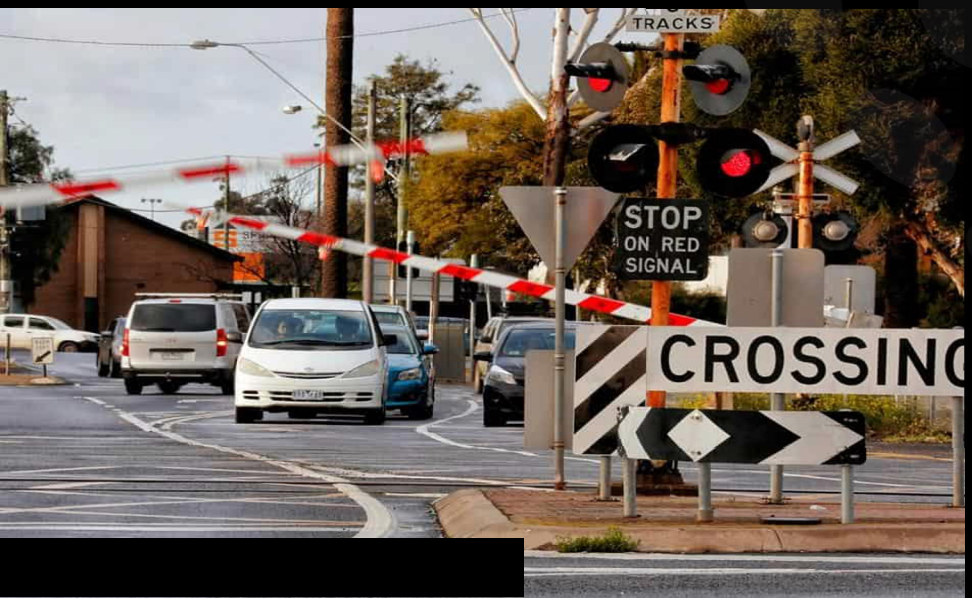
N2NS Traffic Connectivity MCoA Report

February 2022



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Executive Summary

The Inland Rail program is a 1,700km freight rail line that will connect Melbourne and Brisbane via regional Victoria, New South Wales and Queensland. The Narrabri to North Star (N2NS) project is one of 13 projects that comprise the Inland Rail program. The N2NS section of Inland Rail will upgrade 184km of existing rail corridor and construct approximately 2km of new track near Moree, New South Wales. N2NS is divided into two sections Phase 1 which encompasses Narrabri North to Moree South and then Camurra to North Star and Phase 2 which is the smaller section between Moree and Camurra which encompasses the Gwydir-Mehi floodplain. This project is relevant to the Phase 1 MCoA's.

Projence has been engaged by ARTC Inland Rail to undertake an assessment of the Traffic impacts of the N2NS project to satisfy the Ministers Conditions of Approval (MCoA) (as part of SSI7474 approval) E56 to E59 in relation to the Transport Network and Connectivity Analysis. The following report details the outcomes of the Moree Urban Area traffic connectivity assessment completed.

Broadly, Conditions E56 to E59 of the N2NS NSW Planning Approval require:

a) Avoid redistribution of heavy vehicle movements into Moree – Condition E56;
b) Analysis of the strategic land use patterns and road network to identify a preferred location for an overbridge across the rail line – Condition E57;
c) Analyse the need for and potential locations for pedestrian/cyclist crossing of the railway south of Moree station, against a variety of factors including connectivity, desired paths and potential conflicts - Condition E58; and
d) Consult as required, submit reporting and building the agreed outcomes – Condition E59.

The assessment carried out included seeking available information from previous studies and documentation, reviewing existing facilities, undertaking a risk assessment of the connectivity issues with local emergency services and other stakeholders and consultation with the wider community regarding the outcomes of the risk assessment.

As a result of the abovementioned activities the following were the key outcomes:

- Pedestrians often illegally cross the rail line south of the Moree Station
- The local emergency services have concerns regarding the increase in rail traffic and their ability to respond to East Moree
- The existing vehicular level crossings are adequate
- There is a need to provide an alternate pedestrian route in the Jones Avenue area

Significant work regarding the overpass location has been undertaken by the Moree Plains Shire Council (MPSC) and the Regional Development Corporation (RDC). Based upon advice from Inland Rail, Department of Planning and Environment (DPE) has accepted that conditions E56 and E57 (except items e and g) have been satisfied by this work. The outcome of the previous work was to relocate the originally proposed Jones Avenue overpass to the South of Moree to near the Airport to service the new Special Activation Precinct (SAP) area more directly and avoid in town traffic increases.

The local community has been consulted as part of the process including the emergency services, Local Aboriginal Land Council and the wider community through various information and consultation sessions.

The key recommendations of the report include undertaking a detailed design of a pedestrian crossing as shown in Figure 4.3.2, investigating the incorporation of in vehicle information for emergency services vehicles and establishing detour routes for emergency vehicles.

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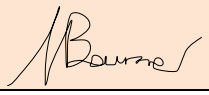
Document Ref: N2NS Traffic Connectivity MCoA Report

Rev	Date	Description	Sign Off	
0	10/02/22	First Submission		
1	18/02/22	Updates as discussed with ARTC Inland Rail	Author	
				Nathan Bourne
			Approver	
				Gavin Heydon

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1 Introduction

The following report outlines an assessment of the Traffic Connectivity impacts as a result of Narrabri to North Star (N2NS) project per the requirements of the MCoA for the N2NS project. The geographic focus of the report is in the Moree urban area.

1.1 Purpose

This report has been developed to identify the methods utilised and results of the activities to address MCoA E56 to E59.

1.2 Scope

This report covers off on the summary of the MCoA, methods utilised to address the satisfaction of the conditions and outcomes achieved.

The scope is limited to the development of concept sketches with detailed design needing to be undertaken as required, by other parties.

Further design and investigations are a part of the outcomes of the review.

1.3 Background

The Inland Rail project is upgrading the connectivity of rail between Melbourne and Brisbane. This involves the construction and upgrade of several sections. This will ultimately increase rail traffic on the upgraded sections of track.

Projence has been engaged to address and satisfy the MCoA items E56 to E59 (Item 1 - Transport Network and Connectivity) and E13 to E14 (Item 2 – Noise Mitigation). This report has been prepared to satisfy part of Item 1 of the scope.

Projence has been engaged to undertake/coordinate risk assessments, develop concept plans, engage with the community and develop agreements to address the conditions.

This involved both remote and onsite support including ongoing consultation with and status reporting to the Inland Rail team/ stakeholders.

There will be up to 18 freight trains per day including a twice daily passenger service to Sydney from Moree (initially) compared to current rail traffic of approximately 5 trains. The additional services will potentially be double stacked and up to 1800m initially and 3600m long ultimately (2030-2040). Existing trains are at a maximum 800m long.

There will be longer wait times for vehicles and pedestrians at existing Level Crossings (LX) as a result.

Additional train services also mean the increased potential for breakdowns to occur with potential to block LX.

A train of 1520m has the potential to physically block both LX of the Gwydir Highway and Bullus Drive in town and the pedestrian crossing North of the Moree Station. A train of 1300m length has the potential to cause the gates at each LX to activate (this can be overridden by network control).

In the lead up to the preparation of this report there has been the following activities undertaken by other parties:

- Preparation of an Environmental Impact Statement and the associated Traffic Impact Assessment (TIA)
- Significant investigations and reports into the Moree Intermodal Overpass (MIO) location by the MPSC and RDC. References to these are provided in Section 7 of this report.
- Communication with the relevant emergency services by MPSC

A summary of the key items from the TIA is shown below.

Trip Data

- Daily total of 7,476 trips would be generated for the ultimate scenario.
- Peak hour trip generation reflects the critical scenario, and a conservative assumption was adopted where all employees of the precinct drive to work during the peak hour, resulting in a forecast of 759 trips generated during the peak hour.
- During both morning and evening peak hours, spare capacity on the Newell Highway is expected to be sufficient during both peak periods operate with no traffic performance or congestion issues.

Crash Data

- Over the assessed five-year period, a total of 43 crashes occurred in road network surrounding Moree, two of which resulted in fatal injuries.
- 16 percent of all crashes resulted in serious injury, 30 percent in moderate injury and seven percent in minor injury. 42 per cent of crashes were non-casualty crashes.

Transport Data

- MPSC adopted the Moree Shared Pathway Plan 2014-2024 which supports the work completed in the Bike Plan and provides the framework necessary to link the existing shared pathways together.
- An analysis of Journey to Work data collected during the 2016 Census shows that 4.9 per cent of work trips made by employees on active transport (on foot or manual modes).
- Future expansion of the on-demand bus services are currently ongoing, with expansion to major employment areas around the township.
- Following the completion of the Moree Bypass Stage 2 2015, trucks have been mostly removed from Moree's commercial area in Balo Street (1,700 heavy vehicles a day)
- Through analysis of Journey to Work data surveyed during the 2016 Census, it can be noted that 81.3 per cent of all people who work in Moree also live within the township.
- Analysis shows that the Newell Highway traffic environment is expected to be acceptable and have sufficient capacity for the 40-year design, therefore, no upgrades required on the Newell Highway to accommodate the traffic anticipated to be generated by the project.

Table 4-3 2012 traffic volume – Narrabri to Boggabilla

Statistic	Narrabri to Moree	Moree to Boggabilla
Daily Traffic		
AADT	2,924	2,533
%Heavy vehicles (two-way) [1]	40.5%	47.7%
Typical Peaking Characteristics		
Northbound peak (11:00am)	127	113
Opposing flow	106	93
%Heavy vehicles (two-way)	32.5%	36.2%
Southbound peak (2:00pm)	109	94
Opposing flow	118	96

Table 4-4 Forecast Inland Rail train numbers (round trips)

Train type	Trains per week					
	2024-2025	2029-2030	2034-2035	2039-2040	2044-2045	2049-2050
Inter-capital/ intermodal	36	43	51	36	42	49
Grain	15	15	16	17	18	19
Coal	58	87	87	87	87	87
Others (including steel, mineral and general freight	15	16	17	19	20	22
Total	**123**	**162**	**171**	**158**	**166**	**174**

Source: ARTC, 2015

Note: Assumes maximum inter capital/intermodal train lengths of 1,800 metres with 50 per cent

2 Requirements

The following section of the report outlines the requirements that were addressed as part of the engagement.

DPE has confirmed that the work undertaken in developing the Moree SAP draft Masterplan and its underpinning documentation with respect to the identification of the Airport South Moree Intermodal Overpass (MIO) option satisfies the Transport Network and Connectivity Analysis Conditions of the N2NS NSW Planning Approval Conditions E56 and E57 (except for item e and g).

The relevant conditions are shown below:

Condition E56

The design and location of new road and road bridge components of the CSSI must not introduce into or increase by way of redistribution heavy vehicle movements through the residential and commercial areas of Moree. This objective must inform the comparative analysis of alternative overbridge locations required by Condition E57.

Condition E57

The Proponent must undertake a comparative analysis of an alternative location(s) for grade-separated road and active transport crossings of the rail corridor as an alternative(s) to the Jones Avenue overbridge.

This analysis must focus on the area to the south of Moree Airport, or other location(s) identified through the Moree Special Activation Precinct (SAP) investigations and as agreed by the Planning Secretary.

The analysis must consider:

(a) consistency with future land use planning for Moree, with a particular focus on the proposed Special Activation Precinct and Moree Intermodal projects to the south of Moree;

(b) the local and regional traffic network, including operational efficiency, and connectivity to existing and future local and regional road networks;

(c) the ability for use by a range of heavy vehicles and compliance with relevant road design standards;

(d) community safety and severance impact of formal or informal changes to heavy vehicle routes;

(e) a risk assessment of the impacts on emergency services in accessing the community in required timeframes in the event level crossings are blocked in Moree;

(f) consideration of the environmental impacts of a relocated bridge, having regard to the CSSI's Secretary's Environmental Assessment Requirements (SEARs) dated 8 November 2016; and

(g) the requirements of Condition E58.

Condition 58

The Proponent's analysis required by Condition E57 above must consider active transport rail crossings between Moree Railway Station and Bullus Drive to address severance impacts caused by the proposal. This analysis must include:

(a) potential community severance caused by the proposal;

(b) pedestrian and cyclist movement patterns, existing as well as those associated with future infrastructure or strategic planning initiatives being undertaken in the locality;

(c) measures to minimise informal rail corridor crossings; and

(d) an assessment of potential crossings that considers:

(i) demand for a crossing in that location;

(ii) the distance between formal rail crossings;

(iii) rail safety requirements;

(iv) accessibility in accordance with the Disability Discrimination Act 1992;

(v) pedestrian safety and security, including Crime Prevention Through Environment Design (CPTED); and

(vi) pedestrian access during extended severance events, including a train breakdown blocking level crossings.

Condition 59

The analysis required by Conditions E57 and E58 must be prepared in consultation with Moree Plains Shire Council, Transport for NSW, the Special Activation Precinct Team within the Department of Planning, Industry and Environment, emergency services, the affected community, including but not limited to the Moree Local Aboriginal Land Council and the East Moree community. Evidence of such consultation must be provided as part of the analysis.

The analysis must clearly justify the chosen bridge location and be undertaken prior to construction of the Jones Avenue bridge or within one year of project determination (whichever is earlier). The analysis must be provided to the Planning Secretary for approval or form part of a project modification under section 5.25 of the EP&A Act.

The approved crossings (including vehicular, cycle and pedestrian crossings) must be completed by 2025, unless otherwise approved by the Planning Secretary.

3 Methodology

Details of the methodology employed to achieve the MCoA requirements are covered in this section.

3.1 Data collection

A thorough review of the Moree Pedestrian Access Management Plan (PAMP), EIS TIA, and SAP recommendations was undertaken.

The PAMP shows the long-term strategy for pedestrian management within the Moree Plains Local Government Area. This report presents the expected pedestrian traffic within the local urban area.

The EIS TIA outlines the detailed modelling of the traffic impacts of the project. This was utilised to assess the suitability of the existing level crossings.

The SAP recommendations detail the outcomes of the previous reviews for the SAP in terms of traffic.

This data was assessed and incorporated into the stakeholder consultation, risk assessment and the needs assessment.

3.2 Community Consultation

Consultation with the community and relevant local stakeholders was a key requirement in the assessments undertaken.

Community consultation was planned to be undertaken via an in-person session with the wider community, including the LALC. At the time of the preparation for these sessions there was an increase of Covid-19 cases across NSW and it was decided that the sessions be changed to online sessions via MS Teams.

The sessions were held with the community on the 3rd February 2022 and 4th February 2022. Table 1 below shows the consultation activities undertaken.

Table 1: Community Consultation Activities

Activity	Date	Medium	Attendance
Moree Plains Shire Council presentation and consult	19 January 2022	MS Teams	Moree Plains Shire Council senior staff and SAP representatives
Traffic Connectivity Risk Assessment	27 January 2022	MS Teams	NSW Fire and Rescue NSW Police Moree Plains Shire Council Regional Development Corporation TfNSW Roads TfNSW Rail ARTC/Inland Rail NSW Ambulance SES Rural Fire Service
Moree LALC	3 February 2022	MS Teams	LALC board representatives
Community Traffic Consultation	4 February 2022	MS Teams	Moree Urban Area community members (and open to any community member)

Informal conversations were also held with Moree Plains Shire Council staff and representatives from the Regional Activation Unit.

The sessions were advertised via the Inland Rail monthly Newsletter, using social media, and on the Inland Rail website as shown in the figures below.

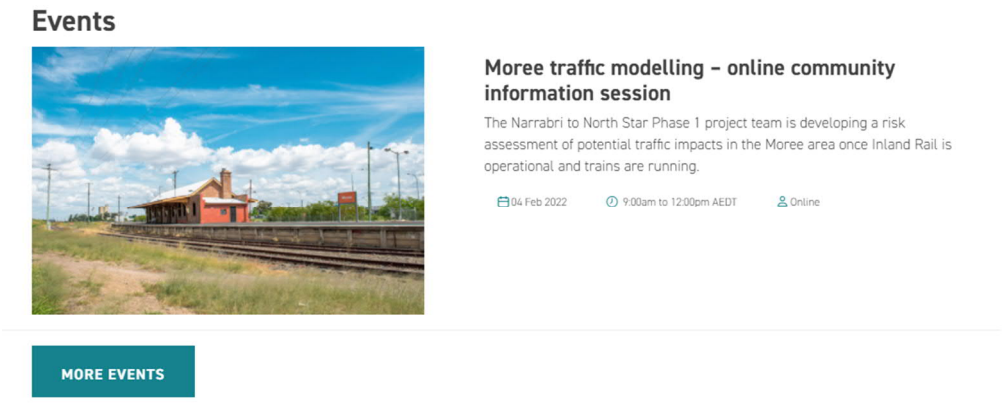

Figure 1: Website event notification

Inland Rail acknowledges that its operations will have noise impacts for local communities. Noise modelling and assessments have been undertaken along the Narrabri to North Star project to identify properties that will experience noise above regulatory levels once the line is fully operational.

Noise consultants Projence Pty Ltd have been engaged to support Inland Rail during our noise and vibration community consultation period. This will include online information sessions and engaging directly with identified affected landowners to discuss any potential 'at property' treatments required to mitigate excessive noise and vibration.

An Operational Noise and Vibration online information session will be held on Wednesday 23 February 2022 from 9am to 12noon for community members who wish to learn more about how noise and vibration is assessed and what 'at property' treatments are available.

To register, please email inlandrailnsw@artc.com.au or phone 1800 732 761. All properties identified as exceeding operational noise and vibration levels will be engaged individually and our consultants will assist to identify preferred treatment options.

In addition to modelling operational noise and vibration, Projence have modelled the potential traffic impacts of Inland Rail and are conducting risk assessments with local emergency services and the community around level crossings through the Moree township. Interested community members can attend an online community traffic consultation session on Thursday 3 or Friday 4 February 2022 from 9.00am – 12.00pm (AEDT).

To register for either session, please apply via our website, email inlandrailnsw@artc.com.au or phone 1800 732 761.

Feedback can also be received via the project's online interactive map.

Figure 2: Newsletter advertisement

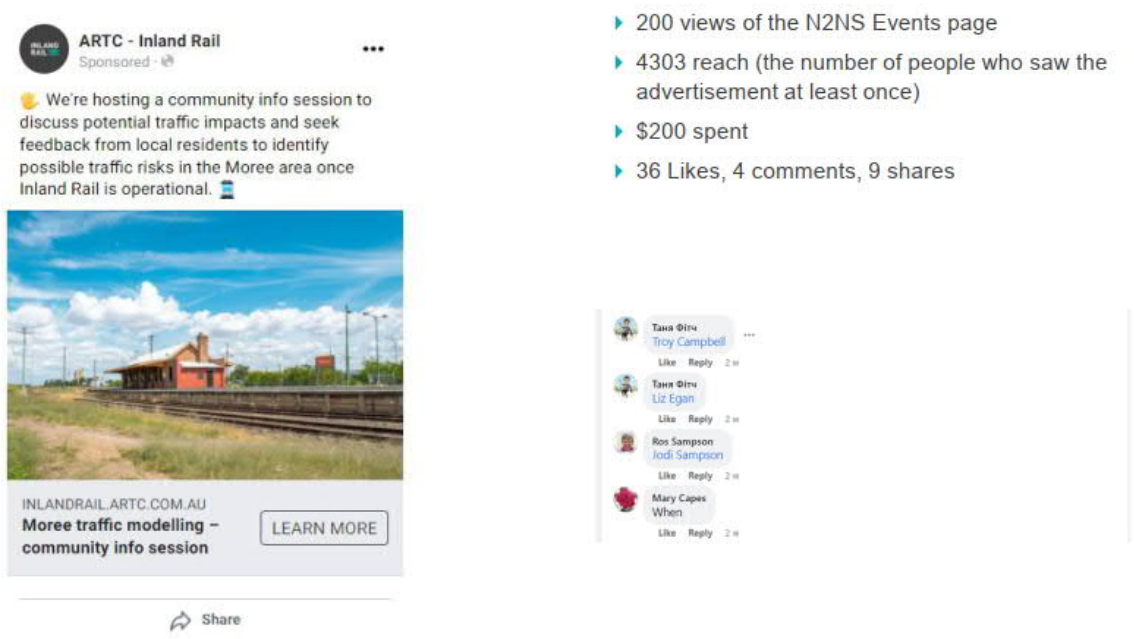

Figure 3: Social media advertisement

The ARTC Inland Rail Social Pinpoint page was updated to have specific feedback functionality for the traffic consultation. This included feedback boards. Ongoing access to the Social Pinpoint system is available for feedback throughout the duration of the project.

These sessions provided an overview of the potential impacts and what is currently planned for the project (e.g. overpass south of the Airport, activation of the pedestrian level crossing). Copies of the session presentations are contained in Appendix A.

3.3 Risk Assessment

As part of the MCoA E57 (e) a risk assessment was required to be held with the emergency services in the Moree area to review impacts on emergency response times/connectivity. This risk assessment not only covered these items but also the risks associated with the operational increases in terms of frequency of trains, length of trains and weight of the trains.

The risk assessment is contained in Appendix B which contains the full details of the process used. In summary the steps undertake were:

1. Establish Context
2. Identify Hazards/Events
3. Rank (consequence/probability) the hazards/events (as we identify them)
4. Develop treatment options for the risk
5. Residual ranking
6. Responsible party allocated

The outcomes of the risk assessment are contained in Section 4.2.

3.4 Needs assessment

As part of the MCoA E56-59 there is a requirement to assess and address the needs of the pedestrian and vehicular movements between west and east Moree and how this will be impacted by the N2NS project.

Traffic modelling undertaken during the EIS phase of the project was reviewed to establish the relevant findings. The result of the review is contained in Section 4.2

To undertake a Needs Assessment it was not possible to get any measurable numbers of illegal crossings of the line south of the Moree station, however the needs assessment was based upon the data from the Alice St Level Crossing and also on qualitative feedback received from the community.

Consultation with relevant MPSC representatives was undertaken directly regarding current and future developments. This was undertaken with direct communication with the relevant council representatives.

4 Outcomes

4.1 Community Consultation

The community consultation sessions were not well attended with 6 attendees at the community-wide session. There was one representative from the LALC committee. There was a broad range of media used to advertise the sessions as detailed in Section 3.2.

The sessions were held online due to Covid restrictions which may have contributed to the low attendance.

The key items from the community consultation feedback/discussion were:

- Question about the frequency of the trains and if they were on a timetable – answer is passenger services on a timetable, but freight services aren't.
- Emergency services response time concerns raised.
- Consultation about Level crossing safety
- Overpass from Jones Ave is being relocated to south of the Airport
- Future urban area overpass is being investigated by TfNSW and MPSC.
- Community information and awareness session will be held. In mid 2023 there will be more services. The line will be fully commissioned in 2027. Sessions will be held approximately 3-6 months prior to full operation.
- Consultation session notifications could have been wider – it was noted the various methods used to communicate the sessions including notifications was shared with the Department of Infrastructure, Transport, Regional Development and Communications Regional Liaison Officer for distribution through their email list.

4.2 Risk Assessment

The outcomes of the Risk Assessment were:

- Community information sessions will be held prior to opening the upgraded line about Level Crossing Safety
- Review of fencing type to limit ability to vandalise/access corridor – pedestrian exclusion fencing for example
- Most effective communication methods with the emergency services about train movements will be determined to address concerns of increased wait times at level crossings
- On-demand transport service is operational
- Review of existing crossing suitability – potential to activate pedestrian crossing
- Moree Intermodal Overpass south of the Airport
- Jones Avenue Rail Overpass within Moree urban area to be investigated

The attendees at the Risk Assessment are shown in Appendix B. The session included representatives from:

- NSW Fire and Rescue
- NSW Police
- Moree Plains Shire Council
- Regional Development Corporation
- TfNSW Roads

- TfNSW Rail
- ARTC/Inland Rail

Personnel from the NSW Ambulance Service, SES and Rural Fire Service were invited but were not able to attend. A copy of the risk assessment outcomes was issued to all proposed and actual attendees for comment. There was no feedback received from any parties.

This section addresses MCoA E57 (e)

4.3 Needs Assessment

Vehicles

A review of the EIS traffic impact assessment highlighted the existing arrangements at the vehicular LX were adequate.

There will be an increased wait time of 2-5 minutes depending upon the passing train speed at all LX. This may be of concern for emergency services and has been outlined in the outcomes of the risk assessment.

Pedestrian

A review of the existing illegal crossing route has been undertaken on a qualitative basis as no pedestrian movement counts were available and undertaking an observation of this event would not be moral or legal (i.e. allowing people to illegally enter the rail corridor exposing themselves to a substantial risk). Figure 4.3.1 shows the location where the existing fence is regularly cut by people for access. This is a substantial rail safety risk as there is uncontrolled access across a live rail line (E58 d iii).

Figure 4.3.1: Illegal crossing point

Based upon anecdotal evidence and feedback the route shown in Figure 5 is heavily utilised by members of the community on the eastern side of the rail line. There is an existing foot path that leads pedestrians to an open space at the end of Dingwall St that subsequently encourages passage across the lines at this point. Discussion with MPSC have led to the determination this passage is intended to be linked to Reynolds St. They did note it was a well-known pathway/shortcut E58 D (i).

Restricting access across the line at this point will potentially segregate the community that utilise this pathway (E58 a). This severance will potentially have a negative social amenity impact on the Moree community.

The method of restriction would have to be pedestrian proof fencing however it should be noted that this may be subject to significant vandalism.

It should be noted that the detour route as shown in Figure 6 below involves an 800m detour to the Moree Station crossing. This is over the typical pedestrian comfortable detour distance (E58 d ii).

It is noted that there is an on-demand bus service and in discussions with the company that operates this (Reynolds and Fogarty) there is quite a good uptake of the service with around 200 passengers a day. Communication to the community of this service may mitigate some of the potential illegal crossings. The average response time for the bus is 45 minutes which is 20 minutes more than it takes to proceed to the desired location by foot. An interesting observation by the bus

operator is the utilisation of the service appears to vary based upon the financial position of the community. Days when government payments are received see a peak in the usage which may be due to the increase in need (i.e., shopping or collecting payments) or the users don't have the financial capacity to utilise at other times. The typical usage of the service is by adults and anecdotally the illegal crossings are usually children or teens.

Figure 5: Potential extension and crossing point of the line and Newell Highway

4.4 Needs Assessment Outcomes

Analysis of this condition E58(a) has taken place through the Needs Assessment and Risk Assessment of community severance occurring between Moree East and Moree CBD with installation of rail exclusion fencing.

A desire line to cross the rail / transport corridor has been identified. It is recommended that consideration be given to the feasibility of implementing suitable solutions to address this issue including investigating the feasibility of installing a walking path and active pedestrian crossings to link Moree East with the remainder of the community.

One option is to design and construct an active pedestrian level crossing at this point and the accompanying pedestrian refuge/crossing of the Newell Highway (like that at the Moree station) (E58 c). Whilst it would alleviate the illegal crossings, there is no linkage to existing pathways and the crossing would lead onto the Newell Highway bypass around Moree. There is no designated crossing of the Newell Highway in this area and no linkage through to existing footpaths in the Moree West Community. Further consultation with TfNSW and MPSC is required in order to undertake a feasibility study and a detailed options assessment.

An alternate solution to be investigated as part of the feasibility study and options assessment is to block access with appropriate pedestrian exclusion fencing. This will require the establishment of a desirable walking path/park through to the station LX and back down to Jones Avenue. This is an opportunity to potentially beautify the detour route with relevant local indigenous and historical landscaping including information signage, decorative concrete stencilling and sculptures in consultation with the Moree Community (example in Figure 6 below). This option would need to be supported by an increased on-demand bus service noting the detour route is beyond typical comfort levels (1350m vs maximum 600m). The proposed alignment is shown in Figure 7 below.

Figure 6: Example of the landscaping design

The key outcome is the establishment of a preferred option is required to overcome the illegal crossing issue and better integrate Moree East with the remainder of the community, Inland Rail will continue to work with stakeholders, the community and Council to further develop this placemaking solution and make a decision following further consultation.

Figure 7: Detour Route Proposal

The proposed solutions are both to mitigate the commitment of illegal crossing activities. By utilising decorative and low distance detours we will reduce the potential for vandalism of the installed items. These approaches are aimed at meeting the Crime Prevention Through Environmental Design philosophy (CPETD) (E58 D (v).

All works that are completed will need to be in accordance with the current design standards, road safety requirements, MPSC design requirements and Disability Design requirements per the AS1428.1 – Design for Access and mobility (E58 D (iv).

As per MCoA E15 D (vi) and as assessed in the risk assessment there is a low probability of the Alice Street and the existing/proposed level crossings being blocked. On an occasion that they are blocked, the on-demand bus service and emergency services access will be the alternate mode of transport and this will be via the Burrington Road/MIO detour route.

5 Recommendations

Based upon the assessment of the traffic connectivity via risk assessment, community consultation and review of the situation the following are the recommendations:

- Undertake community information sessions about the traffic impacts, level crossing safety and corridor access.
- Undertake an assessment of the feasibility of having an in-vehicle notification system in local emergency vehicles about train movements.
- Continue to consult with stakeholders upon the pedestrian travel route preference and develop a options assessment accordingly.
- MPSC and TfNSW to investigate the feasibility of an urban centre rail overpass.
- Consideration be given to install pedestrian exclusion fencing on the Eastern Side of the rail alignment adjacent to the track with detour walkway or create a new pedestrian at grade level crossing and Newell Highway crossing.
- Communicate to the community about the on-demand bus service and/or increase the availability of the service.

The following are outstanding actions:

- Undertake an observation of the number of people who attempt to cross the line.

6 Findings map to MCoA

Table 2: Findings to MCoA map

MCoA	Findings and reference
E56 - The design and location of new road and road bridge components of the CSSI must not introduce into or increase by way of redistribution heavy vehicle movements through the residential and commercial areas of Moree. This objective must inform the comparative analysis of alternative overbridge locations required by Condition E57.	MPSC and RDC have undertaken this as part of the Transport and Traffic assessment for the Moree SAP (Arcadis, 2020).
E57 - The Proponent must undertake a comparative analysis of an alternative location(s) for grade-separated road and active transport crossings of the rail corridor as an alternative(s) to the Jones Avenue overbridge. This analysis must focus on the area to the south of Moree Airport, or other location(s) identified through the Moree Special Activation Precinct (SAP) investigations and as agreed by the Planning Secretary. (e) a risk assessment of the impacts on emergency services in accessing the community in required timeframes in the event level crossings are blocked in Moree.	MPSC and RDC have undertaken this as part of the Transport and Traffic assessment for the Moree SAP (Arcadis, 2020). E57 Item (e) refer to sections 3.3 and 4.2.

MCoA	
E58 - The Proponent's analysis required by Condition E57 above must consider active transport rail crossings between Moree Railway Station and Bullus Drive to address severance impacts caused by the proposal. This analysis must include: (a) potential community severance caused by the proposal. (b) pedestrian and cyclist movement patterns, existing as well as those associated with future infrastructure or strategic planning initiatives being undertaken in the locality. (c) measures to minimise informal rail corridor crossings; and (d) an assessment of potential crossings that considers: (i) demand for a crossing in that location. (ii) the distance between formal rails crossings; (iii) rail safety requirements; (iv) accessibility in accordance with the Disability Discrimination Act 1992; (v) pedestrian safety and security, including Crime Prevention Through Environment Design (CPTED); and (vi) pedestrian access during extended severance events, including a train breakdown blocking level crossings.	Section 3.3 and 4.3 – 4.4 – references to specific conditions have been made within these sections.

MCoA	Findings and reference
E59 - The analysis required by Conditions E57 and E58 must be prepared in consultation with Moree Plains Shire Council, Transport for NSW, the Special Activation Precinct Team within the Department of Planning, Industry and Environment, emergency services, the affected community, including but not limited to the Moree Local Aboriginal Land Council and the East Moree community. Evidence of such consultation must be provided as part of the analysis. The analysis must clearly justify the chosen bridge location and be undertaken prior to construction of the Jones Avenue bridge or within one year of project determination (whichever is earlier). The analysis must be provided to the Planning Secretary for approval or form part of a project modification under section 5.25 of the EP&A Act. The approved crossings (including vehicular, cycle and pedestrian crossings) must be completed by 2025, unless otherwise approved by the Planning Secretary.	Section 3.2, 4.1

7 References

Arrangements with local councils: http://www.rta.nsw.gov.au/doingbusinesswithus/lgr/index.html

ALCAM Model outputs

Arcadis, 2020, Moree SAP Transport and Traffic Assessment

ARRB 2010 Development of a railway crossing risk assessment process and guideline

Australian Standard AS/NZS ISO 31000:2009 – Risk Management – Principles and Guidelines

Australian Standard AS 1742.7-2007 – Manual of uniform traffic control devices Part 7: Railway crossings

Austroads Guide to Traffic Management series

Austroads Guide to Road Design series

Austroads 2008, Glossary of Austroads terms, AP-C87/08, 3rd edition, AP-C87/08.

Australian Standard AS1158 – 2005 – Lighting for roads and public spaces

Moree Plains Shire Council 2017 Pedestrian Access Management Plan

National Transport Commission June 2008, National Rail Safety Guideline Meaning of Duty to Ensure Safety So Far as is Reasonably Practicable.

NSW Government Moree SAP Master Plan

The RTA Level Crossings Fact Sheet – December 2008.

The RTA The Level Crossing Safety Management Process – December 2009.

The RTA Railway Crossing Risk Management Tool.

The RTA Road Design Guide.

The RTA Identify: The railway crossing safety hazard checklist (policy number PN241G).

The RTA Assess: Application of Risk Tolerance and Risk Assessment Criteria in the Railway Crossing Risk Assessment Procedure (policy number PN238G).

The RTA Evaluate: Applying the railway crossing cause consequence bow tie models (policy number PN240G).

RTA Supplements to Austroads and Australian Standards http://www.rta.nsw.gov.au/doingbusinesswithus/guidelines/index.html

Appendix A: Community Consultation Presentations


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N2NS - MCOA - TRAFFIC
CONNECTIVITY
CONSULTATION
04 February 2022

INLAND RAIL

ACKNOWLEDGEMENT OF COUNTRY

This workshop is facilitated from land within the Bundjalung Nation and is for works in the Kamilaroi Nation. We pay our respects to the peoples of this Land and to Elders past, present and emerging.

MCOA – TRANSPORT

AGENDA

Todays Agenda

Item	Time	Chair
1. Introduction and welcome	0900-0910 (10mins)	Nathan Bourne
2. Review of Risk Assessment	0910-0930 (20mins)	Nathan Bourne
3. Comments/Feedback/ Advice	0930-1000 (30mins)	Community Members
4. Other items	1000-1015 (15mins)	All

MCOA – TRANSPORT

HOUSE KEEPING

Please do the following:

- Microphone on mute unless you are talking/want to ask a question/have a comment
- Cameras off to save bandwidth after initial intros
- Feel free to ask questions or have input at any time
- Respect each others input and comments
- Some discussions might be parked for a later time if needed
- Be mindful of the time allowed for each section (we will probably be done earlier than planned)

MCOA – TRANSPORT

ATTENDEES

Name	Role	Organisation
Will be populated following session.		
Mel Elms	Stakeholder and Engagement Lead	Inland Rail – ARTC
Peter Borelli	Project Director – N2NS	Inland Rail – ARTC
Tim Hale	Senior Project Manager – N2NS	Inland Rail – ARTC
Joshua Chivers	Project Engineer	Projence
Nathan Bourne	Project Manager	Projence

INLAND RAIL

SAFETY SHARE

WAGGA WAGGA CORRIDOR EXAMPLE

Not the actual image

MCOA – TRANSPORT

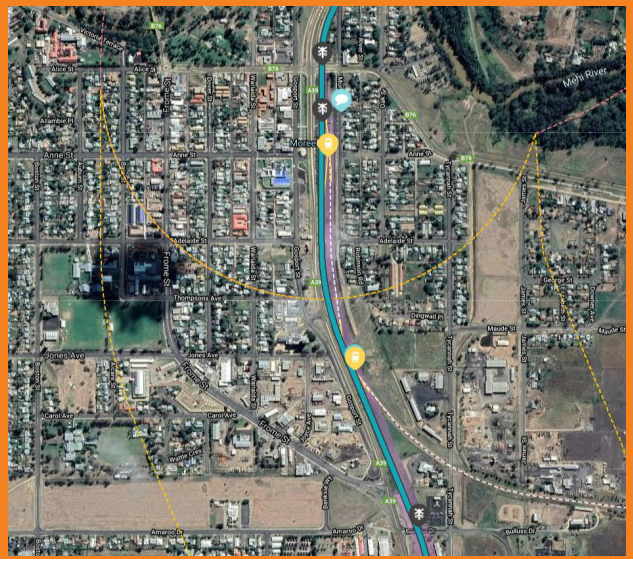
BACKGROUND

- Projence has been engaged to address and satisfy the MCoA items E56 to E59 (Item 1 - Transport Network and Connectivity) and E13 to E14 (Item 2 – Noise Mitigation).
- Projence will undertake/coordinate risk assessments, develop concept plans, engage with the community and agreements to address the conditions.
- This will involve both remote and onsite support.
- Ongoing consultation with and status reporting to the Inland Rail team/ stakeholders.

MCOA – TRANSPORT

PURPOSE

- Undertake a comprehensive review and consultation about the traffic connectivity (vehicular, cyclist and pedestrian) impacts the Inland Rail project will have in Moree



0427 702 204
projects@projence.com.au

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CONTEXT

- The Inland Rail project is upgrading the connectivity of rail between Melbourne and Brisbane. This involves the construction and upgrade of several sections. This will ultimately increase rail traffic on the upgraded sections of track.
- There will be up to 18 trains per day (initially) compared to current rail traffic of approximately 5 trains. The additional services will potentially be double stacked and up to 1800m initially and 3600m long ultimately (2030-2040?). Existing trains are at a maximum 800m long.
- There will be longer wait times for vehicles and pedestrians at existing Level Crossings (LX) as a result.
- Additional train services also mean the increased potential for breakdowns to occur with potential to block LX.
- A train of 1520m has the potential to physically block both in town LX of the Gwydir Highway and Bullus Drive and the pedestrian crossing North of the Moree Station. A train of 1300m length has the potential to cause the gates at each LX to activate (this can be overridden by network control).

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RISK ASSESSMENT REVIEW

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RISK ASSESSMENT PROCESS

1. Establish Context
2. Identify Hazards/Events
3. Rank (consequence/probability) the hazards/events (as we identify the them)
4. Develop treatment options for the risk
5. Residual ranking
6. Responsible party allocated

MCOA –

HAZARDS AND

Hazard	Event	Probability	Consequence	Rank
Increased train movements	Vehicles/Pedestrians delayed	A	4	21 (L)
	Emergency Services delayed (2-5min delay)	A	1	1 (H)
	Emergency Services delayed (2-5min delay) – life threatening	A	1	1 (H)
	Vehicle/train collision	D	1	7 (M)
	Pedestrian/train collision	C	1	4 (H)
	Road users 'racing' trains	B	1	2 (H)
	Increased noise (trains and vehicles)	A	4	10 (M)
Increased train lengths	Increased vehicle/pedestrian delay	A	4	21 (L)
	Increased stopping distance	A	1	1 (H)
	Recovery operation after derailment	D	2	12 (M)
	Train collision	E	1	11 (M)
Convenient crossing points not available/ or existing points not desirable point	Pedestrian cross at non-specified/illegal points	A	3	20 (L)
	Pedestrian cross at non-specified/illegal points – being struck by train	A	1	1 (H)
	Loss of social amenity	C	4	19 (L)
Train breakdown on LX	Passage blocked for pedestrians and vehicles	E	2	16 (L)
	Passage blocked for emergency vehicles	E	1	11 (M)
Vandalism of tracks	Train derailment	C	2	8 (M)
	Train delay	C	2	8 (M)

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RISK ASSESSMENT OUTCOMES

- Community information sessions prior to opening the upgraded line about Level Crossing Safety
- Review of fencing type to limit ability to vandalise/access corridor – pedestrian exclusion fencing for example
- Communication methods with the emergency services about train movements
- On-demand transport service is operational
- Review of existing crossing suitability – potential to activate pedestrian crossing
- Overpass south of the Airport
- Overpass within Moree urban area

INLAND RAIL

COMMENTS/ FEEDBACK/ ADVICE

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COMMENTS/FEEDBACK/ADVICE

- Consultation about LX
- No set times for freight trains, passenger services will be on a timetable
- Overpass from Jones Ave is being relocated to south of the Airport
- Future urban area overpass is being investigated
- Community information an awareness sessions. Mid 2023 some more services. Fully commissioned 2027 lead up to ~6 months prior to full operation for communication.
- Consultation session notifications – Newsletter, notifications to Ange Doering to distribute, email list.

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OTHER ITEMS OR QUESTIONS

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QUESTIONS AND CLARIFICATIONS

- Any other questions

Appendix B: Risk Assessment

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Formal Risk Assessment Study

Risk Assessment Number: 0185-001

Version: 0

Risk Assessment Title: N2NS Moree Urban AreaTraffic Impact Assessment

Risk Assessment Date: 27/01/2022

Risk Assessment Scope: Undertake a traffic (vehicular and pedestrian) connectivity risk assessment based upon the N2NS Inland Rail upgrade project within Moree.

Context:
The Inland Rail project is upgrading the connectivity of rail between Melbourne and Brisbane. This involves the construction and upgrade of several sections. This will ultimately increase rail traffic on the upgraded sections of track.
There will be up to 18 trains per day (initially) compared to current rail traffic of approximately 10 trains. The additional services will potentially be double stacked and up to 1800m initially and 3600m long ultimately. Existing trains are at a maximum 800m long.
There will be longer wait times for vehicles and pedestrians at existing Level Crossings (LX) as a result.

Study Exclusions:
Traffic impacts outside of the immediate Moree CBD area.

Referenced Documents:
Traffic Connectivity Risk Assessment Briefing Note Rev 0, Projence 2022
N2NS EIS Vol 2 Tech Report 1 Traffic Transport Access, Inland Rail 2020
MCoA for N2NS Phase 1 Project, DPIE 2018
Moree Pedestrian Access and Mobility Plan_PAMP, MPSC 2017
Moree_SAP_Draft_MasterPlan_FINAL_Accessible, RDC 2021
Moree SAP Transport and Traffic Plan, Arcadis Feb 2021

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Formal Risk Assessment Study

Item	Source / Hazard	Risk Event	Current Controls	Initial Risk			Additional Controls	Residual Risk			Who/When
				MRC	L	Risk Rank		MRC	L	Risk Rank	
001	Increased train movements	Vehicles/Pedestrians delayed	Signage Active vehicle LX Community consultation about the project	4	A	21 (L)	1 Activation of pedestrian LX 2 Overpass (part of SAP works) at south airport location 3 Direct community consultation about the traffic impacts 4 Update on logic behind location of overpass to FRNSW – Action	4	A	21 (L)	1 Inland Rail/ARTC Mar-22 2 RGDC ~End 2024 3 Projence/IR Feb 2022 4 MPSC Feb 2022
		Emergency Services delayed (2-5min delay)		1	A	1 (H)	1 In-vehicle info regarding train movements check if feasible – technological assessment 2 Grade separated facility 3 Underpass/Overpass in Moree urban area	1	D	7 (M)	1 Inland Rail/ARTC Signalling – Mar 2022 - 2 FRNSW/ Police/ Ambulance – prior to opening 3 MPSC/ARTC TBC
		Vehicle/train collision	Active LX Signage Road rules	1	D	7 (M)	1 Additional advanced warning signage assessment 2 Direct community consultation about the traffic impacts 3 Targeted pre-opening information to the community regarding LX safety 4 Targeted enforcement when new rail operations occurring 5 Overpass (part of SAP works) at south airport location	1	E	11 (M)	1 Inland Rail/ARTC June -22 2 Projence/IR Feb 2022 3 Inland Rail/ARTC ~ 2022/2023 4 NSW Police 2022/23 5 RGDC ~End 2024
		Pedestrian/train collision	Pedestrian LX at Moree Stn Nth Pedestrian LX at Alice St/Gwydir Highway	1	C	4 (H)	1 Direct community consultation about the traffic impacts with LALC and community 2 Targeted pre-opening information to the community regarding LX safety 3 Assessment of existing LX availability	1	E	11 (M)	1 Projence/IR Feb 2022 2 Inland Rail/ARTC ~ 2022/2023 3 Projence/IR Mar 2022

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Formal Risk Assessment Study

Item	Source / Hazard	Risk Event	Current Controls	Initial Risk			Additional Controls	Residual Risk			Who/When
				MRC	L	Risk Rank		MRC	L	Risk Rank	
		Road users 'racing' trains	Active LX Signage Road rules	1	B	2 (H)	1 Additional advanced warning signage assessment 2 Direct community consultation about the traffic impacts 3 Targeted pre-opening information to the community regarding LX safety 4 Targeted enforcement when new rail operations occurring 5 Overpass (part of SAP works) at south airport location	1	D	7 (H)	1 Inland Rail/ARTC June -22 2 Projence/IR Feb 2022 3 Inland Rail/ARTC ~ 2022/2023 4 NSW Police 2022/23 5 RGDC ~End 2024
		Increased noise (trains and vehicles)	Noise mound installed on Western side of lines	4	A	10 (M)	1 Direct community consultation about the noise impacts (noise wall/or at-property treatment discussion)	5	A	15 (M)	1 Projence/IR Feb 2022
002	Increased train lengths	Increased vehicle/pedestrian delay	Signage Active vehicle LX Community consultation about the project	4	A	21 (L)	1 Activation need assessment of pedestrian LX 2 Overpass (part of SAP works) at south airport location 3 Direct community consultation about the traffic impacts 4 Update on logic behind location of overpass to FRNSW – Action	4	A	21 (L)	1 Inland Rail/ARTC Mar-22 2 RGDC ~End 2024 3 Projence/IR Feb 2022 4 MPSC Feb 2022
		Increased stopping distance	Design of train control system being upgraded to suit longer trains	1	D	7 (M)	1 Targeted pre-opening information to the community regarding LX safety	1	E	11 (M)	1 Inland Rail/ARTC ~ 2022/2023
		Recovery operation after derailment	ARTC Emergency management plan for derailment Emergency services SOPs	2	D	12 (M)	1 Targeted pre-opening information to the emergency services	2	E	16 (L)	1 Inland Rail/ARTC ~ 2022/2023
		Train collision	Design of train control system being upgraded to suit longer trains	1	E	11 (M)	Adequate controls already	E	1	11 (M)	N/A

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Formal Risk Assessment Study

Item	Source / Hazard	Risk Event	Current Controls	Initial Risk			Additional Controls	Residual Risk			Who/When
				MRC	L	Risk Rank		MRC	L	Risk Rank	
003	Convenient crossing points not available/ or existing points not desirable point	Pedestrian cross at non-specified/illegal points	Fencing (existing chain mesh exclusion fence) Existing Pedestrian LX	3	A	20 (L)	1 Direct community consultation about the traffic impacts – Fact sheet 2 Enhanced physical barriers assessment 3 Assessment of existing LX availability 4 Targeted enforcement when new rail operations occurring 5 Grade separated pedestrian facility 6Assess ability to install more resilient fencing types.	3	D	17 (L)	1 Projence/IR Feb 2022 2 Inland Rail/ARTC Mar-22 3 Projence/IR Mar 2022 4 NSW Police 2022/2023 5 ARTC / MPSC TBC 6 Inland Rail/ARTC, TfNSW, Projence – Mar 2022, Implementation End of 2025
		Pedestrian cross at non-specified/illegal points – being struck by train	Fencing (existing chain mesh exclusion fence) Existing Pedestrian LX	1	A	1 (H)	1 Direct community consultation about the traffic impacts – Fact sheet 2 Enhanced physical barriers assessment 3 Assessment of existing LX availability 4 Targeted enforcement when new rail operations occurring 5 Grade separated pedestrian facility 6 Assess ability to install more resilient fencing types.	1	D	7 (M)	1 Projence/IR Feb 2022 2 Inland Rail/ARTC Mar-22 3 Projence/IR Mar 2022 4 NSW Police 2022/2023 5 ARTC / MPSC TBC 6 Inland Rail/ARTC, TfNSW, Projence – Mar 2022, Implementation End of 2025
		Loss of social amenity	SAP programme MPSC Social Program MPSC Housing Strategy	4	C	19 (L)	1 Incorporated into any assessments undertaken 2 Consultation with community regarding options developed	4	C	19 (L)	1 Projence/IR Feb 2022 2 Projence/IR Feb 2022
004	Train breakdown on LX	Passage blocked for pedestrians and vehicles	Detour routes Train maintenance	2	E	16 (L)	1 Targeted pre-opening information to the community regarding LX safety 2 Upgraded road network as part of SAP	2	E	16 (L)	1 Inland Rail/ARTC ~ 2022/2023 2 RDC End of 2024
		Passage blocked for emergency vehicles	Detour routes Train maintenance	1	E	11 (M)	1 Targeted pre-opening information to the community regarding LX safety 2 Upgraded road network as part of SAP	E	1	11 (M)	1 Inland Rail/ARTC ~ 2022/2023 2 RDC End of 2024

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Formal Risk Assessment Study

Item	Source / Hazard	Risk Event	Current Controls	Initial Risk			Additional Controls	Residual Risk			Who/When
				MRC	L	Risk Rank		MRC	L	Risk Rank	
005	Vandalism of tracks	Train derailment	Operational procedures regarding track condition	2	C	8 (M)	Targeted enforcement when new rail operations occurring	2	D	12 (M)	NSW Police 2022/2023
		Train delay	Operational procedures regarding track condition	2	C	8 (M)	Targeted enforcement when new rail operations occurring	2	D	12 (M)	NSW Police 2022/2023

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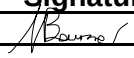
Formal Risk Assessment Study

Risk Assessment Records

Attendees

Name	Title/Organisation	In-meeting duration	Email
This record of attendence was autogenerated from MS Teams and is available as an electronic record if required.			
Alan Cooper	Zone Commander/ Fire and Rescue NSW	2h 37m 11s	Alan.Cooper@fire.nsw.gov.au
Angus Witherby	Director of Planning and Community Development	2h 17m 42s	Angus.Witherby@mpsc.nsw.gov.au
Arend Boog	Moree SAP/RDC NSW	2h 36m 41s	arend.boog@regional.nsw.gov.au
Brendon Ward	Lead Community and Safety Partner/TfNSW	2h 37m 24s	Brendon.Ward@transport.nsw.gov.au
David Vant	Lead Community and Safety Partner/TfNSW	2h 37m 11s	David.VANT@transport.nsw.gov.au
James Bolton	Executive Director/RDC NSW	18m 27s	james.bolton@regional.nsw.gov.au
John Zannes	Project Director Inland Rail/TfNSW	2h 22m 49s	John.Zannes@transport.nsw.gov.au
Joshua Chivers	Project Engineer/Projence	2h 31m 20s	joshc@projence.com.au
Kelly Wixx	Inspector – Traffic and Highway Patrol – New Engl	2h 35m 38s	wixx1kel@police.nsw.gov.au
Melanie Elms	Stakeholder Engagement Lead/ Inland Rail	2h 26m 20s	MElms@ARTC.com.au
Nathan Bourne	Project Manager/Projence	2h 39m 49s	Nathanb@projence.com.au
Rebecca English	Regional Development Cooridnator/ Moree Plains	2h 2m 8s	Rebecca.English@mpsc.nsw.gov.au
Stephen Hirst	Area Comander / Fire and Rescue NSW	29m 39s	Stephen.Hirst@fire.nsw.gov.au

Facilitator

Name	Title	Signature	Date
Nathan Bourne	Project Manager		31/01/2021

Authorisation

Name	Title	Signature	Date

Risk Assessment Process

There was a partially completed risk assessment template utilised that was displayed on the screen. Attendees were able to review, add and modify the information as facilitated by the session chair.

The session followed the AS/ISO 31000 methodology shown in the figure below.

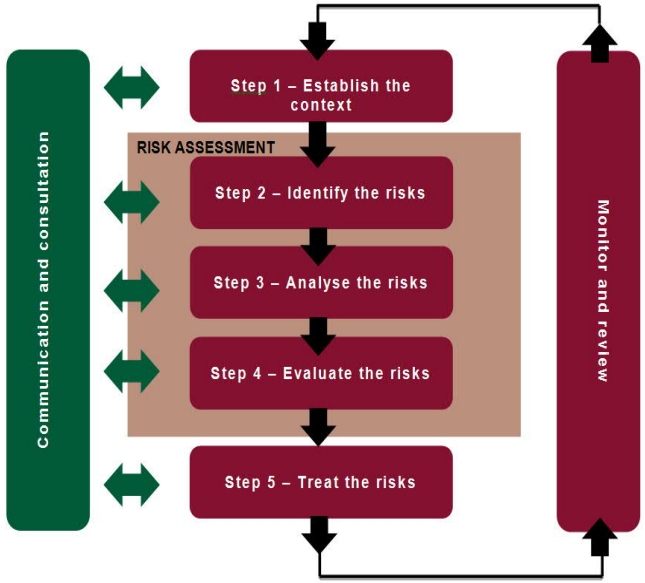


Figure 1: Risk Assessment Process

The risk matrix utilised is detailed in the tables below.

Table 3.1 Likelihood Descriptors

Likelihood	
A	Almost certain to happen
B	Likely to happen
C	Could happen occasionally
D	Unlikely to happen
E	Extremely rare to happen

Table 3.2 MRC Descriptors

Rank	H&S	Enviro	Operational Consequence	Social
1	Fatality	Disastrous environmental impact, long term effect, major remediation	>5-hour delay	Total loss of amenity
2	Permanent disability	Serious environmental impact with medium term effect, Significant remediation	>2 hour delay	Significant loss of amenity
3	Short Term Injury	Moderate, Reversible enviro impact, short term effect, Moderate remediation	1 to 2 hour	Loss of amenity
4	Medically treated injury	Minor, Reversible environmental impact, Requiring minor remediation	Up to 1 hour	Some loss of amenity
5	First aid injury	Negligible, Reversible environmental impact, Requiring very minor / no remediation	<5 minute delay	Minor loss of amenity

When the MRC and Likelihood associated with a hazard have been determined the level of risk shall be ranked using Figure 3. Red are high, yellow are medium and green are low risks. The ranking will help inform the focus of efforts.

Projence Risk Ranking Matrix		Likelihood				
		A	B	C	D	E
Maximum Reasonable Consequence (MRC)	1	1	2	4	7	11
	2	3	5	8	12	16
	3	6	9	13	17	20
	4	10	14	18	21	23
	5	15	19	22	24	25

Figure 2: Risk Matrix

All identified hazards shall have their associated risks eliminated, or where elimination is not reasonably practicable, minimised to ALARP. To minimise risks to ALARP, risk control measures shall be implemented in accordance with the hierarchy of controls as detailed in Table 3.3.

Table 3.3 Hierarchy of Controls

Level	Risk Control Measure	Explanation
1	Elimination	Remove the hazard so the associated risk is eliminated
2	Substitution	Substituting one hazard for another with lower associated risk
3	Isolation	Isolating the hazard from the person
4	Engineering	Engineer hard controls that reduce the likelihood of the hazard causing an incident
5	Administration	Procedures, instruction, and training etc
6	PPE	Worn to provide protection from a hazard