hydrology Study has provided input regarding road and bridge levels and structure waterway areas to ensure there would be no impact on streamflows or increase of flood levels in residential areas. There would be no adverse impacts on surface water, flood risks and groundwater.

**Attachment 11 – Detailed Hydrology Study**

**Are any of these water environments likely to support threatened or migratory species?**

NYD  No  Yes If yes, specify which water environments.

The Detailed Flora and Fauna Study included assessment of aquatic fauna. Both the Campaspe River and the Murray River are likely to provide habitat for a number of native fish species, including threatened species such as the Silver Perch of state conservation significance and the Macquarie Perch, Murray Hardyhead and Murray Cod of national conservation significance.

There would be no significant impact on these species provided there is appropriate protection of the waterways during construction and operation of the bridges and roadways. VicRoads will implement strict erosion and sediment controls to prevent loss of sediment and pollutants during both construction and ongoing operation ensuring that there would be no adverse impact on the waterways. The concept design incorporates long span bridge structures with abutments set well back from river embankments, no piers within normal summer water flows and the use of specialised bridge construction techniques.

**Are any potentially affected wetlands listed under the Ramsar Convention or in 'A Directory of Important Wetlands in Australia'?**

NYD  No  Yes If yes, please specify.

There are no listed wetlands potentially affected.

<p><b>Could the project affect streamflows?</b>  <input checked="" type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, briefly describe implications for streamflows</p> <p>The Detailed Hydrology Study has provided input regarding road and bridge levels and structure waterway areas to ensure there will be no impact on streamflows or increase of flood levels in residential areas. Floodway mitigation options have been assessed and are contained in the study report. VicRoads has adopted recommended structure waterway areas to ensure that the new Link Road and its crossings of the Murray River floodplain and the Campaspe River floodplain would be capable of withstanding a 1 in 100 year flood with no impact on streamflows or flooding.</p> <p>Structure waterways and the gradeline proposed for the Warren Street section of the project would provide better hydraulic performance than currently existing, with no impact on streamflows. Warren Street from the Murray Valley Highway to the new Link Road would be at approximately existing road level, trafficable for the 1 in 20 year flood, and Warren Street from the new Link Road to the existing Campaspe River bridge would be flood free for the 1 in 100 year flood.</p>
<p><b>Could regional groundwater resources be affected by the project?</b>  <input checked="" type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, describe in what way</p> <p>The hydrology provisions of the project maintain at least existing conditions with no adverse impacts on groundwater resources.</p>
<p><b>Could environmental values (beneficial uses) of water environments be affected?</b>  <input checked="" type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, identify waterways/water bodies and beneficial uses (as recognised by State Environment Protection Policies)</p> <p>The State Environment Protection Policy (Waters of Victoria) identifies a range of beneficial uses of water environments. With appropriate mitigation measures in place it is unlikely that specific uses will be impacted.</p>
<p><b>Could aquatic, estuarine or marine ecosystems be affected by the project?</b>  <input checked="" type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, describe in what way</p>
<p><b>Is there a potential for extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems over the long-term?</b>  <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, please describe. Comment on likelihood of effects and associated uncertainties, if practicable</p>
<p><b>Is mitigation of potential effects on water environments proposed?</b>  <input checked="" type="checkbox"/> NYD <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, please briefly describe</p> <p>Mitigation measures recommended in the Hydrology Study and adopted by VicRoads include the provision of long span bridge structures and culvert waterway areas which minimise flooding inundation of the new roadway, provide no restrictions on normal streamflows, and allow for flood flows with no adverse impacts upstream or downstream. The new Link Road and its crossings of the Murray River floodplain and the Campaspe River floodplain would be capable of withstanding a 1 in 100 year flood with no impact on streamflows or flooding.</p> <p>Warren Street from the Murray Valley Highway to the new Link Road would be trafficable for the 1 in 20 year flood and Warren Street from the new Link Road to the existing Campaspe River bridge would be trafficable for the 1 in 100 year flood, with no impacts on streamflows or flooding. Therefore there would be no effects on water environments.</p>
<p><b>Other information/comments?</b> (eg accuracy of information)</p>

## 14. Landscape and soils

### Landscape

<p><b>Has a preliminary landscape assessment been prepared?</b> <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, please attach</p> <p>A Landscape and Visual Assessment has been undertaken</p> <p><b>Attachment 12 – Landscape and Visual Assessment Study</b></p>
<p><b>Is the project to be located either within or near an area that is:</b></p> <ul style="list-style-type: none"><li>• <b>Subject to a Landscape Significance Overlay or Environmental Significance Overlay?</b> <input checked="" type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, provide plan showing footprint relative to overlay</li><li>• <b>Identified as of regional or State significance in a reputable study of landscape values?</b> <input checked="" type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, please specify</li></ul> <p>The Murray River (including its banks, waterform and vegetation is located within the study area and is identified as being of state landscape significance. The landscape character of the Murray River is defined by the water form and riverine vegetation along the banks of the river and the associated tourist facilities and infrastructure such as the houseboats and paddlesteamers. A distinctive landscape feature of this area is the Port of Echuca</p> <p>Relevant legislation and policy applicable to the Murray River include the Public Conservation &amp; Resource Zone (PCRZ) and Heritage Overlay (HO) applying to the Port of Echuca in Victoria. The historic area of Echuca is classified by the National Trust of Australia (Victoria) as a registered site. This historic area includes the Murray River and specifically notes that the River and the town's natural setting are key elements which identify Echuca. The National Trust states " the river and the river red gums which flank its banks constitute an important historical and aesthetic landscape " However, the National Trust classification has no legal ramifications</p> <p>Relevant legislation and policy applicable to the Murray River in NSW include the Murray Regional Environmental Plan No 2 – Riverine Land and the Murray Local Environment Plan. The NSW Murray Regional Environmental Plan No 2 - Riverine Land, states that measures should be taken to protect and enhance the riverine landscape</p> <p>The Landscape and Visual Assessment Report assesses the Murray River landscape character type as being of high landscape and visual character significance, scoring a high in all categories of assessment. Legislation and Policy, Scenic Quality and Landscape Value</p>
<ul style="list-style-type: none"><li>• <b>Within or adjoining land reserved under the <i>National Parks Act 1975</i> ?</b> <input checked="" type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, please specify</li><li>• <b>Within or adjoining other public land used for conservation or recreational purposes?</b> <input checked="" type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, please specify</li></ul> <p>The project would be located through the open space and recreational area of Victoria Park. Victoria Park is a large open space reserve which incorporates the Echuca Tennis Club, Victoria Park Oval and the Echuca Caravan Park. The study area also encompasses a section of the Victoria Park which includes natural bushland, access and walking tracks, toilets, picnic tables and the river viewing area formed by constructed terraces adjacent to the boat ramp</p> <p>The project is located in an area under consideration by the Victorian Government for inclusion in the proposed Murray River Park (MRP). It is VicRoads understanding that an overall plan for the MRP will be produced around August 2010. VicRoads is liaising with DSE to exclude the project area from the proposed MRP following formal planning approvals for the project.</p>

Paddlesteamers, houseboats and other forms of leisure craft use the Murray River. Other activities along the Murray River include picnicking, swimming, canoeing and leisure boating. The Southern 80 Water Ski Race is also held annually and starts from Torrumbarry Weir and terminates at the Victoria Park boat ramp which is located within the study area, and is to be retained.

An extensive network of formal and informal bicycle and walking routes connect residents and tourists to the rivers, reserves, tourism destinations, areas of heritage interest and to Echuca and Moama.

There would be direct impact on six of the seventeen courts of the Echuca Tennis Club. There is potential for visual impact on various sporting and recreational facilities in Victoria Park. (Refer to Section 15, Social Environments). These impacts will be mitigated by replacing the six tennis courts and by landscaping treatments.

**Is any clearing vegetation or alteration of landforms likely to affect landscape values?**

NYD  No  Yes If yes, please briefly describe

The new Link Road would provide motorists and shared path users with scenic views of the river. New shared paths would provide connectivity along the Link Road to the Victoria Park trails, beneath the Link Road to Victoria Park at Crofton Street. New on road bicycle lanes and an off road shared path from the Murray Valley Highway intersection and along Warren Street to Campaspe Esplanade providing connectivity along the road reserve.

The project has the potential to impact landscape values due to the clearing of vegetation, altered landforms and elevated structures. Landscape treatments would be provided to mitigate these impacts in accordance with the recommendations of the Landscape and Visual Assessment Study. A landscape concept design would be prepared for the preferred option.

The community has expressed concerns regarding the visual impacts of the project, as the new Link Road would consist of elevated roadway/embankment and bridges across the Murray River and the Campaspe River and the associated floodplains, and widening and potential higher roadway for Warren Street.

Identified landscape impacts include

- Changes to existing views from paddle steamers, houseboats, the boat ramp and picnic area in Victoria Park,
- Changes to the recreation and public open space resources of Victoria Park,
- Changes to existing views of the river floodplains from within Victoria Park,
- Changes to the recreation and tourism values of the Murray River at the boat ramp in Victoria Park,
- Potential severance of existing trails within Victoria Park, and
- Relocation/replacement of 6 tennis courts of a total of 17 from the Echuca Tennis Club.

**Is there a potential for effects on landscape values of regional or State importance?**

NYD  No  Yes Please briefly explain response

The Landscape and Visual Assessment Report assesses the Murray River landscape character type as being of high landscape and visual character significance, scoring a high in all categories of assessment: Legislation and Policy, Scenic Quality and Landscape Value.

The Murray River landscape character type in Echuca contains landscape values of State importance. There is a high degree of accessibility and connectivity provided along the river and the Echuca riverbank. There are numerous recreation resources such as the Murray River itself, Port of Echuca, the Victoria Park boat ramp, houseboats and paddlesteamers. The waterform, the Port of Echuca, trees and vegetation provide a significant contribution to the 'sense of place' associated with Echuca and Moama. Much of the area along the Murray River provides a sense of wildness, tranquillity and quiet.

The project involves the introduction of elevated road bridge(s) across the Murray River at the Victoria Park boat ramp and the removal of floodplain vegetation on both sides of the river. This would result in changes to the scenic quality and visual character of the Murray River, changes to

existing views from paddlesteamers, houseboats, the boat ramp and picnic area and changes to the recreation and tourism values of the River at the boat ramp and picnic area

**Is mitigation of potential landscape effects proposed?**

NYD  No  Yes If yes, please briefly describe

Adopted mitigation measures recommended in the Landscape and Visual Assessment Study include

- Bridge/culverts to be located and designed to complement and accommodate wildlife links, revegetation and creek systems,
- Creek realignments to be minimised where possible and stabilised through revegetation with appropriate riparian species,
- Locate and design watercourse crossings to minimise loss of riparian vegetation and to accommodate erosion control methods;
- Unstable batters to be planted and mulched to reduce the risk of erosion,
- Plant between the road alignment and the right of way boundary to screen adjacent access roads,
- Encourage indigenous planting to the right of way boundary to strengthen the extent of the landscape character where relevant,
- Use a combination of landform and planting to screen the road from adjacent residences,
- Minimise removal of existing vegetation,
- Planting to screen the Campaspe River bridge structure from Crofton Street,
- Combination of landform and planting to screen the road alignment from adjacent residences,
- Visual integration of the structure with the existing road and landform,
- Ensure retaining walls are appropriate for the existing environment,
- Provide an architectural screen to reduce views of the road alignment from the tennis courts,
- Provide views beyond the bridges for motorists, passengers, pedestrians and cyclists travelling over the bridges,
- Protect the views to Victoria Park and the floodplain in NSW, and
- Provide path network connections around and between Echuca and Moama

The proposed landscape treatments are shown on the attached concept design drawings – **Attachment 2**

**Other information/comments? (eg. accuracy of information)**

A set of landscape planning objectives has been proposed.

- Protect the scenic quality and visual character, recreational and tourism values of the Murray River,
- Protect the scenic quality and visual character of the river floodplains;
- Protect the recreation and public open space resources of Victoria Park,
- Protect the scenic quality and visual character of the Campaspe River, and
- Protect the existing networks that provide pedestrian accessibility and connectivity

**Note:** A preliminary landscape assessment is a specific requirement for a referral of a wind energy facility This should provide a description of

- The landscape character of the site and surrounding areas including landform, vegetation types and coverage, water features, any other notable features and current land use,
- The location of nearby dwellings, townships, recreation areas, major roads, above-ground utilities, tourist routes and walking tracks,
- Views to the site and to the proposed location of wind turbines from key vantage points (including views showing existing nearby dwellings and views from major roads, walking tracks and tourist routes) sufficient to give a sense of the overall site in its setting

**Soils**

<p><b>Is there a potential for effects on land stability, acid sulphate soils or highly erodible soils?</b>  <input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, please briefly describe</p> <p>A Desktop Geotechnical Study has been undertaken which included an examination of the potential for the presence of acid sulphate soils, contaminated land, the existence of highly erodible soils and land stability issues. No significant risks were identified during the geotechnical study</p> <p><b>Attachment 13 – Geotechnical Risk Register</b></p>
<p><b>Are there geotechnical hazards that may either affect the project or be affected by it?</b>  <input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, please briefly describe</p> <p>Identified geotechnical issues are those normally encountered in road and bridge construction projects of this nature They include potential risks such as soft areas, compressible ground, and instability of riverside slopes Potential geotechnical risks would be managed and mitigated by detailed site testing and appropriate design and construction techniques</p>
<p><b>Other information/comments?</b> (eg accuracy of information)</p>

## 15. Social environments

<p><b>Is the project likely to generate significant volumes of road traffic, during construction or operation?</b>  <input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, provide estimate of traffic volume(s) if practicable</p> <p>A Detailed Traffic Modelling Study provided existing traffic volumes and future traffic predictions (with and without the project) for the road network of Echuca and Moama.</p> <p>The existing Murray River bridge primarily serves local traffic, as approximately three quarters of all traffic using the existing bridge have origins and destinations within Echuca and Moama, and only 3-4% have origins and destinations outside Echuca and Moama</p> <p>Some of the traffic modelling predictions include.</p> <ul style="list-style-type: none"> <li>Without a second crossing of the Murray River, average non-holiday weekend traffic on the existing bridge is expected to increase from 17,900 vehicles per day in 2008 to 22,600 by 2023 and 25,200 by 2038,</li> <li>The second bridge crossing would have 9,410 vehicles per day in 2023 and 11,400 vehicles per day by 2038, which would be 41% and 43% respectively of all traffic crossing the Murray River.</li> <li>The existing bridge would have 13,680 vehicles per day by 2023 and 15,010 vehicles per day by 2038, a reduction of 39% and 40% respectively compared to a do-nothing prediction</li> <li>High Street Echuca near the historic port precinct would have 7,740 vehicles per day by 2038, a reduction of 25% compared to a do-nothing prediction of 10,250 vehicles per day (Existing 2008 traffic on this section of High Street is 6,480 vehicles per day)</li> <li>Warren Street, with the second bridge crossing, would have 15,090 vehicles per day by 2038, an increase of 50% over the do-nothing prediction of 10,080 vehicles per day (Existing 2008 Warren Street traffic is 5,950 vehicles per day)</li> </ul> <p>Construction traffic would not be significant compared with existing operating traffic volumes</p> <p><b>Attachment 14 – Detailed Traffic Modelling Study</b></p>
<p><b>Is there a potential for significant effects on the amenity of residents, due to emissions of dust or odours or changes in visual, noise or traffic conditions?</b>  <input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, briefly describe the nature of the changes in amenity conditions and the possible areas affected</p>



A Detailed Social Impact Study provided an assessment of social impacts of the project. The community has expressed some concerns regarding potential impacts including visual amenity, traffic noise, isolation and loss of seclusion for the Warren Street residential area, traffic noise and loss of seclusion for the Crofton Street residential area, effects on traffic through the Echuca town centre and the Port of Echuca historic precinct, increased difficulty accessing the Echuca cemetery and impacts on sporting facilities and the character of open space in Victoria Park.

A Noise Impact Assessment measured existing background noise at ten locations representing the worst affected receivers in proximity to the proposed road alignment. Noise modelling indicated that two locations would have noise levels exceeding the applicable Victorian noise objectives for the design year (2023), without any noise mitigation measures. The two sites are the Echuca Caravan Park and along Warren Street. With the proposed noise mitigation measures of noise barriers and low noise pavement treatment, compliance with the noise level objectives would be achieved.

Visual impacts of the project have been addressed in the Landscape and Visual Assessment. Landscape treatments would be provided to mitigate visual impacts. These measures are proposed adjacent to the sporting facilities in Victoria Park and the Echuca Caravan Park.

There would be some loss of amenity for approximately 35 residences in the Warren Street residential area (north-west side of Warren Street). There would be no severance of vehicle or pedestrian access to these properties. A proposed local service road would restore vehicle access to residences on the north-west side of Warren Street between Homan Street and the new Link Road. Campaspe Esplanade would be truncated on either side of the new Link Road. Vehicle access from Warren Street would be retained as currently exists via both Homan Street and Redman Street.

Potential loss of amenity through a higher Warren Street roadway would be minimal. Warren Street between the Murray Valley Highway and the new Link Road would be approximately 0.2m higher and in the short distance between the new Link Road and the Campaspe River would be approximately 2m higher. Traffic noise impacts would be mitigated through low noise pavement. Intersection layout design and signalisation would ensure traffic flow and safety, as well as improved provision and safety for pedestrians and cyclists.

There would be no impact on the amenity of the Echuca town centre and the Port of Echuca historic precinct. The amenity of the Echuca town centre and the Port of Echuca will be improved as a consequence of the reduced traffic in these areas. As indicated in the above item regarding traffic volumes, the traffic in High Street Echuca is predicted to reduce with the proposed second river crossing compared with the 'do nothing' situation.

Provision of relocated/replacement sporting facilities and restoration of access to open space and recreational facilities in Victoria Park is addressed in the following items:

With the proposed mitigation measures in place, it is considered that effects on community amenity would not be significant.

**Attachment 15** – Detailed Social Impact Study

**Attachment 16** – Landscape and Visual Assessment Study

**Attachment 17** – Noise Impact Assessment Study

**Is there a potential for exposure of a human community to health or safety hazards, due to emissions to air or water or noise or chemical hazards or associated transport?**

NYD  No  Yes. If yes, briefly describe the hazards and possible implications.

With the proposed noise mitigation measures of noise barriers and low noise pavement treatment, compliance with the noise level objectives would be achieved.

Environmental controls and safety hazards during construction will be addressed by a Project Environment Protection Strategy (PEPS) and, where applicable, in Contractor Environmental Management Plans (CEMP). The design of road and bridge infrastructure will be in accordance

with applicable design and safety standards

There are not considered to be any significant impacts with regard to emissions to air, water or chemical hazards

**Is there a potential for displacement of residences or severance of residential access to community resources due to the proposed development?**

NYD  No  Yes If yes, briefly describe potential effects

The project would not require acquisition of residential properties in Victoria. The project would not result in any severance of residential access to community resources. Access to the scenic drive will be maintained under the new Link road. Vehicle access to Victoria Park would be available under the Murray River and Campaspe River bridges.

Access to passive recreation areas would be maintained, but the number of access points would be reduced, in particular places where walking and cycle paths can be accessed. Pedestrian and bicycle access would be provided under the Murray and Campaspe River bridges and coinciding with flood relief structures between Crofton Street and the Murray River. This is unlikely to affect the use of the area but may create some inconvenience, reduced flexibility and additional travel time for some users of Victoria Park.

There would be no displacement of residences in Victoria. There would be no severance of vehicle or pedestrian and bicycle access to community facilities. However, as stated in items above, it would be necessary to slightly vary vehicle access arrangements for a small number of properties and access points to Victoria Park.

**Are non-residential land use activities likely to be displaced as a result of the project?**

NYD  No  Yes If yes, briefly describe the likely effects.

The project would displace some non-residential land use activities in Victoria. A substantial portion of the Echuca Secondary College property within Victoria Park would need to be acquired for the project. The Department of Education and Early Childhood Development has advised that this school site is scheduled to close at the end of 2009, with school operations then fully relocated to a new campus in Echuca south of Warren Street.

Several sporting clubs and recreational land use activities in Victoria Park would be indirectly impacted by the project. There would be direct impact on the Echuca Tennis Club where 6 grass courts (of a total of 17 grass courts) would need to be acquired. The 6 courts would be relocated/replaced by new courts immediately to the east of the project alignment and adjacent to other courts. The project would not require any land from the Echuca Caravan Park.

Consultation will continue with the affected recreational bodies and with the Campaspe Shire Council in order to minimise impacts and assist in the development of a revised Victoria Park Master Plan. A revised draft Master Plan is under preparation which incorporates the proposed Mid West alignment.

**Do any expected changes in non-residential land use activities have a potential to cause adverse effects on local residents/communities, social groups or industries?**

NYD  No  Yes If yes, briefly describe the potential effects

There would be direct impact on the Echuca Tennis Club where 6 grass courts (of a total of 17 grass courts) would need to be acquired. The 6 courts would be relocated/replaced by new courts immediately to the east of the project alignment and adjacent to other courts. Options for fencing and landscape screening between the tennis courts and the roadway are being developed in consultation with tennis club officials.

Noise and visual amenity impacts would occur on the Echuca Caravan Park. Noise barriers would enable noise level objectives to be met. Landscaping would be provided to enhance visual amenity. The project would provide better vehicular and pedestrian access for guests to Moama clubs. The Caravan Park does not rely on passing trade and would be unlikely to suffer a loss of trade by not being visible from the new link road.

Several other sporting clubs and recreational land use activities in Victoria Park would potentially have noise and/or visual impacts

These facilities include

- Australian football/cricket oval, with grandstand, player change rooms, social rooms and spectator viewing shed,
- Echuca Tennis Club, 17 courts (including the relocated courts) and clubrooms,
- 2 cricket practice nets,
- 3 netball courts,
- CFA training track pump house and administration,
- Murray River boat ramp and trailer parking,
- Bush walking and riding trails, and
- Scenic Drive vehicle roadway following the Campaspe and Murray Rivers

The above sporting, CFA, and boat ramp facilities would remain on the east side of the new Link Road and would continue to be accessible via existing routes from the urban areas of Echuca. Noise barriers and landscape treatments would be used to mitigate the indirect impacts.

The bush walking and riding trails, together with the Scenic Drive vehicle roadway, would remain in Victoria Park to the north and west of the proposed new Link Road, and vehicle and pedestrian access across the new Link Road would be retained or restored. These proposals are shown on the concept design drawings.

**Is mitigation of potential social effects proposed?**

NYD  No  Yes If yes, please briefly describe

Adopted mitigation measures recommended in the Social Impact Study include

- Landscaping to minimise visual impacts,
- Noise walls and low-noise pavement,
- Intersection layout design and traffic control measures to ensure traffic flow and safety,
- Provision of a 400m long storage and right turn from Warren Street into Homan Street to access the cemetery,
- Provision of replacement tennis courts in Victoria Park,
- Restoration of access to open space and recreational facilities in Victoria Park;
- Retention/restoration of vehicle access to all residential properties; and
- Construction of shared pedestrian/bicycle pathways throughout the project length

**Other information/comments? (eg accuracy of information)**

VicRoads is working with the Shire of Campaspe to revise the Victoria Park recreational facilities master plan

**Cultural heritage**

**Have relevant Indigenous organisations been consulted on the occurrence of Aboriginal cultural heritage within the project area?**

No If no, list any organisations that it is proposed to consult  
 Yes If yes, list the organisations so far consulted

Consultation has been undertaken with the Yorta Yorta Nation Aboriginal Corporation (YYNAC) and Moama Local Aboriginal Land Council (MLALC). Consultation will be continued as set out in the Detailed Cultural Heritage Study.

**What investigations of cultural heritage in the project area have been done?**

(attach details of method and results of any surveys for the project & describe their accuracy)

A Detailed European Cultural Heritage Study and Detailed Aboriginal Cultural Heritage Study have been undertaken, including a number of walkthroughs with the local aboriginal communities.

**Is any Aboriginal cultural heritage known from the project area?**

NYD  No  Yes If yes, briefly describe  
• Any sites listed on the AAV Site Register

- Sites or areas of sensitivity recorded in recent surveys from the project site or nearby
- Sites or areas of sensitivity identified by representatives of Indigenous organisations

There are no previously recorded historic archaeological sites or Aboriginal archaeological sites within the Victorian section of the study area. There are 15 scarred trees within the study area in Victoria which were identified during investigations for this study. The concept design avoids all scar trees. Retaining walls and temporary protective barriers are proposed at two sites to ensure that they remain unaffected.

The project alignment crosses an area of high potential for Aboriginal archaeological sites, a small remnant sand hill of potential sensitivity between the Echuca Secondary College site and the tennis courts. The concept design provides a gradeline and concrete pavement above the sandhill in order to leave the remnant sand hill intact and protect potential artefacts and human remains. Yorta Yorta Nation Elders have indicated support for the option and have consented to the road gradeline being raised over the remnant sand hill, without exploratory investigations, to minimise disturbance of the underlying area.

A Cultural Heritage Management Plan (CHMP) would provide for ongoing protection of all scarred tree sites and for non-excavation through the sandhill.

**Are there any cultural heritage places listed on the Heritage Register or the Archaeological Inventory under the *Heritage Act 1995* within the project area?**

NYD  No  Yes. If yes, please list

There are no cultural heritage places listed on the Heritage Register within the study area.

**Is mitigation of potential cultural heritage effects proposed?**

NYD  No  Yes. If yes, please briefly describe

Adopted mitigation measures recommended in the Detailed Aboriginal Cultural Heritage Study include:

- The project concept design has been developed to avoid all scarred tree sites. Retaining walls/protective barriers are proposed at two sites to ensure that they remain unaffected.
- The concept design provides for a gradeline and concrete pavement above the level of the sandhill north of the Echuca Secondary College property in order to avoid sand excavation and protect potential Aboriginal artefacts and remains. Construction techniques and construction monitoring will be developed in conjunction with the YYNAC.
- A detailed protocol will be developed with the YYNAC for treatment of human remains. In the event that any human remains are discovered during construction, in the event of the discovery of human remains, all statutory reporting and recovery frameworks would also be followed.
- A Cultural Heritage Management Plan (CHMP) will be prepared for the project (project proposals and consultation arrangements have been agreed verbally by the YYNAC).

**Other information/comments?** (eg accuracy of information)

**16. Energy, wastes & greenhouse gas emissions**

**What are the main sources of energy that the project facility would consume/generate?**

- Electricity network. If possible, estimate power requirement/output . . . . .
- Natural gas network. If possible, estimate gas requirement/output . . . . .
- Generated on-site. If possible, estimate power capacity/output . . . . .
- Other. Vehicle fuel/vehicle exhaust emissions . . . . .

Please add any relevant additional information

The construction of the project will have similar energy requirements as most other major infrastructure construction projects. It will require large earthmoving plant and equipment and related machinery for road construction and surfacing. Other equipment will be required for the construction of structures including culverts and bridges. Equipment is generally powered by

conventional internal combustion sources utilising diesel or petrol fuel sources in portable generators and plant during construction

**What are the main forms of waste that would be generated by the project facility?**

- Wastewater Describe briefly
- Solid chemical wastes Describe briefly
- Excavated material Describe briefly
- Other Describe briefly

Please provide relevant further information, including proposed management of wastes

Some wastewater from rainwater run-off and dewatering of foundations will be generated during construction. Imported fill material will be required to construct road and bridge embankments. After completion of construction, the only discharge of waste from the road will be rainfall run-off from the road surface which will be filtered prior to entering the waterways.

Contractors will carry out all works in such a manner as to minimise the generation of wastes and whenever possible, recover, treat and recycle materials.

**What level of greenhouse gas emissions is expected to result directly from operation of the project facility?**

- Less than 50,000 tonnes of CO<sub>2</sub> equivalent per annum
- Between 50,000 and 100,000 tonnes of CO<sub>2</sub> equivalent per annum
- Between 100,000 and 200,000 tonnes of CO<sub>2</sub> equivalent per annum
- More than 200,000 tonnes of CO<sub>2</sub> equivalent per annum

Please add any relevant additional information, including any identified mitigation options

Vehicles using the proposed road will generate greenhouse gas emissions, although this is considered an indirect result of project operation. While an assessment has not been conducted on greenhouse gas emissions, implementation of the project is expected to reduce greenhouse gas emissions in the area due to reduced traffic congestion.

## 17. Other environmental issues

**Are there any other environmental issues arising from the proposed project?**

- No  Yes If yes, briefly describe

## 18. Environmental management

**What measures are currently proposed to avoid, minimise or manage the main potential adverse environmental effects? (if not already described above)**

- Siting Please describe briefly

A Risk Workshop will be undertaken to identify and enable the management of risks likely to occur during the project.

- Design Please describe briefly

The adopted concept design has been optimised in order to avoid, mitigate and minimise the environmental impacts and the properties directly affected.

- Environmental management Please describe briefly

During the design and construction phase of the project VicRoads will utilise routine best practice environmental safeguards and management processes. VicRoads will prepare a Project Environmental Protection Strategy (PEPS) which will identify the management processes to be utilised for the project, the environmental risks, and the associated objectives and commitments associated with permits/approvals. The PEPS is used to ensure that the development of the

Contract Specification suitably addresses all identified risks

Prior to commencement of construction, CEMPs containing specific details on proposals for the environmental management of individual stages of construction for particular areas of the site, will be prepared. The CEMPs will address the impacts on elements of the environment including, water quality and soil erosion management, groundwater quality, air quality, contaminated soils and materials, waste management, fuels and chemicals, noise and vibration, Flora and Fauna and Cultural Heritage

Other Please describe briefly  
Add any relevant additional information

## 19. Other activities

**Are there any other activities in the vicinity of the proposed project that have a potential for cumulative effects?**

NYD  No  Yes If yes, briefly describe

## 20. Investigation program

### Study program

**Have any environmental studies not referred to above been conducted for the project?**

No  Yes If yes, please list here and attach if relevant

**Has a program for future environmental studies been developed?**

No  Yes If yes, briefly describe

### Consultation program

**Has a consultation program conducted to date for the project?**

No  Yes If yes, outline the consultation activities and the stakeholder groups or organisations consulted

A Community Consultative Plan has been prepared outlining how VicRoads will consult with stakeholders, interest groups and the wider community

A Steering Committee comprising VicRoads, RTA, Campaspe Shire Council and Murray Shire Council has been convened and is meeting regularly to guide VicRoads during the study

A Community Consultative Group (CCG) has been formed to advise VicRoads, provide input on issues from a local resident, business/industry and community representative perspective and assist with information sharing. Regular meetings have occurred

Stakeholder interviews have taken place with key stakeholder groups such as local businesses, tourism operators, Murray River Skipper's Association, Police, Ambulance, Fire brigade, SES, YYNAC, and MLALC, affected landholders and local residents and the various Victoria Park Sports Clubs

Media releases have advised progress of the study. Information Bulletins have been sent to the community, and Information Days have taken place to provide project proposals, findings of specialist studies, and to obtain community feedback

**Has a program for future consultation been developed?**

NYD  No  Yes If yes, briefly describe

Further consultation will be undertaken. This will build upon the extensive consultation already

undertaken. The timing of consultation will be dependent on the planning process to be adopted.

**Authorised person for proponent:**

I, OLIVE MOTTRAM (full name),

....MANAGER-PLANNING INVESTIGATIONS(position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature Olive Mottram

Date 8/12/2009

**Person who prepared this referral:**

I, GINA SOLOMON (full name),

ACTING PLANNING STUDIES MANAGER (position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature g.solomon

Date 8/12/09



## **LIST OF ATTACHMENTS**

**Attachment 1 – Map of Mid West Corridor Study Area**

**Attachment 2 – Concept Design Drawings**

**Attachment 3 – Map of Corridors Previously Investigated**

**Attachment 4 – Land Use Study**

**Attachment 5 – Land Use Plan**

**Attachment 6 – Detailed Flora and Fauna Study**

**Attachment 7 – Detailed European Cultural Heritage Study**

**Attachment 8 – Detailed Aboriginal Cultural Heritage Study and letter of agreement from Yorta Yorta Nation Aboriginal Corporation**

**Attachment 9 – Plan of Current Land Owners, Study Area Victoria**

**Attachment 10 – Department of the Environment, Water, Heritage and Arts Letter**

**Attachment 11 – Detailed Hydrology Study**

**Attachment 12 – Landscape and Visual Assessment Study**

**Attachment 13 – Geotechnical Risk Register**

**Attachment 14 – Detailed Traffic Modelling Study**

**Attachment 15 – Detailed Social Impact Study**

**Attachment 16 – Noise Impact Assessment Study**