

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, he/she should complete a Referral Form to the best of his /her 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
GPO Box 2392
MELBOURNE VIC 3001**

Couriers

**Minister for Planning
Level 7, 1 Spring Street
MELBOURNE VIC 3001**

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 is encouraged. This will assist the timely processing of a referral.

PART 1 PROPONENT DETAILS, PROJECT DESCRIPTION & LOCATION

1. Information on proponent and person making Referral

Name of Proponent:	VicRoads
Authorised person for proponent: Position: Postal address: Email address: Phone number: Facsimile number:	Mal Kersting Regional Director 53-61 Lansell Street, East Bendigo, 3550 Mal.kersting@roads.vic.gov.au (03) 5434 5000
Person who prepared Referral: Position: Organisation: Postal address: Email address: Phone number: Facsimile number:	Andrew Milvain Senior Planning Engineer VicRoads 1 st Floor, 3 Prospect Hill Road, Camberwell planning.investigations@roads.vic.gov.au 9811 8168 9811 8248
Available industry & environmental expertise: (areas of 'in-house' expertise & consultancy engaged for project)	Project Management – VicRoads, Network and Asset Planning, Planning Investigations Specialist studies undertaken include: 1. Geotechnical Desktop Study & Risk Register for the Second Murray River Crossing, Echuca - Moama – Technical Consulting, VicRoads 2. Landscape and Visual Assessment – CPG Australia Pty Ltd 3. Background Noise Measurements and Noise Modelling for the Planning Study for the Second Murray River Crossing at Echuca-Moama and Francis Street in Moama – Renzo Tonin & Associates Pty Ltd 4. Desktop and Detailed Land Use Study - Parsons Brinckerhoff Pty Ltd 5. Desktop and Detailed Regional Economy Study – Essential Economics Pty Ltd 6. Desktop and Detailed Social Impact Study – AECOM Australia Pty Ltd 7. Detailed Hydrology Study for Mid-West 2 Murray River Bridge Crossing at Echuca-

	<p>Moama - Cardno Pty Ltd</p> <p>8. Transport Modelling and Economic Analysis for Echuca Bridge Planning Study Mid-West 2 Options at Echuca and Francis Street Moama – Sinclair Knight Merz Pty Ltd</p> <p>9. Detailed Flora and Fauna and Net Gain assessment for the Mid-West 2 Murray River Crossing at Echuca-Moama – Brett Lane & Associates Pty Ltd</p> <p>10. Mid-West 2 Murray River Crossing at Echuca-Moama Cultural Heritage Assessment – Heritage Insight Pty Ltd</p> <p>11. Detailed Aquatic Flora and Fauna Study – GHD Pty Ltd</p>
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2. Project – brief outline

Project title: Second Murray River Crossing at Echuca-Moama (Mid-West 2 Corridor)

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.

In early 2011, the Victorian Coalition Government nominated the Mid-West 2 as its preferred corridor for a second Murray River crossing at Echuca-Moama.

The Mid-West 2 corridor provides for a link between the Murray Valley Highway/Warren Street intersection in Echuca, crossing the Campaspe River floodplain to the north of Echuca cemetery and connecting with the Cobb Highway intersection with Perricoota Road and Meninya Street at Moama in New South Wales.

Attachment 1 – Map of the Mid West 2 Corridor Study Area

MGA Coordinates:

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

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

Locality C – 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 within an area known as the 'Mid-West 2 Corridor', along either alignment '2A' or '2B'. It will involve 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. It is proposed to be initially constructed as a 2-lane, 2-way road, though allowance for future duplication is also within the project scope.

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 the 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 detour 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 provide more secure access for emergency services response.

The existing bridge can carry 42.5 tonne six axle semi-trailers and 62.5 tonne nine axle B-doubles. It is not suitable for higher mass limited freight movements using 45.5 tonne six axle semi-trailers or 68 tonne nine axle B-doubles that 80-90% of the freight industry are now using for efficiency reasons. The bridge is included on the B-doubles network in Victoria with the nearest alternative crossings at Barham, 86 km to the west and Barmah, 36Km to the east, or Tocumwal 120km to the east for more direct connection to Sydney.

Typically, larger freight transports such as road trains from New South Wales separate part of the load within Moama prior to crossing the bridge. Given that there is more than \$4 billion dollars worth of freight transported across the bridge annually, this bridge is effectively costing the freight industry around 7% additional cost (based on additional load per truck) through not being able to transport this freight on higher mass limit vehicles.

Significant volumes of freight including agricultural products such as grain, fruit and meat, cross the bridge from southern NSW to Victorian ports. The limitation of the existing bridge is not providing for higher mass limited vehicles which the majority of freight transporters are now using.

The existing bridge has two traffic lanes within a 7.4m wide carriageway between bridge barriers. Whenever wide vehicles or vehicles with loads exceeding 3m width need to cross the bridge, the traffic in the opposing direction has to be stopped clear of the bridge while the wide load crosses. The movement of over-dimensional loads has been restricted to off-peak periods. Most modern agricultural machinery is much wider than 3m to enable efficient operations. The round trip detours of 101km through Barmah or 195km through Barham are unsuitable alternatives for agricultural machinery which is relatively slow moving.

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 the Mid West 2 Corridor study area, and includes a new Link Road alignment north-west from the Warren Street/Murray Valley Highway intersection, a bridge across the Campaspe River and a bridge across the Murray River at a location immediately downstream of the Victoria Park boat ramp, that feeds north-easterly to the Cobb Highway at the intersection with Perricoota Road and Meninya Street.

The concept designs for the Mid-West 2 alignment options provide for the roadway across the floodplain to be elevated so that it would be above the 1% Annual Exceedance Probability flood level. (i.e it would have a 1% chance of being flooded in any particular year). This would effectively provide for the second crossing to provide a flood free crossing between Echuca and Moama. At this elevation, the new crossing would be generally approximately 5 to 8 metres above the natural surface level of the floodplain.

The Murray River Bridge would be about 15 metres above the river banks to allow for

the passage of paddleboats at the highest flow level at which they are permitted to operate.

To achieve flood free access on the second Murray River Crossing, it is necessary to provide extensive bridging and or culverts across the floodplain so as not to raise flood levels in residential areas within Echuca and Moama.

The majority of the Mid-West 2 corridor crosses crown land located within the floodplain. An area of 1-2 hectares of flood-prone freehold land to the north of Echuca cemetery may be required. This allotment is understood to be the subject of a planning permit application for the construction of a dwelling on a portion of high ground above flood level in the north-eastern corner of the allotment, away from the alignment options for the new road. None of the options involves compulsory acquisition of any residences.

Project implementation is initially planned as a 2-lane 2-way road, though planning and environmental assessment is being carried out to allow land reservation for an ultimate duplicated facility. 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.

Attachment 2 – Concept Design Drawings

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 provision of a shared pathway on bridges over the Murray River and the Campaspe River, and with links to existing recreational pathways.

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. Additional elevated road sections on bridge structures are provided over Campaspe Esplanade. Appropriate clearance to structures will be provided for emergency vehicles along affected roadways at Campaspe Esplanade and Scenic Drive.

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 other roadways and pathways. 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 the 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, Bartlett 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. Vehicle access to the truck

unloading bay at safeway shopping centre will be modified to enable access from the west along Boundary Road.

Other ancillary works yet to be designed and incorporated in the concept design drawings include the replacement of a public toilet block near the Murray River boat ramp and replacement of six of the Echuca Tennis Club's lawn tennis courts that are affected by the alignment.

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 on a section of Warren Street approaching the Murray Valley Highway.

Intersection improvements include the construction of a large diameter roundabout at the Murray Valley Highway / Warren Street intersection and traffic signals 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, retention basins, 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.

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 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 (NSW) option, it was not supported by the Shires of Campaspe and Murray and was not recommended by the Independent Panel in 2003.

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.

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, but planning could not be finalised due to Aboriginal cultural heritage issues. As a result, VicRoads was 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 - in principle agreement 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 Mid West Corridor option.

The Mid West corridor connected to the Cobb Highway, Moama via Warren Street and a new Link Road which intersects Warren Street between Payne Street and the Campaspe River and crosses the Murray River north of Echuca Caravan Park. Detailed investigations were completed between 2008 and 2010. A preferred option comprising 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 was identified as a result of these investigations. The Mid West Option had the written support of the Campaspe and Murray Shires and the Yorta Yorta Nation Aboriginal Corporation. A referral for a decision on the need for an EES for this proposal was made in early 2010.

In November 2010, on behalf of the newly elected Victorian Coalition State Government the Minister for Roads announced a planning investigation would commence on another potential alignment for a second Murray River crossing along the corridor north of (behind) the Echuca Cemetery, known as the 'Mid-West 2' option. **This is the subject of this referral.**

4. Project alternatives

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

Four alignment options, 2A, 2B, 2C and 2D have been investigated within the Mid – West 2 corridor.

Mid-West 2A

Option 2A heads north/northwest on a new alignment from the intersection of the Murray Valley Highway and Warren Street around the back of the Echuca Cemetery before turning northeast towards Reflection Bend on the Murray River. This option then passes immediately South of Reflection Bend and crosses the Murray River to the east/northeast before returning approximately north in alignment with Forbes

Street/Cobb Highway and meeting the intersection of Perricoota Road and the Cobb Highway.

Its key features and sensitivities include:

- Impacts on sensitive sandhill area (Murray Pines and possible aboriginal burials);
- Is located close to Reflection Bend river embankment and Merool Holiday Park;
- Dissects the main area of Victoria Park natural environment;
- Requires the highest level of native vegetation removal (32 Ha);
- Most distant from nearby residential areas, tennis courts and formal recreational area;
- Includes only one roundabout and offers a generally straighter alignment than other options;
- Is located more distant from nearby residential areas, tennis courts and formal recreational area than Mid-West 2B and 2D options;
- Has a high level of community support.

Mid-West 2B

Option 2B heads north/northwest on a new alignment from the intersection of the Murray River Highway and Warren Street around the rear of the Echuca Cemetery before turning north towards the Echuca Sports and Recreation Reserve. This option then turns north/northeast before turning to cross the Murray River in an east/north east direction to immediately north of the Echuca Caravan Park. Finally this option returns approximately north with Forbes Street/Cobb Highway and meets the intersection of Perricoota Road and the Cobb Highway.

Its key features and sensitivities include:

- Passes to the south of the sensitive sandhill area (preserves possible aboriginal burial sites);
- Preserves a large intact portion of Victoria Park natural environment;
- Requires removal of 31 Ha of native vegetation
- Mid West 2B affects the heritage overlay covering the Murray Pines vegetation which has local significance;
- Impacts on six tennis courts (these will be relocated nearby);
- Is located closer to nearby residential areas than Mid-West 2A and 2C options;
- Includes only one roundabout;
- Is the least cost option;
- The YYNAC has advised that the cultural heritage mitigation measures as agreed for the previously investigated Mid-West alignment could also apply for this option;
- Has a high level of stakeholder (Campaspe and Murray Shires and Yorta Yorta Nation Aboriginal Corporation) and community support.

Option 2C

Option 2C starts down Warren Street from the intersection with the Murray Valley Highway. After approximately 350m on Warren Street the alignment turns north/northwest from a roundabout before heading northeast, passing to the immediate south of Reflection Bend and crossing the Murray River in an east/northeast direction. Finally this option returns approximately north in alignment with Forbes Street/Cobb Highway and meets the intersection of Perricoota Road and the Cobb Highway.

Its key features and sensitivities include:

- Impacts on sensitive sandhill area (Murray Pines and possible aboriginal burial sites);
- Is located close to Reflection Bend river embankment and Merool Holiday Park;
- Dissects the main area of Victoria Park natural environment;
- Requires the removal of 29 Ha of native vegetation;

- Is located more distant from nearby residential areas, tennis courts and formal recreational area than Mid-West 2B and 2D options;
- It includes two roundabouts;
- It is the highest cost option;
- Has a low level of community support.

Option 2D

Option 2D begins down Warren Street from the intersection with the Murray Valley Highway. After approximately 350m along Warren Street the alignment turns north/northwest from a roundabout before heading approximately north towards the Echuca Sports and Recreation Reserve. This option then turns north/northeast direction to the immediate north of the Echuca Caravan Park. Finally this option returns approximately north in alignment with Forbes Street/Cobb Highway and meets the intersection of Perricoota Road and the Cobb Highway.

Its key features and sensitivities include:

- Passes to the south of the sensitive sandhill area (preserves possible aboriginal burial sites);
- Preserves a larger portion of Victoria Park natural environment;
- Requires least removal of native vegetation (27 Ha);
- Impacts on six tennis courts (these will be relocated nearby);
- Mid West 2D affects the heritage overlay covering the Murray Pines vegetation which has local significance;
- Is located closer to residential areas and the Echuca Cemetery than other options;
- It includes two roundabouts;
- It is the second highest cost option;
- Has a low level of community support.

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

Options 2A and 2B are being considered further in the Echuca Bridge Planning Study.

To summarise, the Mid-West 2A and 2B options offer the greatest overall benefits, involve the least costs and have the highest level of community and key stakeholder support. Mid-West 2C and 2D options offer few benefits over other options and have little identified community or key stakeholder support.

Taking into account preliminary assessments and the community feedback on the four options VicRoads has decided to further investigate **Mid West 2A** and **2B** and to eliminate the Mid-West 2C and 2D options from further investigation. Following consideration to the study findings, VicRoads has also nominated Mid West 2B as its preferred option.

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 Roads and Maritime Services (RMS) is the responsible authority for works within New South Wales. VicRoads is undertaking the Planning Study in conjunction with the RMS 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 36 months upon award of the contract.

Proposed staging (if applicable):

Only one 2-lane 2-way carriageway of the planned ultimate dual carriageway facility will be constructed initially. Additional traffic lanes will be provided at intersections in the initial 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.

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, the Riverine Plain and the Flood Plain of the Murray River. The Riverine Plain is a uniform plain with a shallow gradient (0.4%) downwards towards the west. This plain is cut into by a number of creek valleys between 0.6m and 3m below the level of the plain.

The majority of the proposed bridge crossing corridor lies within the Murray and Campaspe River flood plain.

In the case of Option 2A some 73% of the extent of works, by chainage, occurs

within the Murray and Campaspe River flood plain and for Option 2B some 70% of the extent of works, by chainage, occurs within the Murray and Campaspe River flood plain.

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).

Other geological units that may influence design are the underlying Palaeocene to Miocene age Murray Group carbonate rocks and Remark Group lacustrine sandstones, siltstones, and coals, and the bedrock strata of undifferentiated Palaeozoic rocks, such as Silurian and Devonian siltstone/sandstone at depth.

The Shepparton Formation of northern Victoria is a set of highly variable sediments of fluvial, overbank and lacustrine origin, ranging from gravels to clays, and present along the Riverine Plain. The nature of these deposits is typical of complex river systems and produces laterally interfingering, vertically and horizontally variable deposits such as sand channels flanked by layers of fine sandy clay deposited as river levees. The upper part of this deposit consists of a sheet like layer of calcareous clay 1 – 3m thick. Soils developed on the Shepparton Formation are red brown to yellow brown sodic duplex soils.

The Coonambidgal Formation consists of the river channel deposits with associated lakes and flood plains. These fluvial deposits may have an overprint of an Aeolian environment, and are of late Pleistocene age. Modern rivers represent the most recent set of four such terraces of river deposits. Soils developed on these deposits are generally yellow grey in colour and poorly structured.

Drainage / Waterways

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

Native/Exotic Vegetation

Almost the entire study area supports native vegetation including large contiguous areas of Black Box and River Red Gum dominated woodland. Native vegetation in the Victorian part of the study area consists of Semi-arid Woodland (EVC 97), Riverine Chenopod Woodland (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):

Option 2A

The concept design for the road and bridge works shows a development footprint Right of Way (ROW) for the ultimate duplicated facility of approximately 48.7 ha (approximately 36.2 ha in Victoria).

Option 2B

The concept design ROW for the road and bridge works shows a development footprint for the ultimate duplicated facility of approximately 50 ha (approximately 37.4 ha in Victoria).

Route length and width (for linear infrastructure):

The study area has a length of approximately 4.8 km, the width varies considerably along the length from around 200 metres at the Murray River and flares to around 405 metres just west of the cemetery to allow incorporation of Options 2A and 2B.

Current land use and development:

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

Attachment 3 – 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:

- vacant land at the Murray Valley Highway Business Precinct zoned for business purposes which is located at the south west end adjacent to the Murray Valley Highway;
- residential areas east of the Murray Valley Highway;
- 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;
- former Echuca Secondary College educational facilities at the west end of Crofton Street (School site now cleared of all buildings and college relocated to Butcher Street Echuca);
- 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. Consequently, 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.

Residences in closest proximity to the Mid-West 2A and 2B Options are located within the Echuca Caravan Park where there are approximately 100 long term sites situated 70 – 250 metres from the proposed new road.

The residential area between Crofton Street and Warren Street comprises approximately 70 residences which would be 450 – 800 metres away from the Mid-West 2A alignment or 200 – 700 metres away from the Mid-West 2B alignment.

The residential area between Campaspe Esplanade and Warren Street to the east of the Echuca cemetery has approximately 50 residences which would be located 300 – 650 metres away from the Mid-West 2A alignment or 150 – 400 metres away from the Mid-West 2B alignment.

To the south-east of where a large roundabout would be constructed at the intersection of the new road with the Murray Valley Highway and Warren Street, there is a residential area bounded by Butcher Street that contains approximately 60 residences. These are located 70 – 300 metres from the proposed roundabout which is common for both the Mid-West 2A and 2B Options.

To the north-west of the intersection of the Murray Valley Highway with the Echuca-

Serpentine Road, there is a residential area of approximately 50 residences. These are located 100 – 400 metres from the proposed roadworks in this area.

The Echuca Community for the Aged Facility (Cunningham Downs) is located off the Echuca-Serpentine Road, approximately 400 metres to the west of the proposed large roundabout. The Cunningham Downs community has 79 independent living units, a 92 bed hostel and 14 assisted accommodation units, housing approximately 220 people.

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), Wildfire Management Overlay (WMO) and Heritage Overlay (HO).

The current planning provisions relevant to the road alignment are shown in attachment 5.

Attachment 4 – Current Zoning Controls

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 designs within the study area.

Flora

Three rare or threatened flora species were detected during the investigation in Victoria. These included:

- Weeping Myall (threatened under the FFG Act, endangered in Victoria on DSE Advisory List);
- Blue Burr-daisy (rare in Victoria on DSE Advisory List); and
- Pale Flax-lily (vulnerable in Victoria on DSE Advisory List).

These species are likely to be impacted on by the project.

The study area supports approximately 71.98 hectares of native vegetation (40.67 habitat hectares in Victoria), consisting of four Ecological Vegetation Classes (EVCs):

- Semi-arid Woodland (EVC 97) which has a vulnerable conservation status in the Murray Fans bioregion;
- Riverine Chenopod Woodland (EVC 103) which has a Vulnerable conservation status in the Victorian Riverina bioregion and an endangered conservation status in the Murray Fans bioregions;
- Grassy Riverine Forest (EVC 106) which has a depleted conservation status in

- both the Victorian Riverina and Murray Fans bioregions; and
- Riverine Grassy Woodland (EVC 295; which has a vulnerable conservation status in both the Victorian Riverina and Murray Fans bioregions).

Fauna

Six rare, threatened or near threatened fauna species were recorded during the investigation in Victoria. These included:

- Corben's Longeared Bat (Vulnerable under the EPBC Act, threatened under the FFG Act, vulnerable in Victoria on DSE Advisory List, also listed under the NSW threatened Species Conservation Act);
- Yellow-bellied Sheath-tail Bat (Listed as Vulnerable under the NSW Threatened Species Conservation Act);
- Brown Treecreeper (Near threatened in Victoria on the DSE Advisory List);
- Nankeen Night-heron (Near threatened in Victoria on the DSE Advisory List);
- Black-chinned Honeyeater (Near threatened in Victoria on the DSE Advisory List);
- Azure Kingfisher (Near threatened in Victoria on the DSE Advisory List); and
- Brown Quail (Near threatened in Victoria on the DSE Advisory List).

One additional fauna species, listed as migratory under the EPBC Act, the Rainbow Bee-eater was recorded during this investigation in Victoria.

Based on Habitat assessment it was considered that suitable habitat occurs within the study area for an additional three FFG listed fauna species, the Barking Owl, Bush Stone-Curlew and Squirrel Glider.

Targeted fauna surveys were undertaken in November 2011 for the Barking Owl, Bush Stone-Curlew and Squirrel Glider species. None of the targeted species was found.

Attachment 5 – Detailed Flora and Fauna Study

Aquatic Fauna

Aquatic habitat of the Campaspe River and Murray River are of moderate value for fish, though no species listed under the FFG Act or the EPBC Act were recorded during the fish survey.

However, the Murray River may support the Murray Cod (listed as vulnerable under EPBC Act and threatened under FFG Act). As bridge piers are to be located clear of the main river flow, 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.

Attachment 6 – Aquatic Flora and Fauna Study

European Cultural Heritage

The study corridor is in the vicinity of 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. There is a heritage overlay covering the Murray Pines vegetation which has local significance, which is affected by Option 2B.

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 45 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 500m north and west of the study area.

There are 22 scarred trees within the study area in Victoria. The concept design footprint avoids nearly all the scarred trees. Retaining walls and/temporary protective barriers are proposed at two sites within the roadway embankment to ensure that they remain unaffected in the case of Option 2A. Only one scar tree requires a retaining wall in the case of Option 2B.

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

Option 2A

The nine scar trees located in the ROW can be protected by suitable fencing during construction and beyond. There are two scarred trees that lie close to the proposed roadway but these can be retained within retaining walls in the embankment, and a third that may require some maintenance pruning in order to prevent tree debris falling on the road pavement. Provided mitigation measures are adopted, Option 2A will not impact on any Aboriginal cultural heritage sites; however, bridge piling through the sandhill area for this option has potential to disturb any buried artefacts and human remains that may be located within the sandhill.

Option 2A crosses the sandhill close to Reflection Bend. The sandhill has been identified in the existing and previous studies as an area of high potential sensitivity for buried archaeological deposits and human burials. It also contains scarred trees, although none of the latter is on the road alignment.

Further archaeological investigation in the form of sub-surface testing would be required in any areas of the sandhill where excavation is contemplated, even if the latter occurs in areas which have already been used as borrow pits. This is because the sand is considerably deeper than the surface of the floodplain. The testing would be required to determine whether buried Aboriginal archaeological sites, potentially ancient archaeological sites and human remains are contained within the excavation footprint for bridge structure piers. This work would be required before Option 2A could be fully assessed and in order to obtain both an approved CHMP and comply with Sections 27-28 of the *Aboriginal Heritage Act 2006*, which provide blanket protection for all Aboriginal cultural heritage.

Option 2B

The seven scar trees in the ROW can be protected by suitable fencing during construction and beyond.

Retaining walls/protective barriers are proposed at two sites that lie close to the proposed roadway to ensure that they remain unaffected. Pruning of one scar tree close to the bridge structure is proposed to prevent tree debris dropping onto the roadway.

The concept design provides for a gradeline and concrete pavement over the remnant sandhill north of the Echuca Secondary College property in order to avoid disturbance and protect potential Aboriginal artefacts and burial remains. Agreement in principle has been reached with Yorta Yorta Nation Aboriginal Corporation for this proposed treatment. 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 Detailed Aboriginal Cultural Heritage Study, including field surveys, has been undertaken. A Cultural Heritage management plan will be prepared.

Attachment 7 – Cultural Heritage Report

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 Purposes Resource Zone (PPRC), Public Conservation and Resource Zone (PCRZ), Urban Flood Zone (UFZ), Road Category 1 (RDZ1) and Public Use Education (PUZ2) for 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):

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 RMS (in NSW). The required land includes land in local council and public authority ownership and individual private landowners.

Option 2A

The majority of land affected in Victoria is designated crown land in which the Campaspe Shire Council has been appointed the Committee of Management under the *Victorian Crown Lands Reserves Act 1978*.

Option 2B

The majority of land affected in Victoria is designated crown land in which the Campaspe Shire Council has been appointed the Committee of Management under the *Victorian Crown Lands Reserves Act 1978*. This option affects the west corner of crown land temporarily reserved for a High School. The former high school has been relocated and the site has been cleared of all former school buildings. There is a parcel of privately owned land that will need to be acquired between Nolan Street and Campaspe Esplanade to the north of Jarman Street.

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):

Approvals may potentially be required under the following legislation from a Victorian perspective:

- Permit to remove native vegetation under *the Planning and Environment Act 1987*;
- Heritage Permit under *the Heritage Act 1995*;

- Cultural Heritage Management Plan under *the Aboriginal Heritage Act 2006*;
- Planning scheme Amendment under *the Planning and Environment Act 1987*;
- Permit for works on a waterway under *the Water Act 1989*; and
- Permit to relocate native fauna under *the Commonwealth Environment Protection and Biodiversity Conservation Act 1999* due to the presence of the EBPC listed vegetation communities and species.

Environment Protection and Biodiversity Conservation Act

One EPBC Act species, the Corben's Longeared Bat was recorded in the study area at a low abundance. No other flora and fauna 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. Based on the amount of native vegetation proposed to be removed under the options it is considered prudent that a referral under the EPBC Act be prepared for the project. The project will be referred as 'Not a Controlled Action'.

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 Roads and Maritime Services (NSW) indicate that the NSW planning process for the project would be an Environment Investigation Report.

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, Road Maritime Services (NSW), Department of Planning and Community Development (DPCD), DSE and NSW Office of Environment and Heritage.

Other agencies consulted:

Parks Victoria, Murray River Skipper's Association, North Central Catchment Management Authority, Yorta Yorta Nation Aboriginal Corporation, Aboriginal Affairs Victoria, Heritage Victoria, Moama Local Aboriginal Land Council 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 four Ecological Vegetation Class (EVC):

- Semi-arid Woodland (EVC 97) which has a vulnerable conservation status in the Murray Fans bioregion;
- 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.

Option 2A

This option will result in the removal of 25.97 hectares (14.94 habitat hectares) of native vegetation in Victoria as well as the loss of 485 large old trees.

Option 2B

This option will result in the removal of 24.71 hectares (14.09 habitat hectares) of native vegetation in Victoria as well as the loss of 414 large old trees.

Common to both options, additional offsets for trees affected in the Murray Valley Hwy/Warren St area, namely the protection of 26 trees (24 very large and 2 large) and recruitment of 170 new plants or the recruitment of 1010 new plants are required for the removal of 11 scattered trees.

Refer to Section 12, Native Vegetation, for further details.

Potential impact on Aboriginal Cultural Heritage sites

Although there are 26 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.

Option 2A

For the Mid-West 2A Option alignment which crosses the north-western side of the large sandhill the west of the Echuca Tennis Club. This is an area of high potential sensitivity for Aboriginal archaeological sites and the Yorta Yorta Nation Elders have advised that subsurface testing would need to be undertaken at bridge pier locations across the sandhill.

Option 2B

The project alignment for Mid-West 2B Option crosses, a small remnant sand hill of potential Aboriginal archaeological sensitivity between the Echuca Secondary College site and the tennis courts. Any excavation through the remnant sand hill could

potentially impact buried aboriginal artefacts and possibly human remains.

A high gradeline and concrete pavement solution 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 Mid-West 2B 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 be prepared for the preferred option and would provide for ongoing protection of all scarred tree sites and for non-excavation through the remnant 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 by the Mid-West 2B Option 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 by the Mid-West 2B Option 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;
- Potential indirect impacts on both the Mid-West 2A and 2B Options would be impact on the 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 impacts of both Mid-West 2A and 2B Options is 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;

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.

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 the 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 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 if preferred by the Tennis Club. 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 across the new Link Road.

12. Native vegetation, flora and fauna

Native vegetation

Is any native vegetation likely to be cleared or otherwise affected by the project?

NYD No Yes If yes, answer the following questions and attach details.

What investigation of native vegetation in the project area has been done?
(briefly describe)

A Detailed Flora and Fauna Study, including targeted surveys and a net gain assessment, has been undertaken by Brett Lane & Associates Pty Ltd.

What is the maximum area of native vegetation that may need to be cleared?

Option 2A

The alignment Option 2A requires the estimated removal of 25.97 hectares (14.95 habitat hectares) of native vegetation in Victoria as well as the loss of 485 large old trees within the patches. This will result in an offset target of 29.28 habitat hectares as well as the protection of 3,820 large old trees and recruitment of 19,100 new plants.

Option 2B

The alignment Option 2B requires the estimated removal of 24.71 hectares (14.09 habitat hectares) of native vegetation in Victoria as well as the loss of 414 large old trees within the patches. This will result in an offset target of 27.54 habitat hectares as well as the protection of 3,236 large old trees and recruitment of 16,180 new plants.

Common to both options, additional offsets for trees affected in the Murray Valley Highway/Warren St area, namely the protection of 26 trees (24 very large and 2 large) and recruitment of 170 new plants or the recruitment of 1010 new plants are required for the removal of 11 scattered trees.

How much of this clearing would be authorised under a Forest Management Plan or Fire Protection Plan?

N/A approx. percent (if applicable)

Which Ecological Vegetation Classes may be affected? (if not authorised as above)

NYD Preliminary/detailed assessment completed. If assessed, please list.

The affected native vegetation consists of areas including: Semi-arid Woodland (EVC 97), 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.

Have potential vegetation offsets been identified as yet?

NYD Yes If yes, please briefly describe.

Offset measures will be developed and sites identified in consultation with the Department of Sustainability and Environment (DSE) and other relevant authorities. Bush Broker services will also be engaged to help locate suitable offset sites.

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

NYD = not yet determined

Flora and Fauna

What investigations of flora and fauna in the project area have been done?

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

A Detailed Flora and Fauna Study, including a spring survey and targeted surveys, has been undertaken by Brett Lane & Associates Pty Ltd.

Further details of the methodology and results are set out in **Attachment 5**.

Have any threatened or migratory species or listed communities been recorded from the local area?

NYD No Yes If yes, please:

- List species/communities recorded in recent surveys and/or past observations.
- Indicate which of these have been recorded from the project site or nearby.

No EPBC Act listed ecological communities were recorded and none is considered likely to occur.

No EPBC Act listed flora species were recorded during the current investigation and none is considered likely to occur.

Twelve EPBC Act listed fauna species were predicted to occur within or near the study area, including five birds, two mammals, one reptile, one frog and three fish. Species likely to occur are discussed below; those not likely to occur in the study area are not discussed further.

No birds species listed as threatened under the EPBC Act were observed during the assessment; however, the Swift and Superb Parrots were species considered likely to

utilise the habitats occasionally whilst moving between core habitat areas. However, such utilization would only be for short periods and no impacts are expected on their populations from changes to habitats in the study area arising from the proposed crossing.

Among mammals, the EPBC Act threatened Corben's Longeared Bat was recorded at low density within the study area. Records were mostly from mixed woodlands in the Victorian part of the study area. The bat is largely restricted in its distribution to the Murray–Darling Basin (Churchill 2008) and removal of hollow trees that could serve as its roosting sites may result in a low level of habitat loss.

No commonwealth or state listed threatened species were recorded during the fish survey, however the desktop review returned a number of listed threatened species as possibly inhabiting the project and assessment areas. These include the Macquarie Perch, Murray Cod and Murray Hardyhead. Provided impacts on the river do not prejudice movement opportunities for the Murray River Turtle and the native fish, particularly during construction, then impacts are considered to be temporary and not significant for these aquatic fauna.

Among the EPBC Act listed migratory species, the Rainbow Bee-eater was previously recorded in the study area (BL & A 2011) and was recorded within the Mid-West 2 study area during the November 2011 surveys. This species is a common, widespread species in inland Australia including along the River Murray valley, and the removal of a small proportion of its habitat, is not considered to be a significant impact.

Another migratory species likely to pass through the study area is the Whitebellied Sea-eagle. This species might occasionally travel inland over large wetlands and rivers. As its presence in the study area would be temporary, no impacts are expected on its population.

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.

There were no threatened ecological communities recorded in the Victorian portion of the study area.

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. Provided these mitigation measures are implemented, no increase in threatening processes is anticipated as a consequence of the proposed development.

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.

12 threatened species are considered likely to occur within the study area:

- **Barking Owl:** The species is a well known raptor that inhabits riparian forests and woodlands. The owl is likely to inhabit the large River Red-gum and Black Box, particularly those with large suitable hollows. The species was not detected in earlier (BL&A 2011) or current targeted surveys undertaken as part of this investigation. As this species was not recorded during these targeted surveys it is now considered unlikely to use the study area regularly and is not likely to be impacted by the project.
- **Bush Stone–Curlew:** Similar to the owl, the curlew was not recorded in earlier (BL&A 2011) or current targeted surveys undertaken as part of this investigation. As this species was not recorded during these targeted surveys it is considered unlikely to use the study area regularly and is not likely to be impacted by the project.
- **Grey–crowned Babbler:** The Babbler inhabits dry woodlands and forests with a shrub layer and a groundcover of leaf litter and fallen timber. This babbler is likely to inhabit the woodlands and forests within the study area. During the 2009 site survey, no evidence was found of its occurrence (BL & A 2011) and none was recorded during the current survey. Therefore the species is considered to be an occasional visitor in the study area and it is unlikely that the proposed development would have an adverse effect on this species.
- **Eastern Great and Intermediate Egrets:** Both species are likely to inhabit river margins and billabongs within the study area. However, the bird populations of these two species are not likely to be impacted by development, as the birds could avoid disturbance by moving away from the study area along the Murray River.
- Four bushbirds, namely the **Turquoise parrot, Speckled Warbler, Hooded Robin** and **Diamond Firetail** are likely to occur in the study area, particularly within the Black box Woodland. Clearing of large sections of the woodland might impact on their population, but as only a few individuals are likely to use these woodlands at any one time, the impacts would be minimal.
- **Squirrel Glider:** Although the single individual was recorded in the NSW component of the study area, it is considered likely to also inhabit the Victorian component. This species is likely to be impacted by the project, and mitigation measures have been proposed, refer to Post-Construction Phase section below.
- **Masked Owl:** Although the single individual masked Owl was recorded in the NSW component of the study area, it would be considered to also occur in the Victorian component of the study area. The removal of native vegetation within the study area is likely to have a negative impact on this species, namely through the reduction in suitable habitat.

- **Murray River Turtle and Silver Perch:** These species inhabit and travel along the Murray River. Provided impacts on the river do not prejudice movement opportunities for the turtle and the native fish then impacts are considered to be negligible to these aquatic fauna.

One flora species, Weeping Myall, listed as threatened under the FFG Act was recorded in the Victorian side of the study area. This species is likely to be impacted on by the project.

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 are outlined below.

Pre-construction phase:

- Avoid the removal of large hollow-bearing trees where possible. Hollow trees such as large old River Red-gums support roosting habitat for bat species including the threatened Corben's Longeared Bat recorded in the study area. The highest density of large old hollow River Red-gums was observed along an old linear reserve in Victoria identified as Habitat Zone 9.
- In order to minimise Squirrel Glider road mortality and facilitate ease of movement across the proposed road, it is recommended that crossing zones be established. These areas should be approximately one hundred metres long and incorporate the following features:
 - o Suitable Squirrel Glider vegetation to be retained as close to the road as practical; and
 - o Artificial land/launch poles to be strategically placed to facilitate glider road crossing; and/or
 - o Aerial rope bridges to be constructed over the road to facilitate glider road crossing

Crossing zones would be designed in consultation with Rodney Van der Ree, of the Centre for Urban Ecology, Royal Melbourne Botanical Gardens, Melbourne. Rodney is an expert on Squirrel Glider ecology and has been involved in similar projects, such as the Hume Highway Upgrade – Woomargama Bypass in NSW.

- In accordance with the *Victorian Catchment and Land Protection Act 1994*, the noxious weed species listed below, which were recorded in the study area, must be controlled using precision methods (e.g. spot spraying by hand) that avoid off-target impacts. This method of control should be implemented throughout the project for the species listed below.
 - o African Box-thorn;
 - o Horehound;
 - o Patterson's Curse; and
 - o Prickly Pear.
- All employees should be inducted into an environmental management program for construction works.
- All environmental controls would be checked for compliance on a regular basis, following the completion of the Construction Environmental Management Plan for the project.

Construction phase:

- The proposed development should be designed in a way that does not alter the hydrology of the Campaspe or Murray Rivers. It is understood that no direct impacts are considered to occur to the Campaspe River or Murray River. Piers will be constructed as the main supports for the bridges at either side of the river and no permanent bridge infrastructure will occur within the rivers themselves. Erosion controls must be adopted for these areas during construction to ensure that there is no change in water quality and flow.
- Catch traps are to be used during bridge construction to eliminate the spillage of any construction materials into the rivers. Such measures are required to ensure that aquatic habitat continuity is maintained in the Murray River during construction to avoid impacts on fish movement and migration.
- During construction, careful consideration would be given to minimise impacts on bats in general and on threatened bat species in particular.

Greg Richards (G. Richards and Associates; Australian bat fauna specialist, ACT) has developed a tree clearance protocol in relation to bat colonies to be closely adhered to when removing vegetation that supports bats. This protocol would be undertaken when removing any hollow trees such as large old River Red-gums that may support roosting habitat for the Corben's Longeared Bat. The protocols are provided below:

1. Survey during the daytime the area to be cleared for trees with potential bat roost hollows, mark with flagging tape or painted number. Bird nests would also be recorded at this stage if there are avifauna issues.
2. Fell unmarked trees (without hollows) – this creates disturbed habitat, some colonies may depart to roosts elsewhere, leave trees in situ overnight.
3. If threatened bats have been recorded during surveys in the area, it may be prudent to detect under potential roosts to see if a colony emerges.
4. If EPBC species have been recorded during surveys, a bat specialist would be contacted for further advice, as the tree or roost itself may have to be relocated.
5. Fell marked trees with largest bulldozer available (the machine takes the weight of the tree so it can be felled slowly – a D9 is a suitable size).
6. For large trees, use dozers ripper to tear large roots underground around tree.
7. Push trunk of tree with lower edge of blade, approximately one metre above ground and with the potential roost facing the operator.
8. Tree should still stay upright, push trunk a metre or so with bulldozer until roots are broken and dislodged.
9. Before tree starts to fall, drop blade to ground level to catch roots, hold tree.
10. Lower the tree by slowly raising the blade until it lies on the ground, and the roost should be facing upwards.
11. Push tree along ground a few metres to crush upper branches – trunk must lie flat on the ground so that it won't roll over when being inspected.
12. Inspect potential roost/s with torch to ensure that nothing is present inside.
13. Leave tree on ground for 24 hours to allow anything still inside to escape, then remove tree from site.

These additional recommendations should be considered during the construction phase of the project:

- Environmentally sensitive areas to be retained would be identified at two metres from the perimeter and appropriately signed. All machinery and earthworks are to be excluded from these areas.

- Any tree pruning would be undertaken by an experienced arborist to prevent disease or unnecessary damage to trees or disturbance to understorey vegetation during tree trimming.
- Any stockpiling must occur outside retained native vegetation and away from any drainage lines.
- All machinery would enter and exit works sites along defined routes that do not impact on native vegetation or cause soil disturbance and weed spread.
- All machinery brought on site would be weed and pathogen free. This is important for environmental and agricultural protection. Weeds and/or pathogens can be easily transported by machinery.
- Chytrid Fungus is a frog disease that can be easily transported by machinery and personnel. To ensure that this disease is not spread, all machinery and personnel working involved in the construction of the project would be weed and pathogen free prior to entering the site. Wash down methods including disinfecting of footwear and machinery tyres is recommended when working in or adjacent to areas of native vegetation or wetlands
- All machinery wash down, lay down and personnel rest areas would be defined (fenced) and located in disturbed areas well away from wetlands and waterway banks.
- Best practice erosion control would be established where an erosion hazard is identified.

Post-construction phase:

- Weed control would be carried out along disturbed areas after construction to control any weed outbreaks in adjacent areas of native vegetation.
- Any areas of temporary disturbance along the Campaspe and Murray Rivers would be revegetated with appropriate indigenous plants of local genetic provenance following construction. This measure is aimed at minimising any potential long-term adverse impacts that the proposed development may have on the health and functionality of these watercourses.
- The use of local indigenous plant species, (from seed and plant species sourced within a given radius of 50 kilometres of the site), would be considered in the landscaping of any development on the site. Locally indigenous species generally have low water-use requirements, high survival rates and provide habitat to local fauna species.

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

13. Water environments

Will the project require significant volumes of fresh water (eg. > 1 GI/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.

The Echuca-Moama link will be designed in accordance with the Urban Stormwater Best Practice Environmental Management Guidelines (CSIRO 1999), the VicRoads

Road design Guidelines (RDG) Part 7 – Drainage design and with local government requirements.

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, groundwater and aquatic environments during construction and operation of the road.

Attachment 8 – 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.

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 Macquarie Perch, Murray Hardyhead and Murray Cod of national conservation significance.

Among the EPBC Act listed migratory species, the Rainbow Bee-eater was recorded within the Mid-West 2 Murray River Crossing study area. This species is a common, widespread species in inland Australia including along the River Murray valley, and the removal of a small proportion of its habitat, is not considered to be a significant impact.

Another migratory species likely to pass through the study area is the Whitebellied Sea-eagle. This species might occasionally travel inland over large wetlands and rivers. As its presence in the study area would be temporary, no impacts are expected on its population.

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.

Could the project affect streamflows?

NYD No Yes If yes, briefly describe implications for streamflows.

The 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. Floodway mitigation options have been assessed and are contained in the Detailed Hydrology Study. 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.

Could regional groundwater resources be affected by the project?

NYD No Yes If yes, describe in what way.

The precise nature of the groundwater table (GWT) is to be determined during detailed geotechnical investigations on the recommended alignment. Bridge abutments, footings and piers are likely to intersect the GWT, the design of these structures would also occur during the detailed design phase of the recommended alignment. All options have extensive earthworks and therefore interaction with the GWT is probable. The mitigation requirements to protect groundwater and saline water discharge will be provided for within the road reserve as determined by the Environmental Management Plan.

There is a probability of encountering groundwater at all of the option alignments, a detailed Geotechnical study will be carried out for the preferred option at a later stage during pre-construction to determine the impact.

Could environmental values (beneficial uses) of water environments be affected?

NYD No Yes If yes, identify waterways/water bodies and beneficial uses (as recognised by State Environment Protection Policies)

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.

During construction, environmental controls will be used to ensure storm water runoff is captured and treated in accordance with Victorian EPA guidelines including Environmental guidelines for Major Construction Sites (1996) and Construction Techniques for sediment Control (1991).

Could aquatic, estuarine or marine ecosystems be affected by the project?

NYD No Yes If yes, describe in what way.

Measures would be put in place to ensure that aquatic habitat continuity is maintained in the Murray River during construction to avoid impacts on fish movement and migration.

Is there a potential for extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems over the long-term?

No Yes If yes, please describe. Comment on likelihood of effects and associated uncertainties, if practicable.

Is mitigation of potential effects on water environments proposed?

NYD No Yes If yes, please briefly describe.

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 stream flows, and allow for flood flows with no adverse impacts upstream or downstream. Overland flow rates would be within acceptable limits to minimise the potential for scouring. 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 stream flows or flooding. Therefore there would be no effects on water environments.

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

14. Landscape and soils

Landscape

Has a preliminary landscape assessment been prepared?

No Yes If yes, please attach.

A Landscape and Visual Assessment is being undertaken.

Is the project to be located either within or near an area that is:

- **Subject to a Landscape Significance Overlay or Environmental Significance Overlay?**

NYD No Yes If yes, provide plan showing footprint relative to overlay.

- **Identified as of regional or State significance in a reputable study of landscape values?**

NYD No Yes If yes, please specify.

The majority of land within the study area boundary in Campaspe Shire in Victoria is within either the Public Conservation and Resource Zone (PCRZ). Both the Campaspe and Murray Rivers exist within this zone; or the Public Park and Recreation Zone (PPRZ), Victoria Park and a large area south of Campaspe River exist in this zone.

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. Echuca Historic Area, which includes both the Port and the river itself, are classified by the National Trust to be of national significance.

Not only is the Murray River an important recreational resource, it also plays a key role in the daily livelihood of Australian communities across three states. So although no federal legislation specifically protects the landscape values or visual amenity of the Murray River it could be deemed to be a cultural landscape of national importance.

- **Within or adjoining land reserved under the *National Parks Act 1975* ?**

NYD No Yes If yes, please specify.

- **Within or adjoining other public land used for conservation or recreational purposes?**

NYD No Yes If yes, please specify.

The project would be located in Echuca's public 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.

The Mid-West Option 2A effectively splits the Victoria Park area into three whereas Mid-West Option 2B preserves a larger contiguous area of bushland and recreational area. Both options will introduce impacts on the natural bushland setting through physical, noise and visual impacts. Additionally, Option 2A will introduce impacts on the Murray River environs near Reflection Bend.

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 below the proposed Murray River bridge crossing, and is to be retained.

In the case of Option 2B there would be direct impact on six of the seventeen courts of the Echuca Tennis Club. There is also potential for visual impact on various sporting and recreational facilities in Victoria Park.

In the case of Option 2A the roadway avoids direct impact upon the tennis courts and formalised sporting fields within Victoria Park.

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

NYD No Yes If yes, please briefly describe.

The project will impact on landscape values due to the clearing of vegetation, altered landforms and elevated bridge structures. Landscape treatments would be provided to mitigate these impacts considering 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 through Victoria Park and across the Murray River and the Campaspe River and associated floodplains.

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;
- Severance of existing trails within Victoria Park; and
- Relocation/replacement of 6 tennis courts of a total of 17 from the Echuca Tennis Club;

The new Link Road would provide motorists and shared path users with scenic views of the river. Additionally, new shared paths would provide connectivity along the Link Road to the Victoria Park trails and beneath the Link Road to Victoria Park. The new on-road bicycle lanes and an off road shared path to be provided parallel to the new Link Road from the Murray Valley Highway/Warren Street intersection to Boundary Road, Moama, would afford views of the landscape for cyclists.

Is there a potential for effects on landscape values of regional or State importance? NYD No Yes Please briefly explain response.

The Murray River landscape in Echuca contains landscape values of Regional, State and National 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.

Mitigation measures to be recommended in the Landscape and Visual Assessment Study include:

- Any areas of temporary disturbance along the Campaspe and Murray Rivers should be revegetated with appropriate indigenous plants of local genetic provenance following construction. This measure is aimed at minimising any potential long-term adverse impacts that the proposed development may have on the health and functionality of these watercourses.
- The use of local indigenous plant species, (from seed and plant species sourced within a given radius of 50 kilometres of the site), should be considered in the landscaping of any development on the site. Locally indigenous species generally have low water-use requirements, high survival rates and provide habitat to local fauna species.
- 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 recreational users and residences;
- Minimise removal of existing vegetation;
- Visual integration of the structures with the existing road and landform;
- Ensure retaining walls are appropriate for the existing environment;
- Provision of an architectural screen to reduce views of the road alignment from the tennis courts if required;
- 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.

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

A set of landscape planning objectives has been proposed:

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

Soils

Is there a potential for effects on land stability, acid sulphate soils or highly erodible soils?

NYD No Yes If yes, please briefly describe.

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.

Potentially unstable slopes are visible along much of the banks of the rivers where no stabilising effect is provided either using manmade structures or natural barriers such as tree root mats. Investigation to assess the nature of the river bank materials, the profile of the river bed, the river currents and erosion potential in the vicinity of the proposed river crossings would mitigate the risk from this hazard.

Scour erosion is a very likely occurrence in areas of high current velocity, and has the potential to cause scour around foundations. Mitigation could be achieved by a scour and flood model of the rivers being carried out and the results input into the design and the geotechnical investigation.

The proximity of the route to areas of human habitation and previous land use including a tip site suggests there may be some potential for existence of small localised areas of fill, with associated settlement effects. This risk could be mitigated by investigating the entire length of the route during preconstruction using exploratory pits and performing laboratory testing to assess material properties and chemistry.

Attachment 9 – Geotechnical Risk Register

Are there geotechnical hazards that may either affect the project or be affected by it?

NYD No Yes If yes, please briefly describe.

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, scour and erosion at piers locations in the river, inundation of embankment during flood event and instability of riverside slopes. Potential geotechnical risks would be managed and mitigated by detailed site testing for the preferred option and appropriate design and construction techniques.

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

15. Social environments

Is the project likely to generate significant volumes of road traffic, during construction or operation?

NYD No Yes If yes, provide estimate of traffic volume(s) if practicable

In Victoria, construction vehicles would access work sites using the existing Warren Street then Campaspe Esplanade, Murray Valley Highway, Victoria Park via Crofton Street and designated access tracks along the construction corridor would also be utilised.

A preliminary estimate of vehicle movements for the delivery of fill material for the road embankment on the floodplain indicates that in the order of 70 round truck trips per day may be required over 190 working days. A preliminary estimate of vehicle movements for the delivery of material for pavement construction indicates that in the order of 25 round truck trips per day would be required if the contractor arranged the delivery of 300 cubic metres per day. Additional vehicle movements would be required for all other construction activities throughout the construction of the proposal.

It is not envisaged that any detours would be implemented for the proposed works, and no major disruptions to the existing road network are expected. Victorian access could be provided through the Victoria Park Access Road to provide connection to a construction track along the structure within the Right of Way between the Murray River and Campaspe River section. Access off Warren street for the section between the Campaspe River and the Murray Valley Highway could utilise Campaspe Esplanade to access the construction track adjacent to the works and within the Right of Way defined by the Public Acquisition Overlay. All access arrangements would be determined in consultation with Campaspe Shire Council; and the North Central Catchment Management Authority.

Access at intersections and property access points would be maintained during the proposed works.

The traffic management and access issues encountered during the construction period would be managed according to the Environmental Management Plan. A traffic management plan and a traffic control plan would be developed prior to the start of construction.

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.

The existing Murray River bridge primarily serves local traffic. Traffic modelling for 2023 has shown the following for the existing bridge:

- Approximately 80% of traffic would have both a local origin and local destination in Echuca and Moama.
- Approximately 18% would be external traffic having an origin or destination in Echuca or Moama.
- Approximately 2% would be through traffic that does not stop in Echuca or Moama.

For the new Mid-West 2 bridge in 2023, the numbers are as follows:

- Approximately 68% of traffic would have both a local origin and local destination in Echuca and Moama (although tending to be outlying areas, rather than the town centre).

- Approximately 23% would be external traffic having either an origin or destination in Echuca or Moama.
- Approximately 9% would be through traffic that does not stop in Echuca or Moama.

Some additional traffic modelling predictions include:

- Without a second crossing of the Murray River, average non-holiday weekday traffic on the existing bridge is expected to increase from 17,900 vehicles per day in 2008 to 22,900 by 2023 and 25,200 by 2038;
- The second bridge crossing would have 8,350 vehicles per day in 2023 and 10,000 vehicles per day by 2038, which would be 36% and 38% respectively of all traffic crossing the Murray River.
- The existing bridge would have 15,200 vehicles per day by 2023 and 16,800 vehicles per day by 2038, a reduction of 35% and 34% respectively compared to a do-nothing prediction.
- High Street, North of Heygarth Street near the historic port precinct would have 10,000 vpd by 2038, a reduction of 27% compared to a do-nothing prediction of 13,800 vpd. (Existing 2008 traffic on this section of High Street is 10400 vpd).
- High Street, south of Heygarth Street Echuca near the historic port precinct would have 6720 vehicles per day by 2038, a reduction of 43% compared to a do-nothing prediction of 11,800 vehicles per day. (Existing 2008 traffic on this section of High Street is 9,250 vehicles per day).
- Warren Street at Campaspe River, with the second bridge crossing, would have 5,500 vehicles per day by 2038, a decrease of 42% over the do-nothing prediction of 9,500 vehicles per day. (Existing 2008 Warren Street traffic is 6,020 vehicles per day).
- Ogilvie Ave at Campaspe River, with the second bridge crossing, would have 22,698 vehicles per day by 2038, a decrease of 19% over the do-nothing prediction of 28,190 vehicles per day. (Existing 2008 Warren Street traffic is 18,120 vehicles per day).

Construction traffic would not be significant compared with existing operating traffic volumes.

Attachment 10 – Detailed Traffic Modelling Study

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?

NYD No Yes If yes, briefly describe the nature of the changes in amenity conditions and the possible areas affected.

The proposed alignments for Options 2A and 2B will have a range of potential positive and negative impacts. Key issues for consideration are the potential impacts on the sports precinct in Victoria park, culturally significant sand hill near reflection Bend, and amenity impacts on residents, the Echuca Holiday Park, Echuca Cemetery, and Victoria Park bushland and Murray River environs.

The Social Impact Assessment concluded that Option 2A was preferred over Option 2B. The assessment concluded that while both options would have provided a significant improvement in accessibility to a range of community and commercial facilities and contribute to the further integration of the two towns into one community, Option 2A performs better than Option 2B primarily because:

- Option 2A is located further away from residential development in the Crofton Street area and the area generally north of Warren Street west of the Campaspe River

- Option 2A would not have a direct effect on the formal recreation facilities in Victoria Park – the lawn tennis courts in particular.

Based on responses to a limited survey of park users, both options would have a substantial and potentially adverse effect on the valued landscape and recreation aspects of the bushland area in the north-western sections of Victoria Park.

The Social Impact study recommends the following measures to mitigate potential impacts:

- Implementation of noise attenuation measures if required and consistent with VicRoads' Traffic Noise Reduction Policy.
- Sensitive landscape treatment of the new road through the different sections of Victoria Park.
- Reconfiguration of informal walking tracks within bushland and other areas of Victoria Park.
- Provision of pedestrian and cycling on/off ramp on southern side of the Murray River at Victoria Park.
- Mitigation of any direct impacts on the lawn tennis courts in Victoria Park with any proposal for reinstatement to be determined through detailed consultation with relevant stakeholders.
- Appropriate junction design at the Murray Valley Highway having regard to accessibility requirements of residents to the west of the Murray Valley Highway, especially residents of the Cunningham Downs community.
- Upgrading of the surface of Warren Street consistent with its current and future traffic functions and provision of bicycle lanes.

Consultation impacts should be appropriately managed through well-developed techniques including on-going community consultation and the preparation of a comprehensive Construction Environmental Management Plan.

Attachment 11 – Detailed Social Impact Study

Attachment 12 – 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.

Only relatively small extents of the alignments will require mitigation. Refer to section 5.6 of the Noise report. The locations where noise monitoring was undertaken is shown in Figure 1.

VicRoads' Traffic Noise reduction Policy 2005 has been used to establish the Project Objective Noise Levels (PONLs).

VicRoads' Traffic Noise Reduction Policy 2005 states that noise from new or upgraded roads should be limited to the objectives set out below, or the level that would have prevailed if the road upgrade had not occurred, whichever is greater.

Category A – For residential dwellings, aged persons homes, hospitals, motels, caravan parks and other buildings of a residential nature, the noise level objective will be 63dB(A) L10 (18hr) measured between 6am and midnight, (L10: the sound pressure level that is exceeded for 10% of the time for which the given sound is measured).

Category B – For schools, kindergartens, libraries and other noise sensitive community buildings, the noise level objective will be 63dB(A) L10 (12 hr) measured between 6am and 6pm.

Where the noise level adjacent to Category A or B buildings prior to road improvements is less than 50dB(A) L10 (18), consideration will be given to limiting the noise level increase to 12dB(A).

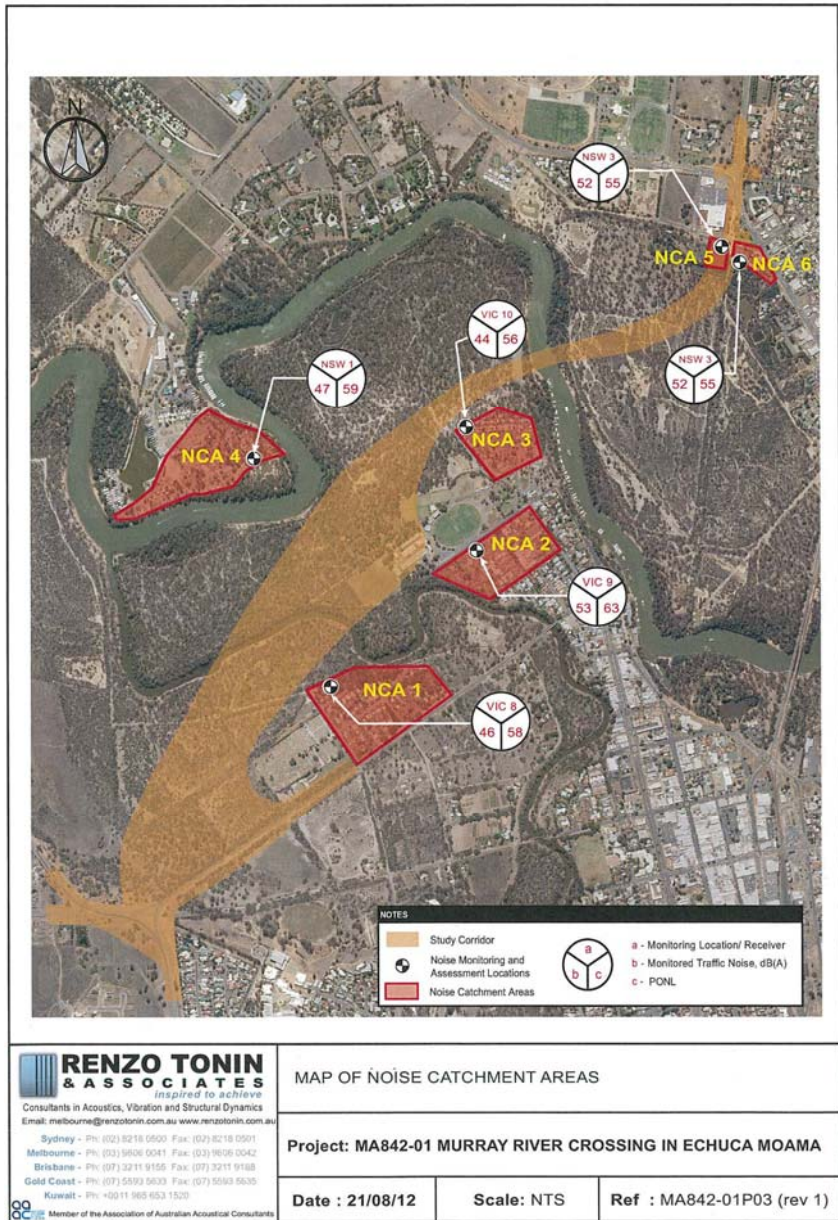


Figure 1 – Map of noise monitoring locations

Changes in noise levels in 2023 with and without the project is presented below in Tables 1 and 2.

NCA	PONL	Do Nothing	Predicted Noise Levels ¹		Change in Noise Levels	
			With Mgmtn	W/O Mgmtn	With Mgmtn	W/O Mgmtn
1	58	46 ²	53	53	+7	+7
2	63	53 ²	54	55	+1	+2
3	56	44 ²	56	60	+12	+16
4	59	47 ²	54	54	+7	+7
5	55	53 ³	62	64	+9	+11
6	55	53 ³	54	65	+1	+12
Average change in noise level					+6	+9

- Note
1. 'Do nothing' noise levels in NCAs 1-4 are dominated by natural sounds, accordingly the 'total predicted noise levels' are derived from a sum of predicted traffic noise and ambient natural noise.
 2. 'Do nothing' noise levels are derived from noise monitoring results as ambient noise levels in 2023 with no project will be dominated by natural sounds which are not expected to change during the period 2011 – 2023.
 3. 'Do nothing' noise levels are based on CoRTN modelling for the year 2023 as ambient noise levels at the receiver locations are dominated by road traffic noise.

Table 1 – Change in Noise Levels due to Option 2A with respect to 2023 Noise Levels without the Project dB(A)

NCA	PONL	Do Nothing	Predicted Noise Levels ¹		Change in Noise Levels	
			With Mgmtn	W/O Mgmtn	With Mgmtn	W/O Mgmtn
1	58	46 ²	57	57	+11	+11
2	63	53 ²	57	57	+4	+4
3	56	44 ²	56	60	+12	+16
4	59	47 ²	52	52	+5	+5
5	55	53 ³	62	64	+9	+11
6	55	53 ³	54	65	+1	+12
Average change in noise level					+7	+10

- Note
1. 'Do nothing' noise levels in NCAs 1-4 are dominated by natural sounds, accordingly the 'total predicted noise levels' are derived from a sum of predicted traffic noise and ambient natural noise.
 2. 'Do nothing' noise levels are derived from noise monitoring results as ambient noise levels in 2023 with no project will be dominated by natural sounds which are not expected to change during the period 2011 – 2023.
 3. 'Do nothing' noise levels are based on CoRTN modelling for the year 2023 as ambient noise levels at the receiver locations are dominated by road traffic noise.

Table 2 – Change in Noise Levels due to Option 2B with respect to 2023 Noise Levels without the Project dB(A)

Changes in noise levels due to the project range from 0dB to +25dB, with average changes ranging from +10dB to +14dB. Overall these changes are significant. The main reason for these significant changes is that the proposed alignments pass through relatively undeveloped, quiet area. However one benefit of such alignments is that they may affect a lower number of residential properties than would otherwise be the case if the alignments passed through more developed, built-up areas.

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.

Option 2A would not require acquisition of residential properties in Victoria. Option 2B requires acquisition of part of a residential property between Jarman Street and Campaspe Esplanade south west of Homan Street adjacent to the cemetery. The project would not result in any severance of residential access to community resources. Access to the Scenic Drive and Campaspe Esplanade will be maintained across/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. This is unlikely to affect the use of the area.

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 now relocated the school to a new site in Butcher Street, Echuca. The former school site has now been cleared of all buildings.

Several sporting clubs and recreational land use activities in Victoria Park would be indirectly impacted by the project. Option 2B would have a 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 for either Option 2A or 2B. A small public toilet block near the boat ramp will need to be replaced.

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 to accommodate either option 2A or 2B.

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.

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 Echuca 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 particularly for Option 2B.

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;
- Extensive bush walking/running and cycling trails; and
- Scenic Drive vehicle roadway following the Campaspe and Murray Rivers.
- Picnicking facilities located along the river banks at scenic locations.

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. Where appropriate road authority guidelines are triggered compliant noise mitigation treatments would be used to mitigate these indirect effects. Appropriate landscape treatments would be provided to mitigate 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:

- Implementation of noise attenuation measures if required and consistent with VicRoads' Traffic Noise Reduction Policy.
- Sensitive landscape treatment of the new road through the different sections of Victoria Park.
- Reconfiguration of informal walking tracks within bushland and other areas of Victoria Park.

- Provision of pedestrian and cycling on/off ramp on southern side of the Murray River at Victoria Park.
- Mitigation of any direct impacts on the lawn tennis courts in Victoria Park with any proposal for reinstatement to be determined through detailed consultation with relevant stakeholders.
- Appropriate junction design at the Murray Valley Highway having regard to accessibility requirements of residents to the west of the Murray Valley Highway, especially residents of the Cunningham Downs community.
- Upgrading of the surface of Warren Street consistent with its current and future traffic functions and provision of bicycle lanes.

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 Cultural Heritage Study has 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 61 registered Aboriginal archaeological sites within the geographic region of the study corridors. The vast majority of these Indigenous archaeological sites are scar trees or have scarred tree component (n=48, 79%). Shell middens (n=8), earth features (n=2), Aboriginal Places (n=1), and Human burials (n=1). There are 28 scarred trees within or adjacent to the study area in Victoria which were identified during investigations for this study. The concept design footprint avoids the majority of these scar trees. Where scar trees are located in the concept design embankment footprint, mitigation measures, such as, retaining walls are to be provided.

Option 2A

Eight Archaeological sites (all scar trees) are located in the ROW. All eight scar trees can be protected. One scarred tree lies within the road embankment but retaining walls would be provided to protect it. Another scar tree would require some pruning. Option 2A passes over an area of the sandhill where there is a high risk that significant archaeological sites and human remains may be found.

Option 2B

Five archaeological sites (all scar trees) are located in the ROW. All five scar trees can be protected. One scar tree lies within the road embankment but a retaining wall would be provided to protect it. A second scar tree would require some pruning. Option 2B crosses a remnant of the sandhill in a location where a proposed construction method has been agreed with the Yorta Yorta Nations Aboriginal Corporation (YYNAC).

A Cultural Heritage Management Plan (CHMP) would provide for ongoing protection of all scarred tree sites and for non-excavation through the sandhill for Option 2B. Option 2A would require some excavation in the sandhill to provide for bridge piers. Agreement to sub-surface testing would be required from the Yorta Yorta.

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 two cultural heritage places listed on the Victorian Heritage Inventory within the study area.

Is mitigation of potential cultural heritage effects proposed?

NYD No Yes If yes, please briefly describe.

Mitigation measures recommended in the Detailed Aboriginal Cultural Heritage Study include:

Option 2A

- All eight scar trees in the ROW can be protected by suitable fencing during construction and beyond.
- A retaining wall/protective barrier is proposed at one site to ensure that it remains unaffected. Pruning of one scar tree close to the bridge structure is proposed to allow retention of this scar tree.
- Mid-West 2A Option passes over an area of the sandhill where there is a high risk that significant archaeological sites and human remains may be found. Appropriate archaeological investigations in the form of sub-surface testing would be required in areas of the sand hill where excavation is contemplated, even if the latter occur in areas which have already been used as borrow pits. This is because the sand is considerably deeper than the surface of the floodplain. The testing would be required to determine whether buried Aboriginal archaeological sites, potentially ancient archaeological sites and human remains are contained within the excavation footprint.
- A Cultural Heritage Management Plan (CHMP) will be prepared for the project (project proposals and consultation arrangements have been agreed verbally by the YYNAC).

Option 2B

- All five scar trees in the ROW can be protected by suitable fencing during construction and beyond.
- Retaining walls/protective barriers are proposed at one site to ensure that it remain unaffected. Pruning of one scar tree close to the bridge structure is proposed to allow retention of this scar tree.
- The concept design provides for a gradeline and concrete pavement above the level of the remnant sandhill north of the Echuca Secondary College property in order to avoid sand excavation and protect potential Aboriginal artefacts and burial 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 CO₂ equivalent per annum

- Between 50,000 and 100,000 tonnes of CO₂ equivalent per annum
- Between 100,000 and 200,000 tonnes of CO₂ equivalent per annum
- More than 200,000 tonnes of CO₂ 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 senior representations of VicRoads, RMS, Campaspe Shire Council and Murray Shire Council and Yorta Yorta Nation Aboriginal Corporation 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, Mal Kersting.....(full name),

VicRoads Regional Director Northern Victoria.....(position), confirm that the information contained in this form is, to my knowledge, true and not misleading.



Signature _____

Date

Person who prepared this referral:

I, Andrew Milvain.....(full name),

Senior Planning Engineer.....(position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature Andrew A. Milvain

Date 1/2/2013

LIST OF ATTACHMENTS

Attachment 1 – Map of the Mid West 2 Corridor Study Area

Attachment 2 – Concept Design Drawings

Attachment 3 – Land Use Study

Attachment 4 – Current Zoning Controls

Attachment 5 – Detailed Flora and Fauna Study

Attachment 6 – Aquatic Flora and Fauna Study

Attachment 7 – Cultural Heritage Report

Attachment 8 – Detailed Hydrology Study

Attachment 9 – Geotechnical Risk Register

Attachment 10 – Detailed Traffic Modelling Study

Attachment 11 – Detailed Social Impact Study

Attachment 12 – Noise Impact Assessment Study