

# Minor Consistency Review Report Appendix J

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# Technical and Approvals Consultancy Services: Parkes to Narromine

## Minor Consistency Review Report

### Grade Separation Changes to Brolgan Road and Coopers Road

February 2018

3-0001-240-EAP-00-RP-0001



## Prepared for

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## Glossary

|         |   |
|---------|---|
| AEP     | Annual Exceedance Probability                     |
| AHIMS   | Aboriginal Heritage Information Management System |
| ARTC    | Australian Rail Track Corporation                 |
| CEEC    | Critically Endangered Ecological Community        |
| CEMP    | Construction Environmental Management Plan        |
| dB(A)   | Decibel A-weighted                                |
| EEC     | Endangered Ecological Community                   |
| EIS     | Environmental Impact Statement                    |
| EPL     | Environmental Protection Licence                  |
| IS      | Infrastructure Sustainability                     |
| ISCA    | International Sustainability Council of Australia |
| km      | kilometres  |
| m       | metres  |
| MCR     | Minor Consistency Review                          |
| NSW     | New South Wales                                   |
| ONVR    | Operational Noise and Vibration Report            |
| Project | Inland Rail, Parkes to Narromine                  |
| RMS     | Roads and Maritime Services                       |

# 1 Introduction

## 1.1 Background

The *Parkes to Narromine Project Environmental Impact Statement* (ARTC, 2017) (the EIS) was submitted in June 2017 and placed on public exhibition for 30 days between July 2017 and August 2017. The EIS is currently at the status of proponent reviewing submissions. Approval from the Minister for Planning is pending. Detailed design has indicated that the preferred option is to retain the level crossing at Brolgan Road and Parkes Shire Council requested that Coopers Road remain open.

A Minor Consistency Review (MCR) has been prepared to assess the proposed change in design of the Brolgan Road overbridge to a level crossing and the change in design of the Coopers Road closure to a level crossing located at the Coopers Road. This report has been prepared to determine whether the proposed changes to Brolgan Road and Coopers Road are generally consistent with the impacts, as described in the EIS.

## 1.2 Purpose

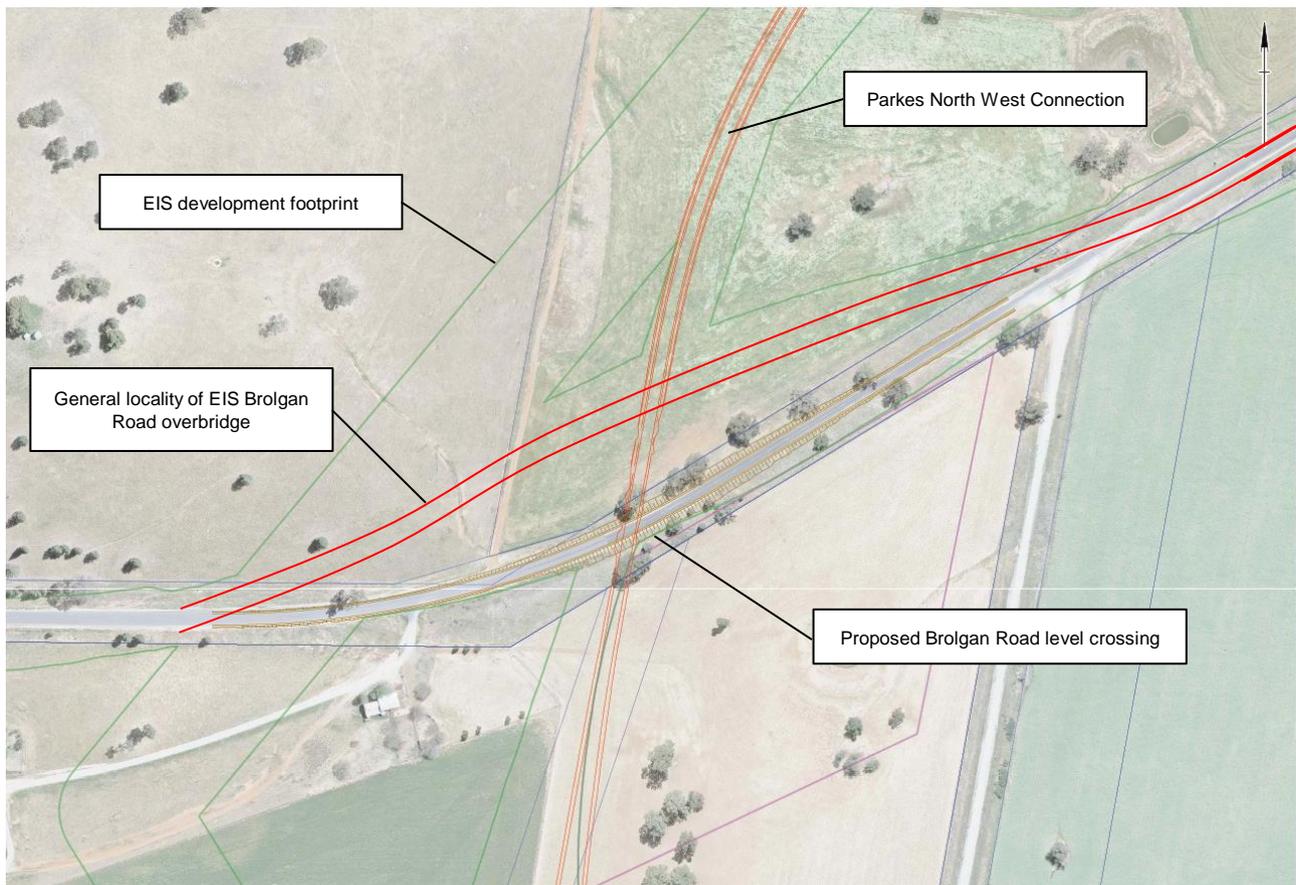
The Inland Rail, Parkes to Narromine (the 'Project') MCR, assesses the design change from a road overbridge to a level crossing at Brolgan Road, Parkes and from a road closure to a level crossing at Coopers Road, Parkes. The purpose of the MCR is to:

- Describe the proposed activity / design refinement relative to the Project;
- Support the response to submissions, particularly raised by Roads and Maritime Services (RMS) in relation to Brolgan Road and Parkes Shire Council in relation to Coopers Road;
- Provide a road connection across the Parkes North West Connection at Brolgan Road and Coopers Road;
- Assess the environmental and social risks, associated with the proposed changes; and
- Determine whether the proposed activity is consistent with the EIS submission.

## 2 Proposed Works

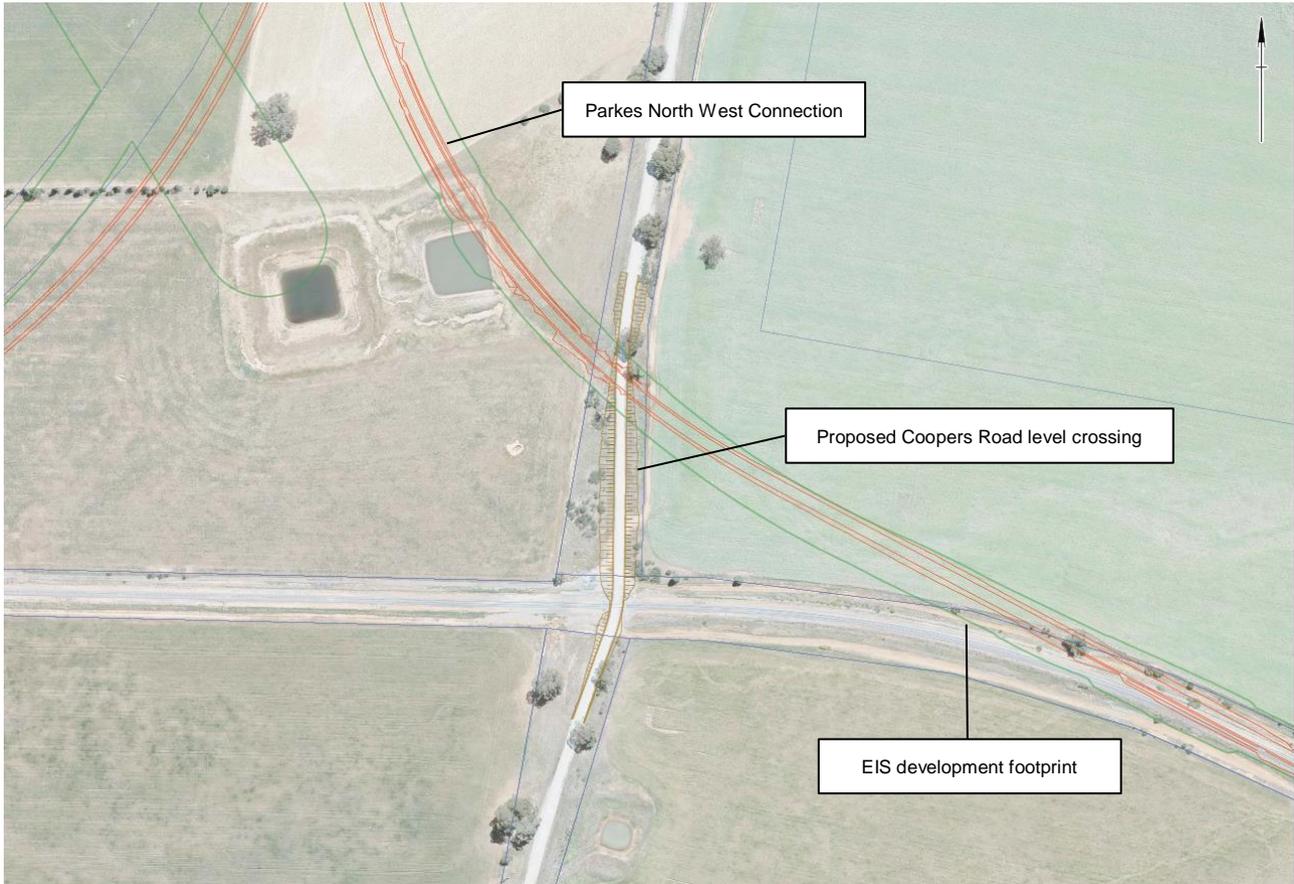
### 2.1 Works Location

The Brolgan Road level crossing is located within the proposed Parkes North West Connection, that was proposed as part of the EIS. The extent of disturbance is within the assessed area of the EIS, with the location of the EIS reference design of the Brolgan Road overbridge being located further north, as a greenfield alignment. The detailed design proposal to change Brolgan Road to a level crossing does not alter its existing alignment. Brolgan Road is located approximately 3.5 kilometres (km) from Parkes Railway Station. Figure 2.1 displays the location and extent of works of the proposed Brolgan Road level crossing and the EIS development site footprint.



**Figure 2.1** Location and extent of Parkes North West Connection, the proposed Brolgan Road level crossing, the general locality of the EIS Brolgan Road overbridge and the EIS development site area

The Coopers Road level crossing is located within the proposed Parkes North West Connection, that was proposed as part of the EIS. The extent of disturbance is outside the development site area/construction impact area of the EIS. Coopers Road is located approximately 3km from Parkes Railway Station. Figure 2.3 displays the location and extent of works of the Coopers Road level crossing as proposed in Detailed Design. Figure 2.4 displays the proposed Coopers Road level crossing extents in relation to the EIS development site.



**Figure 2.2** Location and extent of Parkes North West Connection, the proposed Coopers Road level crossing and the EIS development site area

## 2.2 Works Description

The proposed activity that is subject of this MCR, is for the construction works associated with the level crossing of Brolgan Road and Coopers Road, Parkes. The strategy for implementing the level crossing, two culverts at Brolgan Road and any necessary drainage works is the same works description as what was described in the EIS.

The sites will be accessed via the existing road reserve and proposed railway areas. No further access tracks will be required.

### 3 Environmental consistency review

An EIS consistency review of the proposed activity has been undertaken and is provided below in Table 3-1.

**Table 3.1 EIS consistency review**

| Aspect                               | EIS impact  | Proposed change impact  | Overall impact  |
|--------------------------------------|---|---|---|
| <b>Traffic, transport and access</b> | <p>The assessed risk level for the majority of potential risks to traffic and transport was between low and high. Risks with an assessed level of medium or above include:</p> <ol style="list-style-type: none"> <li>1) Construction traffic impacts, including temporary delays to local and regional traffic;</li> <li>2) Impacts to emergency services through delays in access due to works;</li> <li>3) Impacts on access to private properties;</li> <li>4) Impacts to rural roads unsuitable for construction traffic; and</li> <li>5) Increase in travel times due to increase in level crossing waiting times associated with increasing length and frequency of trains.</li> </ol>                                       | See below for further detail.   | <p>Greater impact during construction and operation to road users, but reduced impact during construction for required truck movements.</p> <p>Generally consistent with the EIS.</p> |
|                                      | <p>The EIS stated that a large portion of the Project's earthworks would be associated with construction of the Parkes North West Connection. This would impact on increased amount of vehicle movement associated with spoil delivery in this area. To accommodate this impact, the new Brolgan Road overbridge would be mainly constructed on a separate alignment which would minimise disruption to the road network. The bypassed section of Brolgan Road, approximately 1.1km was to be left for local access purposes, after consultation with Parkes Shire Council.</p> <p>The EIS design had the closure of Coopers Road, during construction with alternative access to Coopers Road via Brolgan Road or London Road,</p> | <p>The construction of Brolgan Road level crossing is required to be undertaken while Brolgan Road remains open and will therefore directly impact on the daily road users. These impacts will include temporary road closures, active traffic management and detours. It should be noted that the proposed Brolgan Road level crossing impact area is significantly smaller in footprint than the overbridge, and will therefore have less impact associated with plant movements during construction. However, the primary impact, will be the increased impact on the existing Brolgan Road and its existing road users.</p> <p>The proposed change impact will have short term impacts on Coopers Road, associated with temporary road closures and detours during construction. The road will be open during operation of the railway line, potentially resulting in a decrease to the travel distance to Parkes, but will</p> |   |

| Aspect | EIS impact  | Proposed change impact  | Overall impact |
|--------|---|---|----------------|
|        | <p>increasing the travel distance to Parkes by approximately 2.1km. This increase was not considered a significant impact, in the context of the number of people who would be affected and the existing travel distance to Parkes. The EIS stated that any road realignment as a result of Parkes North West Connection would be determined during the detailed design phase where further investigations and consultation with stakeholder will be undertaken.</p>  | <p>result in a time delay, due to the operation of the level crossing (see below for further information on level crossings).</p>   |                |
|        | <p>As stated above, Brolgan Road overbridge was designed to be constructed offline and Coopers Road was designed to be closed during construction and the operation was to be determined during the detailed design phase. There will be temporary and permanent impacts to emergency services and private property.</p> <p>These impacts can be managed by the following mitigation measures: implementation of a traffic management plan and appropriate controls, consultation with relevant stakeholders (including local council, bus operators, Roads and Maritime Services, emergency services and affected property owners / occupants). Where changes to access arrangements are required, ARTC would advise property owners / occupiers and consult with them in advance regarding alternative access arrangements.</p> | <p>Changes to the movement of traffic and access arrangements, resulting from construction of the level crossing could result in temporary increase in the distance travelled and delays for some residents, emergency services and regional bus services in this area. These impacts would be short term in nature, with the exception of delays associated with the operation of the level crossings (see below). The overall emergency response times are not expected to significantly be impacted. These impacts can be managed by mitigation measures, as discussed in the EIS.</p> <p>Consultation with emergency services and other stakeholders will be required to make them aware of delays during construction.</p> |                |
|        | <p>Limited information was supplied in relation to suitability of rural roads for construction traffic.</p>   | <p>Brolgan Road and Coopers Road is suitable for construction traffic.</p>  |                |
|        | <p>The EIS stated that there will be a medium risk to traffic and transport from the increase in travel times, due to the waiting times at the level crossing associated with train movements. The EIS stated that there will be a total maximum delay of 122 seconds. This delay would likely decrease to 109 seconds' maximum delay, by year 2040, with the increasing train speeds. However, the length of</p>   | <p>Given the low traffic volume and local nature of Brolgan Road and Coopers Road, the impact of level crossing is expected to affect a small volume of cars and have a localised impact only.</p> <p>Consultation with emergency services and other stakeholders, will be required to make them aware of delays during operation.</p>  |                |

| Aspect              | EIS impact  | Proposed change impact   | Overall impact  |
|---------------------|---|--|---|
|                     | trains and the frequency of trains was predicted to increase for the Inland Rail line (not specified for the Parkes North West Connection), which would increase in the duration of time for which road traffic could be delayed.   |  |   |
| <b>Biodiversity</b> | <p>The assessed risk level for the majority of potential risks to biodiversity was between low and medium. Risks with an assessed level of medium or above include:</p> <ul style="list-style-type: none"> <li>• Clearing of native vegetation resulting in loss of fauna habitat, habitat fragmentation and loss of connectivity;</li> <li>• Direct impacts on terrestrial threatened species and endangered populations and communities from clearing;</li> <li>• Direct impacts on aquatic threatened species and endangered populations and communities from clearing;</li> <li>• Increased potential for the occurrence and spread of pest plants and animals during construction and maintenance from movement of vehicles, machinery and materials in and out of the site, particularly in greenfield sections such as the Parkes North West Connection;</li> <li>• Indirect impacts due to increased dust, sedimentation and erosion, noise, light;</li> <li>• Disturbance to aquatic habitats and reduced water quality as a result of fugitive sediments and altered hydrology;</li> <li>• Alterations to surface water flow regimes and interruptions to fish passage; and</li> <li>• Fauna mortality from vehicle strikes.</li> </ul> <p>The potential impacts to biodiversity could be avoided by managing biodiversity in accordance with relevant legislative and policy requirements;</p> | <p>Brolgan Road and Coopers Road are mapped within cleared, non-native vegetation of Goonumbla Hills Mitchell Landscapes. The area has been significantly impacted by agricultural activities, resulting in a loss of connectivity, fauna habitat and significant habitat fragmentation.</p> <p>Flora surveys were undertaken within the proposed work area of the Brolgan Road level crossing, but not the full extents of the proposed work area of the Coopers Road level crossing. No significant biodiversity values were noted for the proposed Brolgan Road area or in the direct vicinity of Coopers Road.</p> <p>The proposed Brolgan Road level crossing is significantly smaller in footprint and generally located in existing disturbed areas. This will result in a reduction in potential impact to biodiversity values and the spread of weeds during construction and operation.</p> <p>The proposed Coopers Road level crossing is slightly larger in footprint (refer Figure 2.2). This area is located within the EIS assessed 550m buffer area. No significant biodiversity values were identified in the EIS and it is therefore unlikely that any biodiversity values will be impacted on.</p> <p>Indirect impacts to dust, sedimentation, erosion, noise and light have been discussed in their relevant aspects.</p> <p>There are no watercourses identified in the EIS at Brolgan Road or Coopers Road. It is not anticipated that the proposed change at Coopers Road will additionally impact on watercourses, aquatic habitats or fish passage.</p> <p>It is unlikely that the proposed works will impact on fauna mortality from vehicle strikes.</p> <p>A pre-construction clearance survey will be undertaken to confirm the potential impact to biodiversity at Coopers Road, as per usual project requirements. Based on existing information it is unlikely that any biodiversity values will be present.</p> | <p>Likely to be equivalent or lower during construction and operation, subject to biodiversity pre-construction survey at Coopers Road prior to works being undertaken.</p> <p>Generally consistent with the EIS.</p> |

| Aspect                                       | EIS impact   | Proposed change impact   | Overall impact   |
|--|--|--|--|
|  | and implementing the biodiversity mitigation measures outlined in the EIS.   |  |  |
| <b>Noise and vibration (amenity impacts)</b> | <p>Risks with an assessed level of medium or above included:</p> <ol style="list-style-type: none"> <li>1) Noise impacts on local residents and sensitive receivers from construction activities, particularly during work outside recommended standard working hours;</li> <li>2) Noise impacts on local residents and sensitive receivers from construction traffic; and</li> <li>3) Noise impacts on local residents and sensitive receivers from the operation of trains.</li> </ol> <p>Potential noise and vibration impacts would be avoided by designing, constructing and operating the proposal to minimise the potential for noise and vibration (amenity) impacts; implementing the Inland Rail Construction Noise and Vibration Management Framework; and implementing mitigation measures.</p> <p>The EIS stated that the construction of the Brolgan Road overbridge was expected to exceed the maximum predicted level of exceedance above 35 decibel A-weight (dB(A)) by 18 dB(A) at 2 receivers. This is based on an adopted sound power level of 117 dBA for the equipment involved (Scenario 14 in the EIS).</p> <p>Brolgan Road was expected to take 10 months to construct.</p> <p>Piling would be required to construct the Brolgan Road overbridge, however given that the nearest receiver was outside the human comfort buffer distance, no impacts were predicted i.e. the</p> | <p>See below for further detail.</p> <p>The EIS states that the adopted sound power level for the equipment involved for the level crossing works (Scenarios 5, 6 and 7 in the EIS) ranges between 109 dB(A) to 116 dB(A).</p> <p>The equipment involved for the level crossing works on Brolgan Road is as a worst-case scenario as noisy as the equipment involved for the Brolgan Road overbridge construction, and will be operated in a similar location. For this reason, it is expected that the impact would be similar.</p> <p>In addition, the overbridge was predicted to take 10 months to construct whereas the level crossings will only take 6 weeks to construct.</p> <p>Feasible and reasonable mitigation measures, including those identified in the EIS would be required to minimise the potential impacts predicted.</p> <p>Piling will not be required for construction of the level crossing at Brolgan Road or Coopers Road. For Brolgan Road, the proposed works will be undertaken nearer to sensitive receivers than the Brolgan Road overbridge. The new level crossing works are located 160m from the nearest receiver.</p> | <p>Equivalent to lower during construction.</p> <p>Greater during operation.</p> <p>Through the implementation of mitigation measures in the ONVR, impacts will be mitigated at the single sensitive receiver to be generally consistent with the EIS.</p> |

| Aspect  | EIS impact  | Proposed change impact  | Overall impact   |                       |                      |  |       |            |            |            |                      |  |  |  |   |      |      |      |  |
|---|---|---|--|-----------------------|----------------------|--|-------|------------|------------|------------|----------------------|--|--|--|---|------|------|------|--|
|   | <p>nearest receptor was approximately 400 metres away.</p> <p>The EIS identified that the main source of noise during operation in these areas will be from operation of trains</p>   | <p>It is unlikely that receivers will be impacted on by vibration causing activities.</p> <p>Additional noise will be created from the operation of horns at level crossings. Horns are a safety device and are a normal part of train operations. Trains are generally required to sound their horns as they pass through level crossings. Train horns can be a source of annoyance for the general public. The nearest sensitive receiver is located approximately 160m from the level crossing at Brolgan Road and 600m from the level crossing at Coopers Road. The minimum distance from the horn required to achieve the RING trigger value is shown in the table below. It is likely that the horn noise generated during operation will exceed at one sensitive receiver. Through the implementation of mitigation measures in the Operational Noise and Vibration Review (ONVR), impacts will be mitigated at the single sensitive receiver to be generally consistent with the EIS.</p> <table border="1" data-bbox="920 699 1720 1106"> <thead> <tr> <th data-bbox="920 699 1120 778">Item</th> <th data-bbox="1120 699 1319 778">High noise level horn</th> <th colspan="2" data-bbox="1319 699 1720 778">Low noise level horn</th> </tr> </thead> <tbody> <tr> <td data-bbox="920 778 1120 831">Speed</td> <td data-bbox="1120 778 1319 831">Stationary</td> <td data-bbox="1319 778 1518 831">Stationary</td> <td data-bbox="1518 778 1720 831">Stationary</td> </tr> <tr> <td data-bbox="920 831 1120 970">External noise limit</td> <td data-bbox="1120 831 1319 970">88 dB(A) minimum, measured 200m in front</td> <td data-bbox="1319 831 1518 970">85 dB(A) minimum, measured 100m in front</td> <td data-bbox="1518 831 1720 970">90 dB(A) minimum, measured 100m in front</td> </tr> <tr> <td data-bbox="920 970 1120 1106">Minimum distance to achieve <math>L_{Amax}</math> 85 dB(A)</td> <td data-bbox="1120 970 1319 1106">282m</td> <td data-bbox="1319 970 1518 1106">100m</td> <td data-bbox="1518 970 1720 1106">180m</td> </tr> </tbody> </table> | Item   | High noise level horn | Low noise level horn |  | Speed | Stationary | Stationary | Stationary | External noise limit | 88 dB(A) minimum, measured 200m in front | 85 dB(A) minimum, measured 100m in front | 90 dB(A) minimum, measured 100m in front | Minimum distance to achieve $L_{Amax}$ 85 dB(A) | 282m | 100m | 180m |  |
| Item  | High noise level horn   | Low noise level horn  |  |                       |                      |  |       |            |            |            |                      |  |  |  |   |      |      |      |  |
| Speed   | Stationary  | Stationary  | Stationary   |                       |                      |  |       |            |            |            |                      |  |  |  |   |      |      |      |  |
| External noise limit                            | 88 dB(A) minimum, measured 200m in front  | 85 dB(A) minimum, measured 100m in front  | 90 dB(A) minimum, measured 100m in front   |                       |                      |  |       |            |            |            |                      |  |  |  |   |      |      |      |  |
| Minimum distance to achieve $L_{Amax}$ 85 dB(A) | 282m  | 100m  | 180m   |                       |                      |  |       |            |            |            |                      |  |  |  |   |      |      |      |  |
| <p><b>Vibration (structural impacts)</b></p>    | <p>Potential risks were rated between low and medium, and included:</p> <ul style="list-style-type: none"> <li>• Damage to structures from vibration caused by construction activities; and</li> <li>• Damage to structures from vibration caused by the operation of trains.</li> </ul> <p>Generally potential vibration impacts would be avoided by designing, constructing and operating</p> | <p>There is no heritage listed buildings or sensitive structures within the vicinity of the Brolgan Road overbridge or Coopers Road that may be impacted by vibration.</p>  | <p>Equivalent during construction and operation.</p> <p>Generally consistent with the EIS.</p> |                       |                      |  |       |            |            |            |                      |  |  |  |   |      |      |      |  |

| Aspect                         | EIS impact  | Proposed change impact   | Overall impact  |
|--------------------------------|---|--|---|
|                                | <p>the proposal to minimise the potential for vibration; and implementation of mitigation measures.</p> <p>There is no heritage listed buildings or sensitive structures within the vicinity of the Brolgan Road overbridge or Coopers Road that may be impacted by vibration. The safe working distance for standard dwellings is between 2m and 18m and for heritage building is between 3m and 35m.</p>  |  |   |
| <b>Air quality</b>             | <p>The assessed risk level for the majority of potential risks to air quality was between low and medium. Risks with an assessed level of medium or above include:</p> <ul style="list-style-type: none"> <li>• Generation of dust during construction (from exposed soil/stockpiles, excavation, and vehicle movements); and</li> <li>• Emissions from vehicles or plant during construction.</li> </ul> <p>Generally, potential air quality impacts would be avoided by managing air quality with relevant legislative, policy and EPL requirements and applying air quality measures during construction.</p>  | <p>Construction of the level crossing at Coopers Road will slightly increase the duration and footprint of exposed works and potential for air quality impacts during construction.</p> <p>Construction of the level crossing at Brolgan Road will significantly decrease in impact, as a result of:</p> <ul style="list-style-type: none"> <li>• The reduction in footprint, compared to the overbridge;</li> <li>• The duration required for construction i.e. from 10 months to 6 weeks;</li> <li>• The reduction in deliveries required for the construction activities; and</li> <li>• Generally, the use of existing disturbed area and sealed roads, compared to the greenfield area for the overbridge and access road.</li> </ul> <p>Impacts can be managed by mitigation measures as discussed in the EIS.</p>   | <p>Significantly lower during construction.</p> <p>Equivalent during operation.</p> <p>Generally consistent with the EIS.</p> |
| <b>Soils and contamination</b> | <p>The assessed risk level for the majority of potential risks to soils, and from contamination, was between low and medium. Risks with an assessed level of medium or above include:</p> <ul style="list-style-type: none"> <li>• Impacts associated with the disturbance of contaminated soils during construction;</li> <li>• Increased erosion and sedimentation due to excavation activities and vehicle movement;</li> <li>• Contamination of soils/groundwater due to spills and leaks during construction; and</li> <li>• Changes to the surface, including as a result of vegetation removal and the creation of embankments, increasing the potential for erosion and sedimentation.</li> </ul> | <p>Contaminated soils are not expected at either location, given works will be contained within the existing road reserve i.e. works do not impact on the TP33 building (potential asbestos) or existing railway line.</p> <p>Construction of the level crossing at Brolgan Road will greatly decrease the potential impact from erosion and sediment, as a result of:</p> <ul style="list-style-type: none"> <li>• The reduction in footprint, compared to the overbridge;</li> <li>• The duration required for construction i.e. from 10 months to 6 weeks;</li> <li>• The reduction in deliveries required for the construction activities; and</li> <li>• Generally, the use of existing disturbed area and sealed roads, compared to the greenfield area for the overbridge and access road</li> </ul> <p>Construction of the level crossing at Coopers Road will slightly increase the duration and footprint of exposed works and potential for erosion and</p> | <p>Lower during construction.</p> <p>Equivalent during operation.</p> <p>Generally consistent with the EIS.</p>               |

| Aspect                               | EIS impact  | Proposed change impact   | Overall impact  |
|--------------------------------------|---|--|---|
|                                      | <p>Potential soils and contamination impacts would be avoided by managing contamination in accordance with relevant legislative and policy requirements; designing, constructing and operation the proposal to minimise impacts from soil issues; and implementing soil and contamination mitigation measures.</p>  | <p>sediment during construction, but will be managed in accordance with standard procedures as stipulated in the EIS.</p> <p>There will be some changes to the permanent surface, including the result of any vegetation removal on the road reserve and the creation of embankments, which could result in erosion and sedimentation impacts at both level crossing locations. However, impacts can be managed by mitigation measures, as discussed in the EIS and restoration design and implementation.</p> <p>There are no changes during operation.</p>   |   |
| <p><b>Hydrology and flooding</b></p> | <p>The assessed level for the majority of potential risks was medium to high. Risks with an assessed level of medium or above included:</p> <ul style="list-style-type: none"> <li>• Impact of flooding on unprotected areas during construction resulting in wash-outs or erosion;</li> <li>• Temporary impact to the behaviour of local surface water systems during construction;</li> <li>• Presence of or change to structures associated with the proposal could impact upstream and downstream local flood behaviour;</li> <li>• Change to structures associated with the proposal and track height could impact upstream and downstream regional flood behaviour;</li> <li>• Changes to flow patterns and altered hydrology due to construction in watercourses;</li> <li>• Blockages of flow paths affecting low flows through construction within watercourses and through erosion and sedimentation control structures;</li> <li>• Sedimentation and changes to geomorphology in watercourses;</li> <li>• Impacts on upstream and downstream drainage due to the introduction of structures such as embankments and culverts; and</li> </ul> | <p>Brolgan Road and Coopers Road are located within an “increase in flood extent” and local flooding area. The impact to flooding at Coopers Road will be equivalent, given the tracks are raised higher than the level crossing. The impact to flooding at Brolgan Road will be lower, given that the overbridge that is equivalent to filling a flood area will no longer be built and a level crossing lower than the tracks is proposed.</p> <p>The impact will be equivalent for Coopers Road as both the level crossing and track are located within a drainage line, and therefore any requirements to avoid impact to flow patterns, altered hydrology, local surface water systems, blockages of flow paths, sedimentation, changes to geomorphology of watercourses will be consistent with the requirements for construction and operation of the track.</p> <p>The impact will be slightly changed for Brolgan Road, given the construction of two culverts alongside the track, as part of the construction of the level crossing. Mitigation measures identified in the EIS will be followed to ensure there are no impacts on upstream and downstream drainage. The main change to Brolgan Road will be the lack of the overbridge, which may have impacted on local surface water systems and impacts on upstream and downstream drainage.</p> | <p>Equivalent or lower during construction and operation.</p> <p>Generally consistent with the EIS.</p> |

| Aspect               | EIS impact   | Proposed change impact   | Overall impact  |
|----------------------|--|--|---|
|                      | <ul style="list-style-type: none"> <li>Direct and indirect impacts on waterfront land as defined by the <i>Water Management Act 2000</i>.</li> </ul> <p>Potential flooding impacts and modifications to surface and groundwater flow would be avoided by: locating key infrastructure outside the one per cent Annual Exceedance Probability (AEP) flood prone areas; upgrading of culverts; construction of swales along the outside edges of track and formation; installation of culverts prior to or during tracking installation; use of pre-cast culverts; location of spoil mounds to minimise impacts on flows.</p>  |  |   |
| <b>Water quality</b> | <p>The assessed level for the majority of potential water quality risks was medium to high. Risks with an assessed level of medium or above include:</p> <ul style="list-style-type: none"> <li>Reduced water quality (including increased total suspended solids and turbidity) as a result of erosion and sedimentation near watercourses;</li> <li>Contamination due to spills and leaks;</li> <li>Impacts on groundwater quality and quantity during drawdown/extraction;</li> <li>Modification to existing drainage infrastructure resulting in water quality impacts; and</li> <li>Impact to surface water quality and receiving environments due to increased runoff from impervious areas.</li> </ul> <p>Potential water quality impacts would be avoided by: design of flow discharge points to minimise the risk of erosion; design of culverts to have minimal impact; location of structures at natural low points; incorporation of protection measures; design of batters and retaining structures to minimise erosion; design of ballast drainage to suitably discharge; selection of fill material to minimise erosion; pre-cast culverts; restricting the need for water extraction and implementation of water</p> | <p>There are no watercourses identified within or adjacent to Brolgan Road or Coopers Road and therefore are unlikely to impact on water quality.</p> <p>There is a drainage line (not mapped as a watercourse) that bisects the level crossing at Coopers Road, but the impact to the drainage line will be equivalent to the impacts associated with the construction and operation of the Parkes North West Connection.</p> <p>Culverts at Brolgan Road will be pre-cast and designed to minimise impact.</p> | <p>Equivalent or lower during construction and operation.</p> <p>Generally consistent with the EIS.</p> |

| Aspect                         | EIS impact  | Proposed change impact   | Overall impact   |
|--------------------------------|---|--|--|
|                                | quality mitigation measures and design control measures.  |  |  |
| <b>Aboriginal heritage</b>     | <p>The assessed risk level for Aboriginal heritage was given a high rating due to the potential disturbance of known or unidentified items or places of Aboriginal heritage significance.</p> <p>Potential impacts on Aboriginal heritage would be avoided by: designing, constructing and operating the proposal to minimise the potential for impacts on Aboriginal heritage; locating ancillary infrastructure to avoid listed Aboriginal Heritage Information Management System (AHIMS) sites and areas identified as having moderate to high archaeological potential; managing the potential impacts on Aboriginal heritage in accordance with relevant legislation; and implementing mitigation measures.</p>  | <p>There are no registered AHIMS sites or areas identified as having moderate to high archaeological potential within the vicinity of Brolgan Road and Coopers Road. A small extent of Coopers Road level crossing is outside the EIS assessed area, but within the AHIMS search area and 500m buffer area.</p> <p>A pre-construction survey is required to confirm the potential impact to Aboriginal cultural heritage at Coopers Road. Based on existing information it is unlikely that any Aboriginal values will be present.</p> | <p>Likely to be equivalent during construction and operation, subject to pre-construction surveys at Coopers Road prior to works being undertaken.</p> <p>Generally consistent with the EIS.</p> |
| <b>Non-Aboriginal heritage</b> | <p>The assessed risk level for the majority of potential heritage risks was medium. Risks with an assessed level of medium or above included:</p> <ul style="list-style-type: none"> <li>• Impacts on the heritage significance of any nearby heritage items as a result of altered arrangements and access; impacts to visual amenity, landscape and vistas, and curtilage, and any impacts as a result of noise mitigation measures;</li> <li>• Damage to heritage items from vibration during construction or operation; and</li> <li>• Disturbance of known or unidentified items or places of non-Aboriginal heritage significance.</li> </ul> <p>Potential impacts on heritage outside the rail corridor would be avoided by: designing, constructing and operating the proposal to minimise the potential for impacts outside the rail corridor; managing the potential impacts on non-Aboriginal heritage in accordance with relevant</p> | <p>There are no listed heritage items within the vicinity of Brolgan Road and Cooper Road. It is unlikely that non-Aboriginal heritage items will be impacted on.</p> <p>Impacts to be managed as the mitigation measures outlined in the EIS.</p>   | <p>Equivalent during construction and operation.</p> <p>Generally consistent with the EIS.</p>   |

| Aspect                       | EIS impact  | Proposed change impact  | Overall impact  |
|------------------------------|---|---|---|
|                              | legislation; and implementing the heritage mitigation measures.   |   |   |
| <b>Landscape and visual</b>  | <p>The assessed risk level for the majority of potential risks was between low and medium. Risks with an assessed level of medium or above include:</p> <ul style="list-style-type: none"> <li>• Adverse impacts on landscape character during construction, particularly in greenfield areas; and</li> <li>• Impacts on visual amenity due to the introduction of new built elements, and the removal of vegetation.</li> </ul> <p>The main potential landscape impact would be in the Goonumbla rolling countryside zone, as a result of the Parkes north west connection. Due to the flat topography of the area, views would be available of elevated structures (the overbridge), and the infrastructure would present as new features in this landscape, impacting on the typical character of this area.</p> <p>Potential impacts on landscape character and visual environment will be avoided by: designing, constructing and operating the proposal to minimise the potential for impacts outside the rail corridor and visual amenity; and managing the potential impacts on visual setting.</p> | <p>There will be minimal impact to visual amenity to the surrounding environment by construction of the level crossing, given the overall area will be impacted by the construction of the railway line.</p> <p>There is less impact to visual amenity for Brolgan Road crossing compared to the overbridge design, which was assessed as having a moderate to high level of visual modification. As stated in the EIS, the area within the Parkes north west connection is flat and any elevated structures would be highly visible.</p>   | <p>Significantly lower impact</p> <p>Generally consistent with the EIS</p>                              |
| <b>Land use and property</b> | <p>The assessed risk level for the majority of potential land use risks was medium to high. Risks with an assessed level of medium or above include:</p> <ul style="list-style-type: none"> <li>• Temporary impacts on land use during construction;</li> <li>• Impacts on agricultural practices during construction activities as a result of changes to access, noise, and air pollution; and</li> <li>• Impacts on land use as a result of property acquisition.</li> </ul>   | <p>The proposed change impact may impact on agricultural practices during construction of the Brolgan Road level crossing. The works will be required to be undertaken online and will directly impact on the operation of Brolgan Road, including temporary road closures and detours required. It should be noted that the proposed change impact area is smaller in footprint. This will result in a shorter duration of works and less vehicle movements associated with delivery and construction.</p> <p>The proposed change impact will have short term impacts on agricultural practices during construction of Coopers Road level crossing, associated with temporary road closures and detours during construction. The road will be open during operation of the railway line, resulting in a decrease to the travel distance to Parkes, but will result in a time delay, due to the</p> | <p>Equivalent or lower during construction and operation.</p> <p>Generally consistent with the EIS.</p> |

| Aspect                | EIS impact   | Proposed change impact  | Overall impact   |
|-----------------------|--|---|--|
|                       | <p>Brolgan Road overbridge is zoned SP1 Special Activities (Freight Transport Facility) and Coopers Road is zoned RU1 Primary Production. Both level crossings are mapped as Class 5 – Land not capable of being regularly cultivated but suitable for grazing with occasional cultivation (slope 10% – 25%).</p> <p>Potential impacts on land use and property will be avoided by: designing, constructing and operating the proposal to minimise the potential for land take outside the rail corridor; and implementing mitigation measures.</p>  | <p>operation of the level crossing (see Traffic, Transport and access section for more information on level crossings).</p> <p>The impacts of level crossings will need to be discussed with impacted landholders, as level crossings may result in changes to how landholders and livestock move around their property, which in turn may impact on agricultural activities and the operation of agricultural businesses.</p> <p>The greatest change to impact will be from the removal of the Brolgan Road overbridge. Proposed works will be temporarily and permanently within local road reserve. Property acquisition will not be required for the level crossing at Brolgan Road. Furthermore, there will be no direct impact to the agricultural properties in the greenfield sites and therefore no changes to land use.</p>   |  |
| <b>Socio-economic</b> | <p>The assessed risk level for the majority of potential socio-economic risks was between medium and high. Risks with an assessed level of medium or above include:</p> <ul style="list-style-type: none"> <li>• Impacts to local amenity during operation due to increased frequency of trains;</li> <li>• Impacts on community facilities during construction;</li> <li>• Increased demand for accommodation during construction; and</li> <li>• Impacts on access to community facilities during construction.</li> </ul> <p>Potential impacts on socio-economic would be avoided by: designing, constructing and operating the proposal to minimise the potential for amenity impacts; minimising the potential for safety issues by implementing mitigation measures; implementing the socio-economic management and mitigation measures; communicating with local residents and other relevant stakeholders.</p> | <p>There will be no impact to the frequency of trains associated with the proposed change and therefore will not impact on local amenity. As discussed in the landscape and visual aspect, there may be decreased impact associated with the changed design from the overbridge to a level crossing at Brolgan Road.</p> <p>There will be access impacts to community facilities at Parkes, resulting from the construction and operation of the level crossings, but these are expected to be minimal. Preserving the accessibility through Coopers Road during operation, will reduce some driving distance, but may have impact on time (refer to Traffic, Transport and Access section for more information).</p> <p>It is likely that the change in design will reduce the short-term demand for accommodation, particularly associated with the reduced construction time associated with Brolgan Road.</p> | <p>Equivalent during construction and operation.</p> <p>Generally consistent with the EIS.</p> |
| <b>Sustainability</b> | <p>The risks associated with sustainability is directly related to the outcomes of International Sustainability Council of Australia (ISCA's) Infrastructure Sustainability (IS) rating tool.</p>  | <p>There may be a reduced impact to sustainability particularly around Brolgan Road. Given the shorter timeframes and impact footprint associated with the construction of the level crossing, these will have lower impacts to several aspects, such as water use, resource use and materials,</p>   | <p>Lower to equivalent during construction and operation</p>                                   |

| Aspect                | EIS impact   | Proposed change impact   | Overall impact  |
|-----------------------|--|--|---|
|                       | <p>Key opportunities to achieve an Excelling rating include minimising:</p> <ul style="list-style-type: none"> <li>• Water usage during construction;</li> <li>• Electricity usage during construction and operation;</li> <li>• Greenhouse gas emissions from the consumption and burning of fossil fuels;</li> <li>• Demand on local and regional resources;</li> <li>• The carbon footprint of construction materials (type, quality, quantity, location, end product); and</li> <li>• Waste production.</li> </ul>                           | <p>electricity consumption, greenhouse gas emissions, energy and carbon use, discharges to air, land and water, land disturbance, waste and impact to greenfield sites.</p> <p>There may be a slight increased impact to sustainability at Coopers Road, but would be minimal given that the railway will be constructed, regardless.</p> <p>Ongoing assessment against the IS rating tool will be required to assess the impact on sustainability, however these changes would not affect the overall 'Excellent' rating.</p>   | <p>Generally consistent with the EIS</p>  |
| <b>Climate change</b> | <p>Risks with an assessed level of medium or above include:</p> <ul style="list-style-type: none"> <li>• Increase in average temperatures and extreme heat events;</li> <li>• Changes to rainfall intensity and frequency of rainfall events; and</li> <li>• Changes to storm intensity and impacts from increased wind.</li> </ul> <p>Potential impacts on climate change, however these changes would not affect the overall 'Excellent' rating. would be avoided by: mitigation and management as per the sustainability management plan.</p> | <p>There may be a reduced impact to climate change particularly around Brolgan Road, given the absence of the large overbridge structure that would have likely been impacted by temperature, rainfall and storms. This therefore reduces maintenance.</p> <p>There is a minor increased impact at both level crossing associated with the signalling and communications equipment that may be impacted by climate change.</p>   | <p>Equivalent during construction and operation.</p> <p>Generally consistent with the EIS.</p>          |
| <b>Waste</b>          | <p>The assessed risk level for the potential risks was low. This is because the proposal is unlikely to result in significant amounts of waste being generated, with the exception of construction related waste.</p> <p>Potential impacts on waste would be avoided by: managing wastes in accordance with relevant legislative and policy requirements; designing, constructing and operating the proposal so that</p>   | <p>Generally, there is a reduced impact to waste during construction and operation particularly around Brolgan Road, given the shorter timeframes for construction, the reduced footprint associated with the operation and construction of the level crossing and the general simplicity of the design.</p> <p>Furthermore, given the works at both level crossing will be entirely undertaken within existing disturbed road reserve, there will be decreased volumes of waste associated with works that would have been generated from works undertaken in greenfield sites.</p> | <p>Lower to equivalent during construction and operation.</p> <p>Generally consistent with the EIS.</p> |

| Aspect  | EIS impact   | Proposed change impact  | Overall impact   |
|---|--|---|--|
|   | <p>wastes are managed according to the waste minimisation hierarchy; implementing the waste management and mitigation measures; implementing the air quality measures; and managing hazardous wastes (refer below).</p>  |   |  |
| <p><b>Health and safety (including hazardous materials)</b></p> | <p>The assessed risk level for the majority of potential risks to health and safety was between medium and high. Risks with an assessed level of medium or above are as follows:</p> <ul style="list-style-type: none"> <li>• Impacts from the transport, storage and use of hazardous substances and dangerous goods;</li> <li>• Emissions from vehicles or plant during construction;</li> <li>• Reduced safety for road users and pedestrians during construction;</li> <li>• Health impacts from noise and air pollution during construction and operation;</li> <li>• Potential for the proposal to exacerbate bushfire risk (as a result of the storage of dangerous goods, and construction site issues such as smoking or hot works);</li> <li>• Impacts from spills or accidents during the transport, storage, and use of hazardous substances and dangerous goods; and</li> <li>• Potential for train strike for pedestrians and vehicles crossing the rail corridor.</li> </ul> <p>Potential health and safety impacts would be avoided by: managing construction and operation in accordance with relevant legislative and policy requirements; designing, constructing and operating the proposal to minimise risks to health and safety; and implementing the management and mitigation measures.</p> | <p>Generally, during construction there would be a minor lower impact, particularly around Brogan Road. Given the shorter timeframes and reduced footprint, then this would have a direct reduction on the transport, storage and use of hazardous substances and dangerous good; the vehicular and plant emissions; the noise (with exception to one property) and air pollution; bushfire risk; and accidental spills.</p> <p>There is no change to safety in regard to the operation of trains as the design will not impact on the frequency of train movement, during operation. There is still a risk that community safety is at risk, for example increased chance of pedestrian or cyclist encountering trains.</p> <p>Given that two new level crossings are proposed and the operation of the crossing may delay road users, it is possible that some drivers will take additional risks to avoid being delayed, such as speeding or ignoring warning controls at level crossings. This has a similar impact to full or partial road closures and detours associated with construction of the levels crossings.</p> <p>To mitigate these impacts, the EIS management and mitigation measures will be followed including:</p> <ul style="list-style-type: none"> <li>• Warning signage, line marking, and other relevant controls; in accordance with the relevant national and ARTC standards;</li> <li>• Development of a traffic management plan;</li> <li>• Undertaking consultation with relevant stakeholders prior to changes to access or level crossings in accordance with ARTC's processes; and</li> <li>• Designing and implementation of an operation communication and education plan prior to the commencement of operation to provide information about Inland Rail operation and safety, particularly at level crossings.</li> </ul> | <p>Lower to equivalent during construction.</p> <p>Greater during operation.</p> <p>Generally inconsistent with the EIS.</p> |

## 4 Conclusion

The MCR has considered the proposed changes to the Brolgan Road overbridge and Cooper Road closure in terms of consistency against the statements and commitments contained in the EIS.

Further to the details provided in Table 3.1 above, the proposed environmental aspects likely to have greater impact during construction or operation, include:

- Traffic, transport and access - minor impacts during construction and operation. The main impacts will be associated with road closures and detours of Brolgan Road, during construction and time delays associated with both level crossings during operation;
- Noise and vibration – greater during operation. The main impact will be from additional noise created from the operation of horns at both level crossings; and
- Health and safety (including hazardous materials) – greater during operation. The main impacts will be from operation of level crossings and the risks associated with drivers taking additional risk to avoid being delayed.

Pre-construction surveys will be required for:

- Biodiversity – likely to be equivalent or lower during construction and operation. Pre-construction clearance survey required at Coopers Road, to confirm that there will be no impacts to biodiversity values; and
- Aboriginal Heritage – likely to be equivalent or lower during construction and operation. Pre-construction survey required at Coopers Road, to confirm that there will be no impacts to Aboriginal heritage values.

*The anticipated impacts resulting from the proposed changes in design at Brolgan and Coopers Road are generally consistent with the impacts as described in the EIS and remain subject to general mitigation and management requirements identified in the EIS and RtS including:*

- Standard management and mitigation measures conditioned in the Contractors CEMP and sub-plans;
- Biodiversity and Aboriginal Heritage pre-construction surveys; and
- The ONVR and design caters for potential noise mitigation measures, at the one sensitive receiver at Brolgan Road level crossings.