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ARTC *InlandRail*

Inland Rail Programme Narrabri to North Star Project



Environmental Impact Statement

Technical Report 9: **Non-Aboriginal Heritage Impact Statement**

Technical Report 10: **Landscape and Visual Assessment**

Technical Report 11: **Socio-economic Assessment**

Image: Newell Highway north of Narrabri, NSW



Technical Report 11: **Socio-economic Assessment**

Image: Newell Highway north of Narrabri, NSW



Australian Rail Track Corporation

Inland Rail - Narrabri to North Star Socio-economic Assessment

October 2017

Inland Rail Document Number: 02-2600-PE-P11-DE-0098

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Executive summary

The proposal

Australian Rail Track Corporation Ltd (ARTC) is seeking approval to construct and operate the Narrabri to North Star section of Inland Rail ('the proposal').

The proposal would involve upgrading 188 kilometres of existing rail line between Narrabri and North Star, including five new crossing loops, some track realignment and replacement of culverts, three new rail bridges over the Mehi and Gwydir rivers and Croppa Creek. The proposal also includes providing a new section of rail line at Camurra to bypass an existing hairpin curve, realigning about 1.5 kilometres of the Newell Highway near Bellata and providing a new road bridge over the existing rail corridor, and a new road bridge over the existing rail corridor at Jones Avenue in Moree.

Ancillary works will include upgrading, closing or consolidating level crossings, upgrading signalling and communications, establishing new fencing or upgrading existing fencing along the existing rail corridor, and relocating/protecting services and utilities.

This report

The proposal would result in both socio-economic benefits and impacts during the construction and operation periods. This social impact assessment (SIA) report identifies these benefits and impacts and recommends a range of best practice management and mitigation measures.

Benefits and impacts

Key benefits would potentially include:

- Increased employment opportunities through demand for construction and operation workforce and business opportunities through demand for goods and services mainly during the construction phase
- Potential of reduced freight road traffic along regional and local roads as some freight would be transported by rail during operation

Adverse social impacts would include:

- Impacts on properties and landholders due to property acquisition and land access required during construction.
- Altered access during operation for some rural properties due to fewer level crossings, and more frequent closures. This may change agricultural practices, such as the safe movement of livestock and farming equipment.
- More frequent delays at level crossings in Moree town due to higher train frequency, potentially exacerbating existing social disconnection of the east side of town from the west.
- Increased frequency of trains exacerbating safety concerns of the community, such as illegal crossing of the rail line in Moree.
- Amenity impacts due to changes in noise levels, air quality, views and landscape during construction and operation are expected to be experienced by residents close to the proposal site especially in Moree town and proximal to the Mehi Bridge.

Recommendations

It is recommended that the following measures be implemented to mitigate the potential socio-economic impacts of the proposal:

- Development and implementation of a local business and industry procurement plan that would include specific goals and targets that would be set for local procurement and suppliers
- Development and implementation of a workforce management plan to manage local and regional sourcing of the workforce
- Development of individual property agreements to manage potential construction impacts on landholders, where relevant
- Development of a workforce housing and accommodation plan and consultation with accommodation providers and councils to manage accommodation availability
- Development of a construction traffic management plan as part of the construction and environment management plan (CEMP), in consultation with relevant stakeholders
- Development and implementation of a safety awareness program to educate the community regarding safety around trains
- Inclusion and implementation of a workers code of conduct within the CEMP
- Ongoing stakeholder engagement during detailed design, construction and operation

1. Introduction

1.1 Overview

The Australian Government has committed to delivering a significant piece of national transport infrastructure by constructing a high performance and direct interstate freight rail corridor between Melbourne and Brisbane. The Inland Rail programme (Inland Rail) involves the design and construction of a new inland rail connection, about 1,700 kilometres long, between Melbourne and Brisbane. Inland Rail is a transformational rail infrastructure initiative that will enhance Australia's existing national rail network and serve the interstate freight market.

Australian Rail Track Corporation Ltd (ARTC) is seeking approval to construct and operate the Narrabri to North Star section of Inland Rail ('the proposal'), which consists of 188 kilometres of upgraded rail track and associated facilities.

The proposal requires approval from the NSW Minister for Planning under Part 5.1 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposal is also a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), and requires approval from the Australian Minister for the Environment and Energy.

This report has been prepared by GHD Pty Ltd (GHD) as part of the environmental impact statement (EIS) for the proposal. The EIS has been prepared to accompany the application for approval of the proposal, and addresses the environmental assessment requirements of the Secretary of the Department of Planning and Environment (the SEARs), issued on 8 November 2016.

1.2 The proposal

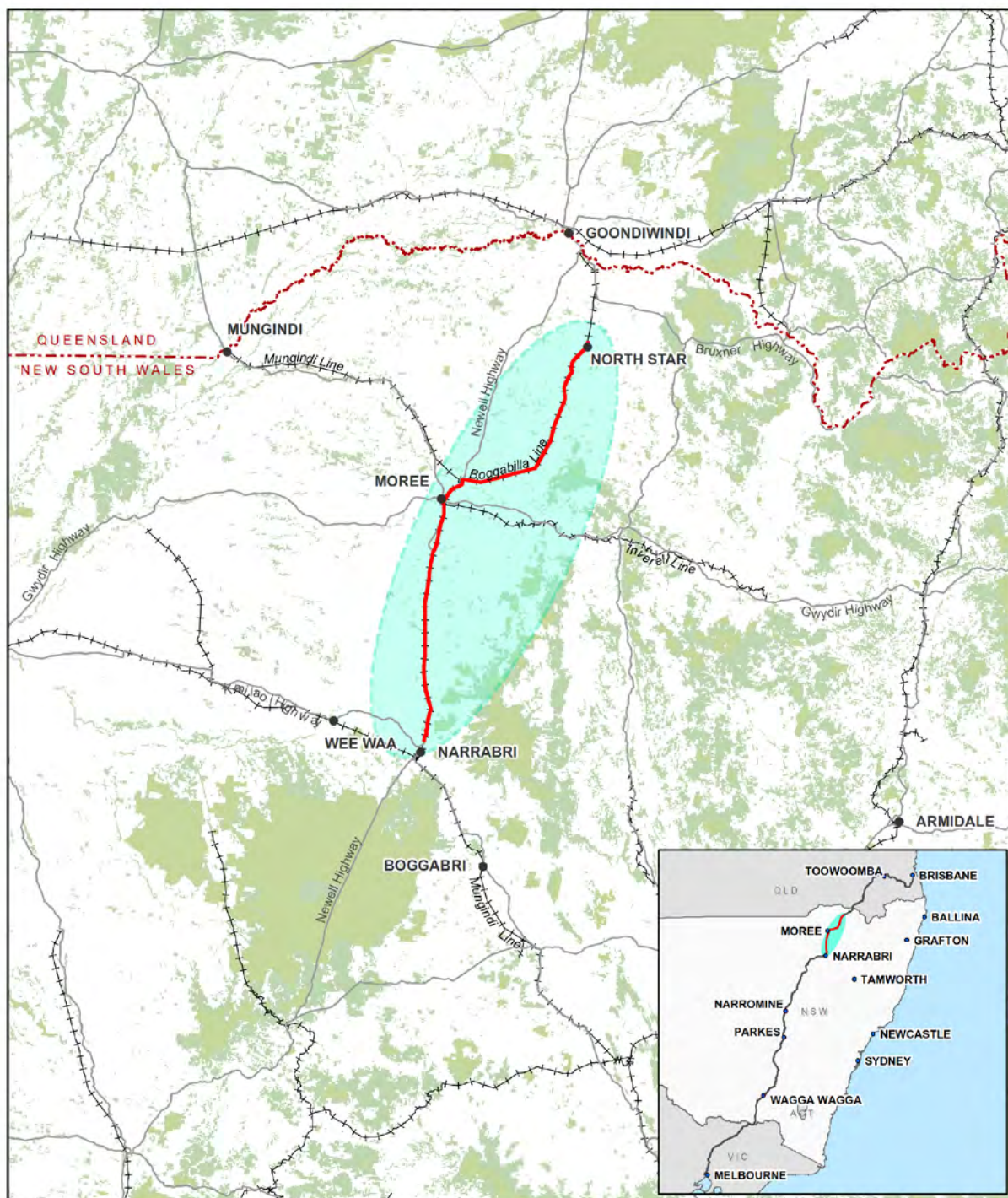
1.2.1 Location

The proposal is generally located in the existing rail corridor between the town of Narrabri and the village of North Star, via Moree. The location of the proposal is shown in Figure 1.1.

1.2.2 Key features

The key features of the proposal involve:

- Upgrading the track, track formation, and culverts within the existing rail corridor for a distance of 188 kilometres between Narrabri and North Star via Moree
- Realigning the track where required within the existing rail corridor to conform with required platform clearances for Inland Rail trains
- Providing five new crossing loops within the existing rail corridor at Bobbiwaa, Waterloo Creek, Tycannah Creek, Coolleearlee and Murgoo
- Providing a new section of rail line at Camurra about 1.6 kilometres long to bypass the existing hairpin curve ('the Camurra bypass')
- Removing the existing bridges and providing new rail bridges over the Mehi and Gwydir rivers and Croppa Creek



LEGEND

- Proposal site
- Proposal location
- Main road
- +— Railway
- - - State border

Paper Size A4
0 10 20 40 60
Kilometers
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



Australian Rail Track Corporation
Inland Rail Track Alignment

Job Number 22-17916
Revision 0
Date 02 Jun 2017

Location of the proposal

Figure 1-1

Level 3: GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 T 61 2 4979 9999 F 61 2 4979 9988 E nrailmail@ghd.com W www.ghd.com.au
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Data source: Commonwealth of Australia (Geoscience Australia), 250K Topographic Data Series 3, 2006. Created by: tmorton, sparcba

- Realigning about 1.5 kilometres of the Newell Highway near Bellata and providing a new road bridge over the existing rail corridor ('the Newell Highway overbridge')
- Providing a new road bridge over the existing rail corridor at Jones Avenue in Moree ('the Jones Avenue overbridge')

The key features of the proposal are shown in Figure 1.2.

Ancillary work would include works to level crossings, signalling and communications, signage and fencing, and services and utilities.

Further information on the proposal is provided in the EIS.

1.2.1 Timing

Subject to approval of the proposal, construction is planned to start in early to mid-2018, and is expected to take about 24 months. Existing train operations along the Narrabri to North Star line would continue prior to, during, and following construction. Inland Rail as a whole is expected to be operational in 2025.

1.2.2 Operation

Prior to the opening of Inland Rail as a whole, the proposal would be used by existing rail traffic, which includes trains passengers and grain at an average rate of about four trains per day. It is estimated that the operation of Inland Rail would involve an annual average of about 10 trains per day travelling north of Moree (between North Star and Moree) and 12 trains per day travelling south of Moree (between Moree and Narrabri) in 2025. This would increase to about 19 trains per day north of Moree (between North Star and Moree) and 21 trains per day south of Moree (between Moree and Narrabri) in 2040. The trains would be a mix of grain, intermodal (freight), and other general transport trains.

Once operational in 2020, the proposal would enable increased train running speeds in many areas that are currently the subject of restrictions due to local track conditions. Daily average train volumes are not expected to significantly change until Inland Rail through connection in 2025.

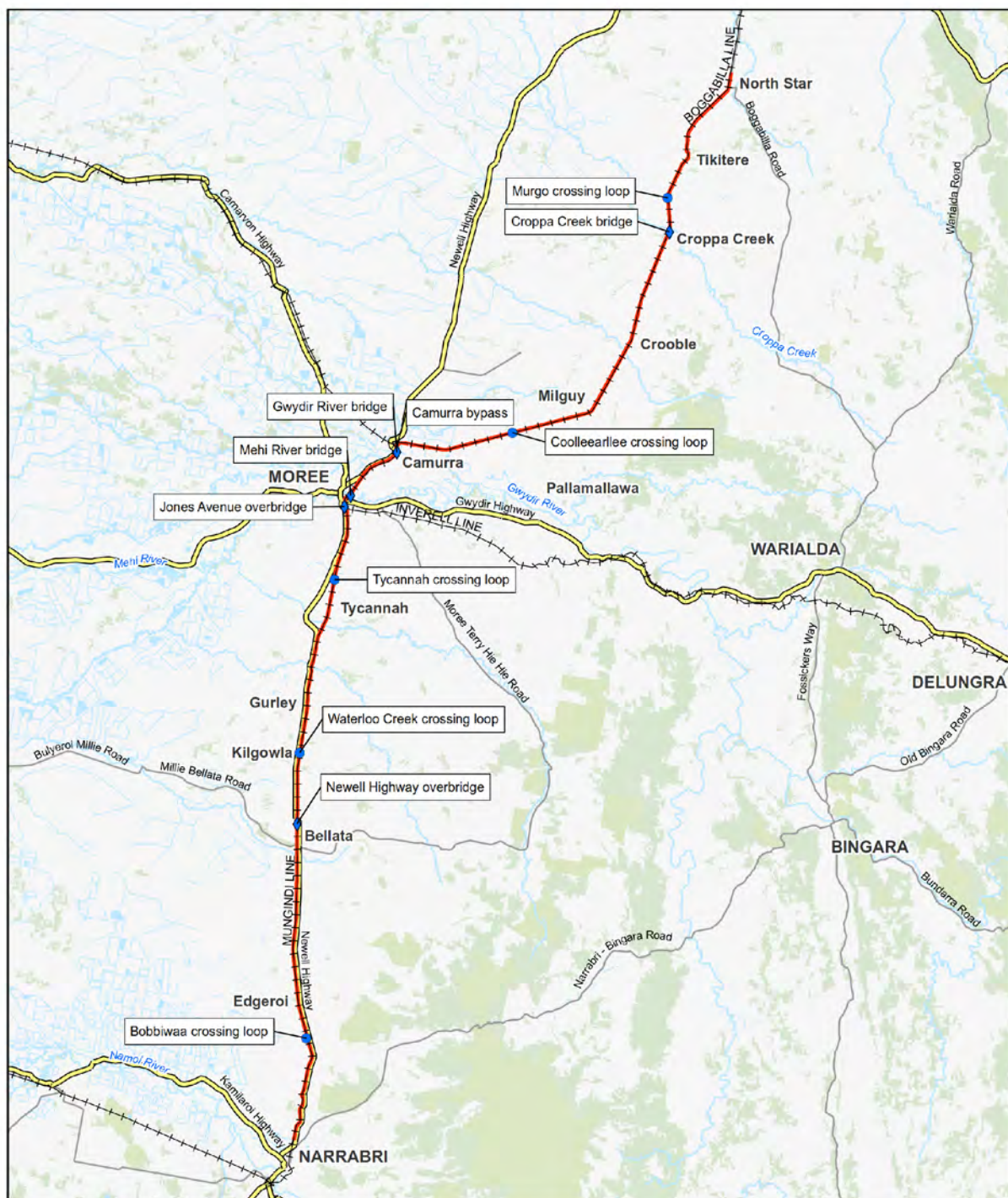
1.3 Purpose and scope of this report

The purpose of this report is to assess potential socio-economic issues from the operation and construction of the proposal, and where required, identify feasible and reasonable mitigation measures.

It addresses the socio-economic requirements of the SEARs, which require the proponent to 'assess social and economic impacts in accordance with the current guidelines'. The socio-economic impact assessment was undertaken in accordance with the guidance provided by the *Environmental Planning and Impact Assessment Practice Note: Socio-economic Assessment* (Roads and Maritime Services, 2013) ('the Practice Note').

Specifically, this assessment:

- Establishes a demographic baseline for the social study area to better understand the social and economic conditions potentially influenced by the proposal
- Identifies potential social and economic impacts, issues and benefits of the proposal
- Proposes measures to avoid or mitigate the impacts and enhance the positive impacts



LEGEND

- ◆ New bridge
- Crossing loop
- The proposal
- + + + Railway
- Highway
- Road

Paper Size A4
 0 3 6 12 18 24
 Kilometers
 Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 55



Australian Rail Track Corporation
 Inland Rail Track Alignment

Job Number 22-17916
 Revision 0
 Date 01 Aug 2017

Key features of the proposal

Figure 1-2

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 G:\2217916\GIS\Maps\Deliverables\N2NS\EIS\Specialist Reports\2217916_EIS002_NNS_KeyFeatures_0.mxd
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 Data source: Commonwealth of Australia (Geoscience Australia), 250K Topographic Data Series 3, 2005. Created by: gmodiarmid, tmorton, kparoba

1.4 Structure of this report

The structure of the report is as follows:

- Chapter 1 provides an introduction to the report.
- Chapter 2 describes the methodology and the policy and legislative context for the assessment.
- Chapter 3 describes the existing social and economic conditions of the social area of influence of the proposal.
- Chapter 4 identifies and describes the potential social impacts arising from the construction and operation of the proposal.
- Chapter 5 outlines the impact mitigation and management measures for the identified impacts.
- Chapter 6 provides a conclusion to the report.

2. Assessment methodology and policy context

2.1 Methodology

2.1.1 Overall approach

The SEARs require the SIA to be undertaken in accordance with the Practice Note.

According to the Practice Note, the overall concerns of the SIA are mainly related to the following social indicators:

- How people live, work, play and interact with one another on a daily basis
- How people move around for personal or business purposes
- People's culture, including shared beliefs, customs and values, attachment to land and places, and sense of belonging
- People's community, including the level of community cohesion, local character and sense of place
- People's access to and use of community services, facilities and social networks
- People's physical and psychological health and wellbeing, including stress levels, happiness and sense of security
- People's fears and aspirations, including perceptions about safety and their fears about, and aspirations for, the future of their community
- People's assets, such as property, housing or business
- People's personal or business income and expenses
- Employment, including location, availability and types of employment and labour force availability
- People's environment, including the quality of the air and water people use, the level of hazard or risk, dust and noise they are exposed to and their physical safety

It is acknowledged that the list above provides a generic overview of social indicators to be considered, however only those social indicators identified in the scoping and risk assessment for this SIA are deliberated further in this report through sections 3, 4 and 5.

2.1.2 Detailed methodology

The tasks involved in the SIA are described below.

Identification of the social study area

The socio-economic benefits and impacts are often not contained within the proposal boundaries. Various factors are considered while determining the social area of influence. They include, but are not limited to:

- Areas that may be affected by noise, dust and visual changes
- Areas that may experience land use changes
- Areas that may potentially supply goods and services and labour to the proposal

To capture the socio-economic influences of the proposal the social study area was defined as:

- Proposal site – includes the area shown in Figure 1.1, which is predominantly within the existing rail corridor
- Social study area – this includes the local government areas (LGA) of Narrabri Shire, Moree Plains Shire and Gwydir Shire which are crossed by the proposal, with particular focus on the nearby towns of Narrabri, Moree and North Star (the regional context is shown in Figure 2.1)

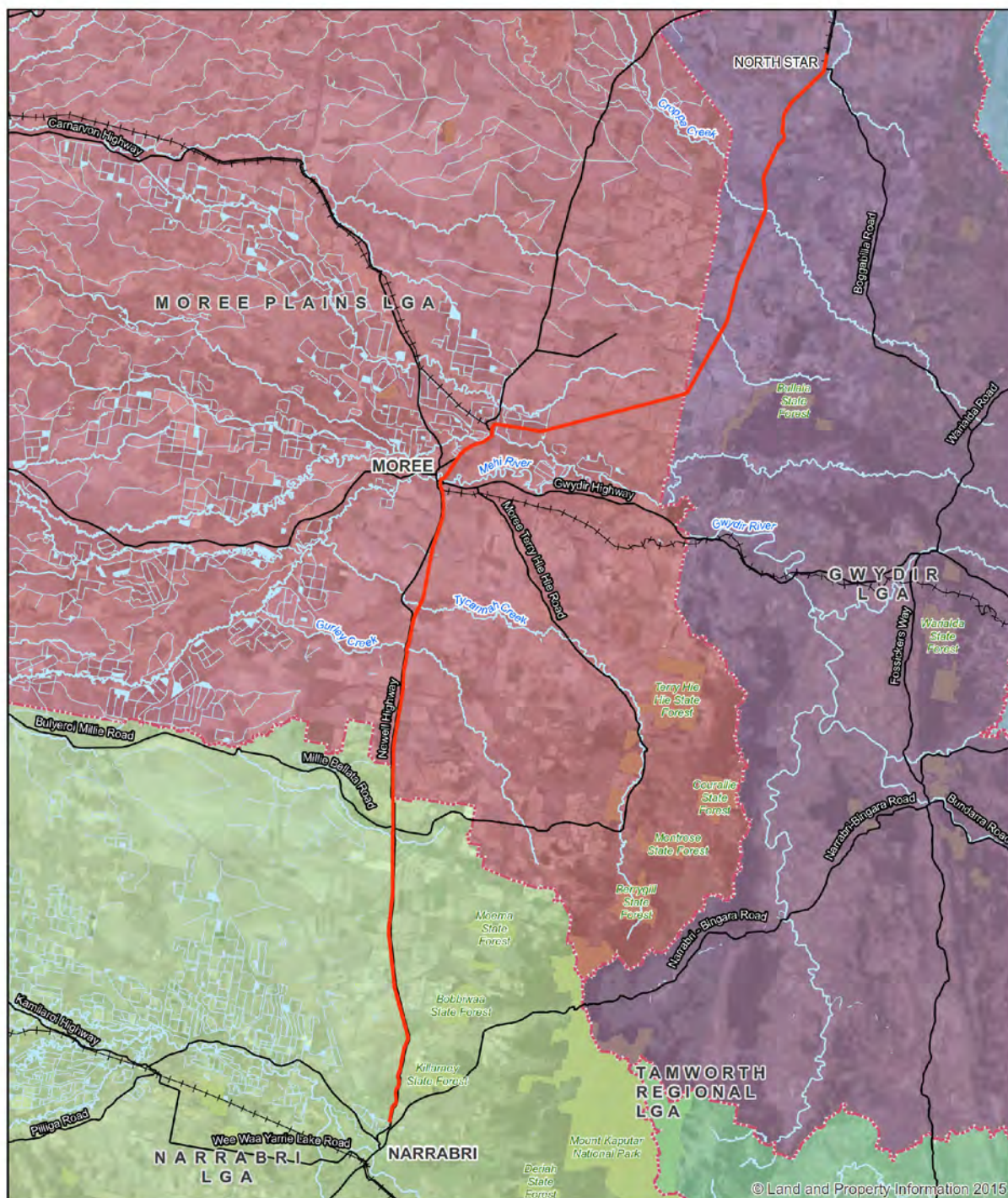
Scoping of socio-economic issues

To provide a framework for the SIA, an initial list of potential social issues and benefits relevant to the proposal was developed to inform research and consultation. These potential issues and benefits were identified based on an understanding of the proposal, other projects, and the Practice Note. The initial list was then augmented as other issues and benefits were identified in later stages of the SIA.

Literature review

The following documents were reviewed:

- The environmental impact statement (EIS) guidelines and legislative framework
- Strategic plans and community plans for the study area (summarised in section 2.2)
- Australian Rail Track Corporation Inland Rail – Narrabri to North Star Environmental Impact Statement (the EIS)
- ARTC, 2015, *ARTC 2015 Inland Rail Programme Business Case*
- Examples of socio-economic studies undertaken for other similar projects
- Technical studies undertaken as part of the EIS:
 - GHD, 2017a, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Hydrology and Flooding Assessment
 - GHD, 2017b, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Water Quality Assessment
 - GHD, 2017c, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Noise and Vibration Assessment



LEGEND

- | | | |
|---|--|---|
| — The proposal | GWYDIR | NARRABRI |
| + + + Railway | INVERELL | MOREE PLAINS |
| Reserves | TAMWORTH REGIONAL | |

Paper Size A4
0 3.5 7 14 21
Kilometers
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



Australian Rail Track Corporation
Inland Rail Track Alignment

Job Number 2217916
Revision 0
Date 02 Jun 2017

Regional context

Figure 2.1

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Data source: Commonwealth of Australia (Geoscience Australia): 250K Topographic Data Series 3, 2008. LPI: DCDB, 2012.

- GHD, 2017e, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Traffic, Transport and Access Assessment
- Umwelt, 2017a, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Aboriginal Cultural Heritage and Archaeological Assessment
- Umwelt, 2017b, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Aquatic Ecology Assessment
- Umwelt, 2017c, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Biodiversity Assessment Report
- Umwelt, 2017d, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Non-Aboriginal Heritage Impact Statement
- Urbis, 2017, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Landscape and Visual Assessment

Developing the social baseline

A description of the existing social characteristics and community dynamics was compiled to form the basis for predicting or measuring the potential social benefits and impacts of the proposal. The existing social environment (also referred to as the social baseline) was developed for the social study area. The social baseline describes the following community characteristics and issues:

- Community lifestyle, values and aspirations
- Demographic characteristics, including population, age and gender, Indigenous population, family composition, housing, workforce including non-resident workers, occupation, industry of employment and income
- Social and community infrastructure, including health services and facilities, community support services, education and training facilities

Data and information for the social baseline were gathered from the following sources:

- Australian Bureau of Statistics (ABS) Census 2011
- Websites and publications of councils in the social study area
- NSW Government agencies
- Information from stakeholder consultation, site visits, and information from other technical studies undertaken as part of the EIS

Population projections were sourced from the NSW Department of Planning and Environment forecasts for each LGA. These projections are based on assumptions taking into account recent and current trends for births, deaths, and migrations.

SIA stakeholder consultations

Stakeholder consultations have been undertaken by ARTC prior to and during the preparation of this SIA. The outcomes of these consultations have been considered in this SIA.

GHD has also undertaken consultations with Narrabri Shire, Moree Plains Shire and Gwydir Shire councils in June and July 2016, and with accommodation providers in March 2017 to further inform this SIA.

Identification and assessment of social benefits and impacts

The definition of social impacts in this SIA is based on the Practice Note. This defines social impacts as issues associated with a proposal that affect or concern people due to actual or perceived social changes. Social impacts include impacts to any aspect of human life and its environs as long as it is valued or considered important by people who would directly or indirectly experience the change.

It should be noted that perceived impacts are as important as actual (measurable) impacts, as people may modify their behaviours or experience discomfort simply because of a perceived impact. Therefore, references to social impacts throughout this assessment refer to both actual impacts and perceived impacts.

To predict social benefits and impacts, this SIA adopts the precautionary and uncertainty principles (IAIA, 2015). With regards to the precautionary principle, this means that even though some impacts were not fully confirmed, they were still considered as part of the assessment. By adopting the uncertainty principle, there is recognition that the predicted impacts may change from place to place and people to people over time, due to ever-changing social processes and as knowledge of these social processes increases.

The predicted impacts were identified based on the social conditions (including trends and forecasts) in the social study area at the time the SIA was undertaken. It is recognised that the predicted social impacts and their assessment may change with any alterations to the socio-economic and political context, or as stakeholder perceptions change over time as more information about the proposal is available. The social impacts may also change once the proposal is being constructed, and when it begins operation.

In light of the variables described above, the process of impact prediction was made robust through utilisation of multiple sources of information. Impact identification was informed by:

- Using the outcomes of the ARTC stakeholder consultation
- Proposal information available at the time, the social baseline of the study area, and the scoping of social issues carried out by the SIA team
- A literature review of social impact assessments of similar projects, community and regional plans for the study area, and relevant information/documents shared by stakeholders
- Other technical studies prepared for the EIS, as listed in literature review section (section 2.1.2)

The impact categorisation and risk rating was based on the environmental risk assessment process for the EIS (outlined in the Environmental Risk Report provided with the EIS). As per this process, social risks were identified and then categorised as:

- Positive impact/benefits – where the affected stakeholders would be ‘better off’ or would benefit due to the proposal
- Negative impacts – where the affected stakeholders would be ‘worse off’ due to the proposal

The benefits and impacts were then classified by significance using an impact likelihood and consequence framework. Those risks that were classified as ‘moderate’ to ‘high’ are detailed in section 4. Some perceived risks of lower rating are also discussed in section 4.

Social impact management strategies

The social impact management strategies outlined in this report seek to both enhance the benefits and mitigate negative impacts of the proposal on stakeholders and communities. The SIA also draws upon the various EIS technical studies (as listed in the literature review section 2.1.2) for mitigation/management of specific impacts.

The management strategies were developed using adaptive management principles recognising that impacts may change over time, and that ongoing monitoring of impacts would provide the flexibility to accommodate such changes.

2.2 Planning and policy context

There are a number of statutory and non-statutory regional and community plans relevant to the social study area that provide strategic advice and guidance to regional development. These plans were reviewed to provide an understanding of the broader context of the region. The results of the review are summarised below.

2.2.1 Economic planning

The study area is covered by the Northern Inland NSW *Regional Plan 2016 – 2019* (Regional Development Australia, 2016) The Northern Inland NSW Regional Plan is also supported by the NSW Northern Inland Freight Study (RDA Northern Inland, 2012).

The NSW Government's *Economic Development Strategy for Regional NSW* (NSW Department of Trade and Investment, 2015) also applies to the study area.

At a local level, economic development is considered within the community strategic plans for the Narrabri Shire, Moree Plains Shire and Gwydir Shire LGAs.

2.2.2 Community planning

Narrabri Shire Community Strategic Plan – towards 2023

A quadruple bottom line approach was considered in the *Narrabri Shire Community Strategic Plan*, with the intent to effectively integrate and address themed issues such as social, environmental economic and civic leadership. These themes were chosen to help create a balanced and holistic approach.

Narrabri Shire has a vision of being “a strong and vibrant regional growth centre providing a quality living environment for the entire Shire community.” Narrabri Shire values being a busy hub for the agricultural and resources sectors and wants to improve its ability to offer a full range of services, such as health, education and retail. However, in order to be economically sustainable, Narrabri Shire wants to ensure that industries within its local economy are diverse enough to sustain the community in the long term.

In line with this vision, fifteen strategic objectives have been established for Narrabri Shire. These include:

1. Narrabri to be a regional centre
2. Airport to be a regional quality (similar to Newcastle)
3. Regional standard Narrabri CBD

4. Regional standard industrial land/parks developments
5. Established and sustainable investment program in place
6. Adequate health services to meet the needs of a regional centre
7. Expanded tertiary educational facilities (agriculture, education business, mining and health)
8. Adequate accommodation available to meet demand (residential, community industrial, aged and itinerant)
9. Regional standard infrastructure
10. Revenue and income growth strategy in place
11. Sustainable land use
12. Ensure a clean, green environment for the future
13. A safe place to live, work and experience the diversity of cultural activities
14. Ensure Council is compliant with statutory regulations
15. Proactively engage with the community

Moree Plains Shire Community Strategic Plan 2013

Moree Plains Shire's *Community Strategic Plan 2013* is a long term planning document that outlines community priorities, values and actions for developing the community towards 2035.

The plan promotes four key values of:

- An inclusive, caring community
- A vibrant regional economy
- An environmental role model
- Coordinated, committed leadership

These values are further developed and expanded within the document. Of particular relevance to this proposal is the value of a vibrant regional economy. Diversification of the economy away from its current reliance on agriculture while supporting existing businesses is a key economic objective, as is building and maintaining infrastructure that supports industry.

A series of community and council indicators are provided within the document to help assess achievement of these goals.

Community Strategic Plan 2014-2024 – Gwydir Shire Council

Gwydir Shire Council's *Community Strategic Plan 2014-2024* presents a vision for Gwydir Shire in 2024 and provides values and guidance for achieving this vision. The plan presents four key priorities for Gwydir Shire as a focus for future actions. These priorities are centred on social, economic, environmental and organisational themes and include:

- A healthy and cohesive community
- Building the business base
- An environmentally responsible shire
- Proactive regional and local leadership

The plan further develops these priorities with associated objectives and actions. Of particular note are actions underlining the importance of respectful planning, balanced growth and good design, as well as supporting and growing the local economy and promoting the area as a place to live, work and invest. Local employment, provision of infrastructure and business and industry partnerships are highlighted as methods of achieving these goals.

2.2.3 Land use and transport planning

Regional Plan 2016 – 2019: Northern Inland NSW (Version 4.0), 2016

Supported by the Federal and NSW governments, Regional Development Australia prepared a regional plan for NSW's Northern Inland region. This region includes the LGAs of Moree Plains Shire, Gwydir Shire and Narrabri Shire in its north-westernmost corner. The plan aims to articulate a regional economic, environmental and social vision and direction and has identified three priorities for the region to work towards. These priorities are:

- Regional community regeneration and sustainable population growth
- Industry diversification, business growth and job creation
- Investment in regional infrastructure, education and skills

The plan also identifies a number of the region's strengths, opportunities and challenges.

These include:

Strengths

- Resource base including land, water, climate and minerals with economic activity centred on agriculture, mining, forestry, food processing including abattoirs, and grain products
- Established education facilities including regional university, emerging technology and research and development facilities including animal genetics and breeding centres
- Central location with rail, air and road networks connecting the region
- Aviation industries, including training, airline maintenance and aerial agricultural services plus a range of manufacturers servicing the region
- Strong sense of community in localities and co-operation across the region
- Competitive telecommunications infrastructure including national broadband network fibre in Armidale and Tamworth plus fixed wireless throughout the region
- Nature based tourism including national parks, hot artesian springs and rural landscapes
- Aesthetic, amenity and outdoor recreational values and relaxed lifestyle

Opportunities

- Economic diversification with a focus on high skilled and high paid jobs
- Mechanisms to attract new businesses and assist existing businesses
- Development of a support program to encourage youth to return to the region
- Maximising the benefits of mining development in the region
- Development of renewable energy industries

- Provision of local input into infrastructure projects
- Maximise benefit from in-migration from Queensland and elsewhere in NSW

Challenges

- High dependence on commodities such as agriculture and mining with associated vulnerability to variables such as climate change and commodity prices
- Rising energy costs and high grid access charges for renewable energy projects
- Limited business growth initiatives in the region and need for markets outside region
- Issues relating to rapid mining expansion/labour competition, accommodation shortages and effects of a strong currency, as well as need to capitalise on mining sector
- Uncertainty regarding implementation of Murray-Darling Basin Plan
- Uncoordinated approaches to attracting residences, business and tourists
- High level sustained out-migration of young people 20 – 30 years old
- Centralisation of tertiary education and skilled/unskilled labour shortages
- Limited access to integrated health and aged care services
- Erosion of transport services and lack of infrastructure spending, particularly local roads
- Access to integrated health and ages cared services
- Large and growing indigenous population requiring particular education, employment and community services
- Youth inclusion, youth unemployment, education and skills pathways and employment opportunities
- Over-reliance on volunteerism and ageing community leaders

New England North West: Regional Transport Plan, 2013

The *New England North West Regional Transport Plan* details a variety of actions to improve road corridors and public transport between the major town centres of Armidale and Tamworth, within the New England North West region.

The plan also examines to a lesser extent the transport requirements for the other major towns of Moree, Narrabri, Gunnedah, Inverell, Tenterfield and Glen Innes.

The plan considers issues such as growing industry, social disadvantage, developing employment centres, tourism and ageing populations in its assessment of transport needs.

Investigating options for an inland rail freight line is one of the key actions of the *New England North West Regional Transport Plan*.

Other strategic planning documents relevant to the study area are described in the EIS.

3. Existing environment

3.1 Proposal site

The majority of the proposal would be undertaken within the existing rail corridor between Narrabri and North Star.

The southern end of the proposal commences in Narrabri just to the north of Narrabri town centre at the intersection of the Newell Highway and Killarney Gap Road. In the Narrabri to Moree section, the proposal site is located generally adjacent to the Newell Highway.

Between Narrabri and Moree, the proposal site travels through the villages of Edgeroi, Bellata, and Gurley. The proposal site then passes through Moree along the existing rail corridor. From Moree, the proposal site travels in a north-easterly direction to the locality of Camurra, which is about 10 kilometres to the north-east of Moree. In this section, the proposal site is located to the east of the Newell Highway. At Camurra, the proposal site enters the corridor for the Boggabilla rail line at an existing hairpin curve. This curve would be eased by construction of a deviation about 1.4 kilometres long.

From Camurra, the proposal site travels to the east, and then to the north through rural lands and the localities of Crooble and Croppa Creek until it reaches the village of North Star. The existing rail corridor passes to the west of the main residential area of the village.

3.2 Land use in the social study area

The proposal traverses three local government areas (LGAs), with the southern section of the proposal located in the Narrabri Shire LGA, the middle section in the Moree Plains Shire LGA, and the northern section in the Gwydir Shire LGA. The three LGAs are predominantly rural. The Moree Plains Shire and Gwydir Shire LGAs adjoin the Queensland border.

The study area is dominated by agricultural industries. Grazing and cropping land accounts for 77 per cent of the total land area within the region. Within the three LGAs, the major crops grown are wheat, cotton, chickpeas, barley and sorghum. Conservation areas account for 13 per cent of the total land use and includes 'the Pilliga', which is forested area covering more than 500,000 hectares in north-western NSW around Coonabarabran, Baradine and Narrabri.

With the exception of the town of Moree, the proposal site traverses a predominately rural area, with large rural properties surrounding the vast majority of the proposal site. The land surrounding the proposal site is used mainly for agriculture and grazing purposes.

Most of the proposal site is located within the existing rail corridor, with these areas subject to railway uses. The existing rail corridor is owned by the NSW Government and leased to ARTC.

The majority of the study area has been cleared of the original vegetation. Scattered patches of remnant vegetation remain, mainly in the vicinity of watercourses. Scattered paddock trees are also present throughout the study area.

Residences within close proximity to the proposal site are concentrated in the towns of Moree, Narrabri, Gurley, and Bellata. Based on the noise and vibration assessment (GHD, 2017c), 2,372 residential and non-residential users (such as places of worship, education and other community facilities) are located within two kilometres on either side of the rail corridor. Land ownership within the study area includes private landholders and various State Government departments. The study area also includes Crown land, including reserves, waterways and public roads.

3.3 Transport in the social study area

Passenger trains operate between Werris Creek and Moree, with Moree served by NSW TrainLink's daily Northern Tablelands Xplorer service operating to and from Sydney. In the study area, trains stop at Narrabri, Bellata and Moree. On an annual basis there is currently an average of 1.8 passenger trains per day.

Occasional grain/goods trains operate as required. Annually there is an average of two grain trains per day carrying about 1.7 million tonnes of grain per year.

Train speeds between Narrabri and Moree are limited to a maximum of 90 to 100 kilometres per hour depending on the axle weight with local speed restrictions due to limitations associated with the existing track. Between Moree and North Star, train speeds are limited to a maximum of 80 kilometres per hour depending on the axle weight. There are also local speeds restrictions due to existing track condition.

There are 86 public and private level crossings (both active and passive) within the proposal site. Delays at a level crossing relate mainly to train length and speed. The maximum wait time at a crossing under existing rail operations is 122 seconds. The current rail operation largely passes through rural land, so pedestrian and cyclist activity is low near the proposal site. Dedicated pedestrian and cyclist crossings over the rail corridor are therefore limited. There are no facilities for pedestrians or cyclists provided along the Newell Highway (south of Moree) or Moree Bypass. Pedestrian crossings of the Moree Bypass and adjacent rail corridor are available at Alice Street and Moree train station.

Road freight transport supports the current rail operation. Road freight is common in the region, with 35.6 million tonnes of freight originating in the New England and North West region (which also includes Armidale, Gunnedah and Tamworth) and 30.1 million tonnes being delivered into the region in 2014 (ABS, 2015). Road freight drivers may stay overnight in towns along or near the proposal site in particular the regional towns of Narrabri and Moree, due to their connections to the Newell Highway, a major arterial road linking Melbourne and Brisbane. Moree is also connected by the Gwydir Highway and close to Moree Gateway, a logistics and transport hub, which fronts the Newell Highway. Key socio-economic characteristics.

3.4 Key socio-economic characteristics

3.4.1 Narrabri Shire Local Government Area

Narrabri Shire LGA has a population of 12,925 based on the 2011 census data, down from 13,119 in 2006 (ABS 2016). The LGA covers an area of about 13,000 km². Key towns include Narrabri, which is the main centre with over half the population living there (57%), and the majority of remaining residents living in Boggabri and Wee Waa (Narrabri Shire Council 2013). Narrabri Shire is located on the lands of the Kamilaroi people (Narrabri Shire, n.d.b).

Economy

The LGA has a strong agricultural industry as well as tourism, mining and gas, and scientific research industries. Consultation with Narrabri Shire Council identified University of Sydney cotton and wheat research centres and the Australian Telescope as part of the research industry in the LGA.

In 2011-12, the Gross Regional Product (GRP) of the Narrabri Shire was estimated at \$939.3 million, with the mining and agriculture industries contributing most to the economy accounting for \$224.9 million and \$185.5 million respectively (Narrabri Shire Council n.d.a). While this only represented a small portion of the NSW economy (0.2%), the GRP grew at a rate of 4.7%. This was almost double the NSW average.

Coal mines are relatively new to the area compared to other regions. The mining industry recorded the highest annual growth of almost 25%. Other industries that experienced growth were retail trade, health care and social assistance, wholesale trade and public administration and safety.

Despite economic growth, the LGA is experiencing low rates of out-migration of residents and workers, which may be due to limited economic diversity. In 2011, the number of local businesses in the Narrabri Shire increased slightly by an annual rate of 0.1% (Narrabri Shire Council n.d.a). The average turnover of all businesses was about \$432,400 in 2010/11, which was a small annual decrease of 2.8%.

In 2011, about 5,192 persons worked in Narrabri Shire (slight decrease of 159 persons since 2006) (Narrabri Shire Council n.d.a). Around a fifth were employed in the agriculture, forestry and fishing industry (1,124 persons). Other significant employers included retail trade (10%), health care and social assistance (10%), education and training (7%) and mining (7%). Narrabri Shire is looking to further diversify and strengthen its economic base (Narrabri Shire Council n.d.a).

Natural features

Major natural features close to Narrabri Shire include the Namoi River, Pilliga Forest (and its artesian bore baths) and Mount Kaputar National Park, as well as the smaller reserves of Moema and Courrada National Parks and Bobbiwaaa and Killarney State Conservation Areas.

Roads and transport

In addition to the existing rail, Narrabri Shire is served by the Newell and Kamilaroi Highways and the Narrabri Airport.

Narrabri town

Narrabri is located about 172 kilometres northwest of Tamworth in northern NSW. The town is the administrative centre of the Narrabri Shire LGA and has strong agricultural industries such as cotton, wheat, beef and lamb.

Narrabri has a population of 5,890 based on the 2011 census data (ABS 2016). Narrabri has experienced population decline from 6,102 people since 2006. The population is projected to continue to decline to 5,525 by 2031.

As the regional centre, Narrabri also has strong local tourism and retail industries (Narrabri Shire Council 2016a). Narrabri is largely focused upon nature-based tourism with several national parks in the region. Narrabri also has several museums and in-town restaurants. Tourist attractions in Narrabri include Mount Kaputar National Park, Pilliga Forest, the CSIRO Australia Telescope and the Nandewar Ranges. Local produce such as olives, wine, tea, sundried tomatoes and olive oil contribute to a local food culture. The annual “Nosh on the Namoi” food and wine festival regularly brings in many exhibitors from around the region (Narrabri Shire Council 2016a). A range of community facilities and services are located in the town including education and child care, parks and recreation facilities, emergency services and other community facilities such as shops and medical services. The majority of these facilities are considered regional and neighbouring towns, including Edgeroi, Jacks Creek and Maules Creek, may utilise Narrabri’s education and community facilities.

Table 3.1 provides a demographic summary for Narrabri town, compared to Narrabri Shire LGA.

Table 3.1 Narrabri demographic summary

Data type	Narrabri town, 2011	Narrabri Shire LGA, 2011
Population	Total 2011 population of 5,890 people, decreasing from 6,102 in 2006. Projected population of 5,525 by 2031 – a decrease of 365 people at a rate of -0.3% per annum.	The total population of Narrabri Shire LGA in 2011 was 12,925.
Age and gender	Approximately even gender divide of 48.9% male and 51.1% female, similar to the LGA. Approximately even spread of the population amongst different age groups similar to the LGA. Median age of the population is 37 years, slightly younger than the LGA.	The LGA had an approximately even gender divide of 50.1% male and 49.9% female. Median age of the population is 39 years.
Indigenous population	Indigenous population of 706 people comprising 12.0% of the population, slightly greater than the LGA. State-wide and nationally, Indigenous people consist of 2.5% of the population, the Narrabri urban centre and LGA populations are significantly greater than this.	Indigenous people represented 10.7% of the LGA population.
Family composition	Similar to the LGA, in Narrabri couple families with and without children are the dominant family types, comprising 39.7% and 40.1% of all families respectively. Slightly greater proportion of single parent families within Narrabri compared to the LGA at 18.7%.	Within the LGA, couple families with and without children comprise 41.7% and 41.6% of all families respectively. The proportion of single parent families within the LGA is 15.3%.

Data type	Narrabri town, 2011	Narrabri Shire LGA, 2011
Housing	<p>Similar to the LGA most private dwellings (34.4%) within Narrabri are owned outright and 29.5% are owned with a mortgage. There was a slightly greater percentage of rented properties within Narrabri (36.1%) than the LGA.</p> <p>The median monthly mortgage repayment was \$1,300 in both Narrabri and the LGA.</p> <p>There was a slightly greater median rent of \$150 per week than the LGA.</p>	<p>The proportion of rented properties was 31.6%.</p> <p>The median monthly mortgage repayment was \$1,300.</p> <p>The median rent was \$140 per week in the LGA.</p>
FTE worker population	<p>Similar full time labour force participation to the LGA at 64.6%.</p> <p>Total employed population of 2572 workers, both full and part-time.</p> <p>Unemployment in 2011 was 5.5% in both Narrabri town and the LGA.</p>	<p>Labour force participation was 66.4%.</p> <p>At September 2016, unemployment in the LGA was recorded as 7.1% (Department of Employment, 2016).</p>
Occupation and industry of employment	<p>Technicians and trade worker was the most common occupation (18%), followed by professionals (14.3%) and labourers (13.4%). Only 10.6% of workers in Narrabri were managers, lower than the LGA.</p> <p>Retail trade (13.0%) and health care and social assistance (11.0%) were the dominating industries for Narrabri. This was in clear contrast to the LGA where agriculture (such as sheep, beef, cattle and grain farming) was the dominant industry.</p>	<p>19.7% of workers were managers in the LGA.</p> <p>Agriculture was the dominant industry, comprising 21.4% of all workers.</p>
Income	The median individual income was \$526 per week, slightly higher than the LGA.	The median individual income was \$520 per week in the LGA.
Index of Relative Socio-economic Disadvantage	Based on a score of 962, Narrabri town had a marginally higher level of disadvantage compared to the LGA.	953

Table note:

1. The Index of Relative Socio-economic Disadvantage indicator blends various social and economic Census data to obtain scores which enable the ranking of geographic areas across Australia by their relative socio-economic disadvantage. They are derived from Census variables related to disadvantage, such as low income, low educational attainment, unemployment, and dwellings without motor vehicles. A higher score indicates a lower level of disadvantage, while a lower score indicates a higher level of disadvantage. The average score is 1000. Scores of less than 1000 indicate relative socio-economic disadvantage while those above 1000 indicate relative socio-economic advantage (i.e. the higher the score, the more advantaged and vice versa).

Accommodation and community facilities

The Crossing Theatre is one of the major attractions in Narrabri. The theatre is a regional facility with a 1000-seat auditorium, function centre and twin cinemas.

Narrabri has a number of accommodation facilities for visitors. The area includes 16 hotels and motels (supplying a total of 294 rooms), three bed and breakfasts (providing 24 rooms) and six caravan parks and camping grounds (providing 235 sites and 69 cabins) (Narrabri Tourism Plan 2014). Narrabri is also serviced by the Civeo workforce village with 500 standard rooms. Narrabri accommodation typically experiences high occupancy rates in the June and September holiday periods, of 78% and 75% respectively (Narrabri Tourism Plan 2014, Civeo, 2017)).

According to SQM Research (2017), 41 properties were available for rent in Narrabri Shire LGA as of March 2017. This represented 3.6% of all rental properties. This decreased from April 2016, when 54 rental properties were available.

Other facilities include the Narrabri Showgrounds which is Australia's biggest pony camp and overnight stables. Pony camp is held annually in the September/October school holidays for a week; campers are between the ages of 6 and 17. Riders of the camp typically stay in Narrabri accommodation or their own homes each night (Narrabri Pony Club 2016).

Narrabri functions as a regional centre for health and education services. The Narrabri District Health Service operates out of Narrabri Hospital, and tertiary education facilities include Narrabri Tafe and Northern Inland Community College. The town centre also includes a range of local community facilities and services. Table 3.2 identifies community facilities within or near Narrabri town.

Table 3.2 Community facilities within or near Narrabri town

Facility type	Name	Address
Place of worship	St Cyprian's Anglican Church	13 Dewhurst Street
	St Francis Xavier Church	11 Bowen Street
	Uniting Church Narrabri	Cnr Dewhurst and Balonne Street
	Narrabri Baptist Church	Hinds Street
	Narrabri Presbyterian Church	3 Dewhurst Street
	Narrabri Christian Fellowship	32-36 Mooloobar Street
	New Life Christian Fellowship	4 Mooloobar Street
	Christian Outreach Centre	73 Maitland Street
Emergency services	Narrabri Police Station	52 Maitland Street
	Narrabri Ambulance Station	66 Gibbons Street
	Narrabri Fire and Rescue NSW	2 Doyle Street
	Narrabri Rural Fire District	Old Newell Highway
	Narrabri SES	4 Reid Street
Health	Narrabri Hospital – Narrabri District Health Service	66 Gibbons Street
	Narrabri Medical Centre	Shop 3 Tourist Building, Doyle Street
	Namoi Medical Services	159 Tibbereena Street
	The Bridge Medical Practice	110 Tibbereena Street
	Narrabri Community Health	66 Gibbons Street
Community and cultural venues	Narrabri Library	8 Doyle Street
	The Crossing Theatre	Newell Highway
	Sporting Wall of Fame	Tibbereena Street

Facility type	Name	Address
Sport and recreation	Hogan Oval	Tibbereena Street
	Leitch Oval	Tibbereena Street
	Gately Field	Cooma Road
	Cameron Park	Cooma Road
	Cooma Oval	Ugoa Street
	Dangar Park	Bohena Street
	Narrabri West Lake	Ugoa Street
	Blanche Peadon	Blanche Peadon Park
	Narrabri Showground	Po Box 453, Narrabri
	Narrabri Bowling Club	170 Maitland Street
	Narrabri Golf Club	Gibbons Street
	Narrabri Skate Park	Timbereena Street
	Narrabri Aquatic Centre	Timbereena Street
Education	Narrabri Public School	90 Barwon Street
	Narrabri West Public School	6 Cooma Road
	Narrabri St Francis Xavier's School	32 Nandewar Street
	Narrabri High School	2 Gibbons Street
	Tafe Narrabri	87 Barwon Street
	Northern Inland Community Colleges	3/100 Maitland Street

3.4.2 Moree Plains Shire Local Government Area

Moree Plains Shire LGA is located on the northern border of NSW, covering an area of about 17,930 km² (Moree Plains Shire Council, 2015). It has a permanent population of 13,429 persons, down from 13,976 in 2006 (ABS 2016). The LGA is located on the lands of the Kamilaroi people (Tourism Moree 2016).

The population typically increases between August and January due to cotton chipping season and peak tourism season for attractions such as the artesian hot springs (Moree Plains Shire Council, 2015a). There are a number of accommodation facilities available particularly within Moree town (discussed below). It is likely that temporary workers and visitors stay at these facilities during these periods.

Economy

Moree Plains Shire is now Australia's most agriculturally productive LGA and is known as the Golden Wheatbelt (Moree Plains Shire Council, 2015; Tourism Moree, 2016). In addition to wheat, Moree Plains Shire produces crops such as sunflowers, mung beans, olives, cotton and pecans. Cattle production is also a strong part of Moree Plains Shire's agricultural industry (Tourism Moree, 2016).

Moree Plains Shire's economy is strongly focused on agriculture. The Gross Regional Product (GRP) of the LGA is about \$750 million. However, due to a reduction in irrigated agriculture and the limited diversity of the LGA's economy, out-migration of workers and families is occurring.

Other industries in Moree Plains Shire include manufacturing and support industries. Combined, the agriculture and manufacturing industries of Moree Plains Shire provide employment to over 1600 persons; further supporting industries include retail trade (522 people), construction (239 people) and electricity, gas and water services (52 people). All industries except for retail trade are generally male dominated industries (ABS 2011). In 2013, 7,251 people worked in Moree Plains Shire (Moree Plains Shire Council, 2015).

Moree town is the main business centre in the region, including medical, legal, accounting, environmental and property services. There is a low vacancy rate of businesses within the CBD (Moree Plains Shire Council, 2015).

Moree Plains Shire Council has identified the Moree Gateway Precinct as an urban renewal initiative to generate economic activity and employment. It is located adjacent to Moree Airport and fronts the Newell Highway. Uses in the precinct could include vehicle services, tourism and accommodation, food services, bulky goods and light industry.

Natural features

Major natural features within Moree Plains Shire LGA include the Gwydir and Mehi Rivers, the artesian bore baths in the area and the Kirramingly Nature Reserve.

Roads and transport

In addition to the existing rail, the LGA is served by the Newell, Gwydir and Carnarvon Highways and the Moree Airport.

Moree town

Located about 250 kilometres north-west of Tamworth, Moree is the largest urban centre within Moree Plains Shire LGA (ABS, 2016; Moree Plains Shire Council, 2015). Moree has a population of 7,720 based on the 2011 census data (ABS 2016). Moree has experienced population decline decreasing from 8,083 people since 2006. The population is projected to continue to decline to 6,462 by 2031.

Moree is known for its heritage, agriculture and natural assets. The Moree Baths are a key element of the local tourism economy. About 300,000 people visit the spa annually to experience the mineral baths (Destination NSW, 2016).

As a main service and business centre for the region, Moree has a range of services and facilities located in the town including education and child care, parks and recreation facilities, emergency services and other community facilities such as shops and medical services.

Table 3.3 provides a demographic summary of the town of Moree and More Plains Shire LGA respectively.

Table 3.3 Moree demographic summary

Data type	Moree town, 2011	Moree Plains Shire LGA, 2011
Population	2011 population of 7,720 people comprising 57.5% of Moree Plains Shire LGA's population (n=13,429). This is down from 8,083 people in 2006. Projected population of 6,462 in 2031 based on an annual rate of -0.9%.	The total population of Moree Plains Shire was 13,429 in 2011.

Data type	Moree town, 2011	Moree Plains Shire LGA, 2011
Age and gender	Median age is the same as the Moree Plains Shire LGA at 35 years. There is a similar spread of ages in both Moree and the LGA and an approximately even gender divide. Proportions of children and youth remain steady in Moree and the LGA until the age of 24. There is an increase in the number of adults older than this age, before a sharp decline in the proportion of people aged 85 years and over.	Median age is 35 years.
Indigenous population	Indigenous population of 706 people comprising 23.6% of the population, slightly greater than the LGA. State-wide and nationally, Indigenous people consist of 2.5% of the population, the Moree urban centre and LGA populations are significantly greater than this.	Indigenous people represented 20.8% of the LGA population.
Family composition	Couple families with and without children are the dominant family types, comprising 37.4% and 35.8% of all families respectively. This is slightly lower than in the LGA. Greater proportion of single parent families within Moree compared to the LGA at 24.5%.	Couple families with and without children comprise 41.7% and 36.8% of all families. The proportion of single parent families was 19.6%.
Housing	A lower proportion of dwellings in Moree are owned outright (27%) and fewer dwellings owned overall (54.2%) than the LGA. There was a slightly greater percentage of rented properties within Moree (45.8%) than the LGA. The median monthly mortgage repayment was \$1,300 in Moree, the same as in the wider LGA. Moree had a higher median rent of \$160 per week than the wider LGA.	The proportion of dwellings owned outright was 31.5%. Overall home ownership was 57.6%. The percentage of rented properties in the LGA was 42.4%. The median monthly mortgage repayment was \$1,300. The median rent was \$140 per week in the LGA.
FTE worker population	Lower labour force participation than the LGA at 55.8%. Total employed population of 3,114 workers, both full and part-time. Unemployment in 2011 was higher in Moree town at 7.0% compared with 6.0% in the LGA.	Labour force participation was 60.1%. At September 2016, unemployment in the LGA was recorded as 9.5% (Department of Employment, 2016).

Data type	Moree town, 2011	Moree Plains Shire LGA, 2011
Occupation and industry of employment	Professional was the most common occupation (16.1%), followed by technicians and trade workers (15.2%) and clerical and administrative workers (13.9%). Only 12.0% of workers in Moree were managers, lower than the LGA. Retail trade (11.9%) and health care and social assistance (10.1%) were the dominating industries for Moree. This was in clear contrast to the LGA where agriculture (such as sheep, beef, cattle and grain farming) was the dominant industry.	22.2% of workers in the LGA were managers. Agriculture was the dominant industry comprising 26% of all workers.
Income	Moree's median individual income was \$557 per week, similar to the wider LGA. Similar to the LGA, 45.0% of people earn between \$200-999 per week.	The median individual income was \$558 per week. 44.4% of people earn between \$200-999 per week.
Index of Relative Socio-economic Disadvantage	Based on a score of 919, Moree town had a marginally higher level of disadvantage compared to the LGA. SIA consultation with Moree Plains Shire Council also reported that the eastern part of Moree town had a lower socio-economic status.	915

Table note:

1. The Index of Relative Socio-economic Disadvantage indicator blends various social and economic Census data to obtain scores which enable the ranking of geographic areas across Australia by their relative socio-economic disadvantage. They are derived from Census variables related to disadvantage, such as low income, low educational attainment, unemployment, and dwellings without motor vehicles. A higher score indicates a lower level of disadvantage, while a lower score indicates a higher level of disadvantage. The average score is 1000. Scores of less than 1000 indicate relative socio-economic disadvantage while those above 1000 indicate relative socio-economic advantage (i.e. the higher the score, the more advantaged and vice versa).

Accommodation and community facilities

Moree is known as the spa capital of Australia from the thermal artesian mineral waters. The Moree Artesian Aquatic Centre is one of Moree's major tourist attractions. There are 13 motels located in close proximity to the Moree Town Centre with some offering self-contained units for short term or longer stays. Just outside the town are two caravan parks with camping grounds, these are located on the banks of the Mehi River or next to the bores that create thermal pools and are an attraction in the local area.

According to SQM Research (2017), 39 rental properties were available in Moree Plains Shire LGA as at March 2017. This represented 2% of all rental properties. In June 2016, 38 properties were available.

A range of local community facilities and services are located in the town, including education and childcare, parks and recreation facilities, library services, and other community facilities such as shops and medical services, including the Moree Hospital. The TAFE New England campus is located in the town centre providing tertiary education. Table 3.4 identifies community facilities within or near Moree town.

Table 3.4 Community facilities within or near Moree town

Facility type	Name	Address
Emergency services	Moree Police Station	60-62 Frome St, Moree
	Moree Fire Brigade	179 Balo Street, Moree
	Balo Street Medical Centre	72 Balo Street
Health	Barwon Division of General Practice	Shop 5/96 Balo Street
	Moree Medical Centre	342 Frome Street
	Moree Hospital	Alice Street
	Moree Community Library	36 Balo Street
	Moree Artesian Aquatic Complex	20 Anne Street
Community and cultural venues	Boolooroo Raceway	Newell Highway
Sport and recreation	Moree Race Club	Boggabilla Rd, Moree
	Moree Tennis Club	Endeavour Lane
	Kirkby Park	75 Frome St, Moree
	Moree Skate Park	Balo Street, Moree
	Apex Park	Cnr Gwydir and Edward Street
	Jellicoe Park	Cnr Gwydir Hwy and Newell Hwy
	Jacaranda Park	Jacaranda Dr, Moree
	Moree Christian School	409 Chester Street
	Moree Community College	45 Frome St
	Moree Gun Club	Back Pally Road
Education	Moree East Public School	Adelaide Street
	Moree Public School	Albert Street,
	Moree Secondary College Years 10-12	Albert Street
	Moree Secondary College Years 7-9	Carol Avenue
	St Philomena's School	55 Boston Street
	TAFE New England Moree Campus	22-38 Frome Street

3.4.3 Gwydir Shire Local Government Area

Gwydir Shire LGA covers an area of 9,122 km² and ranges from the northern NSW border south-east of Boggabilla down to just above Barraba in the south. It has a population of 4,965 according to the 2011 census statistics, down from 5,311 in 2006 (ABS 2016).

Economy

Agriculture is the dominant industry within Gwydir Shire and the area is known for its cattle farming. However, the local industry faces challenges such as an ageing population, climate change, market changes (Gwydir Shire Council n.d.a.). Gwydir Shire also faces other challenges such as loss of local expenditure to nearby urban centres such as Narrabri, Moree and Tamworth, as well as low numbers of skilled workers, particularly between the ages of 18 to 49 (Gwydir Shire Council n.d.).

Bingara and Warialda are the main towns within the LGA that are generally well-serviced. However, Gwydir Shire Council identified market gaps within the broader LGA, including retail, hospitality, services, medical and banking facilities. Residents may therefore travel outside of the LGA to access these services when unavailable.

Natural features

Major natural features within Gwydir Shire LGA include the Gwydir River, the Bullala and Gunyerwarildi National Parks and Kirramingly Nature Reserve.

Roads and transport

In addition to the existing rail, the LGA is served by the Gwydir Highway and Fossickers Way.

North Star

North Star is a small town in the Gwydir Shire LGA about 273 kilometres south-west of Toowoomba, QLD. North Star has a population of 423 based on the 2011 census data. While the town has experienced slight population growth from 327 people since 2006, the population is projected to decline to 348 by 2031.

The town is part of Gwydir Shire's 'Golden Triangle', an area known for its agriculture, in particular its crops such as wheat, barley sorghum, maize, chick peas, canola and cotton (Gwydir Shire Council n.d.a). Operation of the railway north of North Star ceased in the 1980s, and only freight was subsequently transported to the south.

Table 3.5 provides a demographic summary for North Star, compared to Gwydir Shire LGA.

Table 3.5 North Star demographic summary

Data type	North Star, 2011	Gwydir Shire LGA, 2011
Population	<p>2011 population of 423 people comprising 8.5% of Gwydir Shire LGA's population (n=4,965). This is an increase from 327 people in 2006.</p> <p>Projected population of 348 in 2031 based on Gwydir LGA's annual rate of -1.0%.</p>	<p>The total population of Gwydir Shire in 2011 was 4,965.</p>
Age and gender	<p>North Star has a younger population than the LGA and the Australian national median. North Star's median age is 34, compared to 45 in the LGA and 37 nationally.</p> <p>North Star has a greater gender divide than the LGA, with more males (56.3%) than females (43.7%).</p>	<p>Median age is 45 years. Gwydir Shire LGA's population tends to be significantly older than that of North Star and Australia in general.</p> <p>Approximately even gender divide with 50.6% males and 49.4% females.</p>
Indigenous population	<p>Indigenous population is 5.9% of the total North Star population. This is slightly greater than in the LGA.</p> <p>State-wide and nationally, Indigenous people consist of 2.5% of the population.</p>	<p>Indigenous people represent 3.8% of the LGA population.</p>
Family composition	<p>There are significantly more couple families with children in North Star (49.5%) and fewer couples with no children, compared to the LGA.</p> <p>There are also lower levels of one parent families in North Star (5.4%) than the LGA.</p>	<p>Couple families with children comprise 38.4% of all families, while couples without children comprise 48.2%.</p> <p>One parent families comprise 12.0% of all families.</p>
Housing	<p>A significantly lower proportion of dwellings in North Star are owned outright (33.8%) and fewer dwellings are owned overall, compared to the LGA. There was a significantly greater percentage of rented properties within North Star (48.6%) than the Gwydir LGA (25.5%).</p> <p>The median monthly mortgage repayment was \$433 significantly lower than the wider LGA where median monthly mortgage repayments were \$928 per week.</p> <p>There was no median rent data for North Star. However, the median rent was \$100 per week in the LGA.</p>	<p>51.0% of dwellings are owned outright. Overall home ownership was 74.5%.</p>
FTE worker population	<p>Significantly higher labour force participation compared to the LGA, at 74.1%.</p> <p>Total employed population of 226 workers, both full and part-time. Full time employment was greater in North Star than in the LGA at 74.3%.</p> <p>Unemployment in 2011 was lower in North Star at 3.8% compared with 5.1% in the LGA.</p>	<p>Labour force participation was 53.1%. Full time employment was at 67.5%.</p> <p>At September 2016, unemployment in the LGA was recorded as 6.7% (Department of Employment, 2016).</p>

Data type	North Star, 2011	Gwydir Shire LGA, 2011
Occupation and industry of employment	Agriculture, forestry and fishing is the dominant industry in both North Star and Gwydir LGA. However, significantly more workers were employed in this industry in North Star (70.0%) compared to the LGA (38.8%). In North Star, manager was the most common occupation (46.5%) followed by labourer (17.8%).	Agriculture, forestry and fishing is the dominant industry in the Gwydir LGA with 38.8% of the labour force in this industry. In the LGA, manager was the most common occupation (34.4%) followed by labourer (13.4%).
Income	Median individual weekly income was significantly greater in North Star than the LGA at \$655.	The LGA median individual income was \$387 per week.
Index of Relative Socio-economic Disadvantage	Based on a score of 1024, North Star had a lower level of disadvantage, compared to the Gwydir Shire, Narrabri Shire and Moree Plains Shire LGAs.	940

Table note:

1. The Index of Relative Socio-economic Disadvantage indicator blends various social and economic Census data to obtain scores which enable the ranking of geographic areas across Australia by their relative socio-economic disadvantage. They are derived from Census variables related to disadvantage, such as low income, low educational attainment, unemployment, and dwellings without motor vehicles. A higher score indicates a lower level of disadvantage, while a lower score indicates a higher level of disadvantage. The average score is 1000. Scores of less than 1000 indicate relative socio-economic disadvantage while those above 1000 indicate relative socio-economic advantage (i.e. the higher the score, the more advantaged and vice versa).

Accommodation and community facilities

Warialda and Bingara are the two main town centres within the Gwydir Shire LGA. Warialda is the centre for the Gwydir Shire Council's technical services functions, while Bingara is the centre for the administrative functions. Both centres have health care facilities, medical centres, library, fitness centre as well as public schools and high schools, these facilities are listed in Table 3.6. As a small village, community facilities are limited in North Star to a primary school, post office, hotel/motel, sports club and caravan park.

For accommodation, Warialda has a motel with 12 rooms, a hotel with 10 rooms and a caravan park (with seven cabins) as well as camping grounds that provide 25 sites. Bingara has eight motels as well as camping facilities providing eight cabins and 70 camping sites. Bingara accommodation operates at lower occupancy than Warialda accommodation (Gwydir Shire Council, 2012).

Data on rental availability in Gwydir Shire LGA was not available at the time of this assessment.

Table 3.6 Community facilities within or near Bingara and Warialda town

Facility type	Name	Address
Emergency services	Bingara Police Station	Fossickers Way, Bingara
	Warialda Police Station	Stephen St, Warialda
Health	Warialda Multi-purpose service	Arthur Wheatley Dr, Warialda
	Warialda Community Health	Long St, Warialda
	Warialda Medical Centre	22 Hope St, Warialda
	Bingara Multipurpose service	Keera Rd, Bingara
	Bingara Community Health	94 Maitland St, Bingara

Facility type	Name	Address
	Bingara Health	94 Maitland St, Bingara
Community and cultural venues	Warialda Fitness Centre'	38 Hope Street
	Warialda Library	38 Hope Street
	Roxy Theatre	74 Maitland St, Bingara
Sport and recreation	Bingara Sporting Club	8 Bombelli Street Bingara
	Cunningham Park	Cunningham St, Bingara
	Ceramic Break Sculpture Park	Fossickers Way, Warialda Rail
Education	Warialda High School	Apollo Ave, Warialda
	Warialda Public School	27-35 Hope St, Warialda
	St Joseph's School Warialda	25 Plunkett Street, Warialda
	North Star Public School	Edward St, North Star
	Bingara Central School	55 Finch St, Bingara

3.5 Stakeholder consultation outcomes

3.5.1 Social study area wide consultations undertaken by Inland Rail

The Inland Rail team has been conducting stakeholder and community consultation for the proposal since early 2015. A summary of the consultation outcomes relevant to this SIA is provided below:

- Partnership opportunities with Narrabri Shire, Moree Plains Shire and Gwydir Shire councils were identified during the planning and delivery of the proposal, including expressions of interest to work with ARTC
- Potential economic benefits including:
 - Increased opportunity for education, employment and vocational training
 - Potential for economic development opportunities and expansion of industries including agriculture
 - Supplier and employment opportunities including Indigenous employment policies
 - Consider supporting local suppliers with contract management training
- Ensure private access is maintained, allow for livestock movements and private machinery across the alignment, ensure private landowners are consulted about private level crossing changes
- Concern about general pedestrian safety, and the need to educate the community about increase of train numbers
- Impacts on nearby residences including noise and vibration, and visual impacts
- Issues specific to Moree:
 - Consider pedestrian safety at crossings, particularly existing illegal crossings of the rail line
 - Concern about existing division of east and west sides of town in Moree, and trains creating a severance issue

- Consider providing an overpass at Jones Avenue to provide emergency access at all times
- Consider impacts on Moree Gun Club and current firing range. ARTC has commenced consultation with the Moree Gun Club to address this concern

3.5.2 SIA consultations – Narrabri Shire Council

Issues raised by Narrabri Shire Council on 21 June 2016 during a phone interview with GHD include:

- A workers camp (800 rooms) is located on the outskirts of town, around 2 kilometres away from the town centre. It has a capacity to house large numbers of people for a period of time. While not raised by Narrabri Shire Council during the phone interview a workers camp is also located at Boggabri with a similar capacity. Both camps currently house workers employed at nearby coal mines.
- Behavioural issues related to workers are not expected, as infrastructure is already there to meet the needs of workers when they are not working.
- Around 10% of Narrabri's population is Indigenous, which is lower than other places in the region e.g. Moree.
- Agriculture is the backbone of the economy, with a lot of broad acre farming (i.e. cotton, wheat, legumes). There is a component of research (e.g. University of Sydney cotton and wheat research centres, Australian Telescope), which is world renowned and has led to the development of crops that need less water/pesticides.
- Coal mines are relatively new to the area compared to other regions.
- Farms on the western side of the Newell Highway all have to drive over railway lines to get in and out of their properties. Narrabri Shire Council is unsure how many properties there are. If people are not able to access their properties anymore, there will be some angst especially if they require long detours.
- The local TAFE could connect with the proposal which would help to develop practical skills and hands on experience for residents.

3.5.3 SIA consultations – Moree Plains Shire Council

GHD met with Moree Plains Shire Council and emergency service providers on 28 June 2016. Key outcomes of the meeting include:

- There is a strong agricultural community.
- There is a significant Indigenous population in the LGA.
- The recently opened Moree ANZAC Centenary Memorial Park on the corner of Gosport and Anne Street is considered a place of special significance.
- The east side of town has a lower socio-economic status.
- There is a need to provide appropriate pedestrian infrastructure to address the safety issue of residents improperly accessing or crossing the rail line.

- There is a possibility business in the southern part of town will be affected (Gwyderville and Louis Dreyfus). This includes a large agricultural commodity handler, which has a receivable depot near Tycannah Street. The existing rail siding is not set up for Inland Rail and there could be a need to shut down Tycannah Street to allow for grain to be loaded onto trains.
- Currently people illegally cross the rail line within Moree rather than use the formal level crossings to the north and south. Informal crossing is common and exclusion fencing has not been successful in the past at preventing access..
- There is an opportunity for the proposal to provide cost-effective, reliable movement of grain and cotton for farmers.
- The proposal has the potential to open industry to international markets and allow them to compete internationally.
- There would be an opportunity during construction to draw on the regional workforce from areas close to the proposal site, such as Narrabri, Tyrannah Station (15 kilometres south of Moree) and shearers quarters located along the proposal site.
- The increased frequency of train may affect private crossings in the north.

3.5.4 SIA consultations – Gwydir Shire Council

Issues raised by Gwydir Shire Council on 5 July 2016 during a phone interview with GHD include:

- Two major towns in the LGA are Wialda and Bingara. Gwydir Shire Council has low interaction with residents of North Star due to its far north location and it being closer to Moree and Goondiwindi.
- Gwydir Shire LGA finds it difficult to attract skilled workers, with most skilled people attracted to the mines.
- Gwydir Shire LGA would definitely struggle with accommodation for construction workers. However, workers could travel to Moree and Goondiwindi for accommodation which are closer than Wialda and Bingara.
- The proposal has the potential to generate economic and employment benefits for the region and the Gwydir Shire Council.
- Grain is the largest industry in the area, with the Gwydir Shire Council located in the Golden Triangle. The biggest agricultural products include wheat, cattle and sheep.
- Agricultural products are transported from North Star to Moree, then from Moree to Newcastle.

3.5.5 Accommodation providers

Brief telephone interviews were conducted with a number of accommodation providers in Narrabri, Moree and North Star¹ in March 2017 to ascertain current and historic trends in vacancies, and the nature and source of guests using short term accommodation in the area. Consultations indicated that:

- Short term accommodation in the region is frequently used by three main markets; agricultural /harvest workers, tradesman/construction workers, and travellers (predominantly “grey nomads”).
- There are multiple motel, hotel, caravan park and bed and breakfast establishments in both Moree and Narrabri. Moree also has some short term furnished rental units that are frequently rented by short term agricultural workers and construction workers.
- Caravan parks in Moree are heavily booked through the year and often well in advance. Narrabri has more variation in its capacity throughout the year. There is also a caravan park operating in North Star.
- Accommodation and catering is also available in North Star at the Cleveland Motel which often has vacancies. Guests are typically construction and harvesting contractors who tend to book at relatively short notice. The motel also operates a catering service.

During consultation (refer section 3.5.2), Narrabri Shire Council also noted there is an existing workers camp around 2 kilometres away from the town centre with a capacity of 800 rooms that could be used to accommodate proposal construction workers. A workers camp with a similar capacity is also located at Boggabri.

¹ Conversations undertaken with staff of Big Sky Caravan Park, Narrabri; Gwydir Carapark, Moree; Wialda Caravan Park, Wialda; Cleveland Motel, North Star; Moree Real Estate.

4. Impact assessment

4.1 Construction impacts

4.1.1 Employment and regional economic benefits

The potential employment and economic benefits of Inland Rail at the national level are assessed in the *Business Case for Inland Rail* (ARTC, 2015) (the Business Case). The potential employment and economic benefits of the proposal at the regional and local level are discussed qualitatively in this SIA with regard to the findings of the business case.

Local benefits

During construction a variety of skilled workers would be required including labourers, tradespeople, machinery operators, engineers, surveyors and site supervisors. It is estimated that a total of around 180 workers would be required during construction. Some of the workforce may be sourced from within the region including Narrabri Shire, Moree Plains Shire and Gwydir Shire LGAs, and some would be non-residents.

The proportion of the resident and non-resident workforce would depend on a number of factors, such as availability of appropriately skilled workers in the region, proposal timeframes and other projects that may be occurring in the region. Data from the social baseline (section 3) and stakeholder consultation undertaken for the SIA with Narrabri Shire and Moree Plain Shire LGAs indicates that a suitable workforce is potentially available. As discussed in section 3.4.3, Gwydir Shire LGA faces challenges such as loss of local expenditure to nearby urban centres such as Narrabri, Moree and Tamworth, as well as low numbers of skilled workers. Both Narrabri Shire and Moree Plains Shire LGAs are experiencing slight out-migration of residents and workers, which may be due to limited economic diversity. The proposal has the potential to increase employment and economic benefits to all LGAs, including increasing the number of skilled workers in Gwydir Shire LGA. Consultation undertaken by ARTC (section 3.5.1) indicates that all three local councils expressed an interest in local purchasing of goods and services during construction, and employment opportunities for the existing workforce. There is also an interest in using the proposal as an opportunity to provide training for local people, particularly young people.

The social baseline (section 3) shows there is a reasonable population of young people and a high proportion of Indigenous people in Narrabri Shire and Moree Plains Shire, who could benefit from local training and employment opportunities during construction. In addition, with a lower employment rate, Moree residents may particularly benefit from local training programs. Consultations with the councils confirmed interest in the potential training opportunities which may assist with retaining skills locally.

The proposal would also offer opportunities for local businesses supplying goods and services to the non-resident workforce. The non-resident workforce would create some demand for local food and beverages, accommodation, bus and coach drivers, and recreation services. During construction, the proposal is expected to generate a short term positive economic impact in the region, particularly for Narrabri, Moree and North Star. The proposal would provide direct economic benefits with employment and training opportunities for local residents of these towns. This includes the location of workers' accommodation and resourcing requirements for stages of the proposal.

Consultation for the proposal (section 3.5) indicated high levels of interest from local councils in delivering some elements of the construction, in promoting opportunities within the community and in linking with training providers to maximise employment impacts.

Wider benefits

The Business Case estimated that Inland Rail would increase Australia's gross domestic product (GDP) by \$16 billion during its construction and first 50 years of operation, and up to 16,000 workers are estimated to be needed at the peak of construction.

The business case notes that during construction there would be a stimulatory impact in the construction sector in each region in which it is being built. This would trigger an expansion in the construction sector and support additional flow-on demand in the economy through the supply chain and additional expenditure in the region.

4.1.2 Property impacts

New infrastructure and compound sites

During construction it is expected that private landholders would experience some impacts resulting from changes to infrastructure and utilities within the property, establishment of compound sites and the need to gain access to private properties.

At a number of locations along the proposal site it would be necessary to replace overhead power lines to achieve clearance heights for the double stacking of freight materials. The replacement of this infrastructure would require access to and construction within properties. It would be important to ensure that negotiations with property owners are undertaken with due consideration to minimising effects.

The proposal would require the establishment of compound sites along the entire length of the proposal site. Construction compounds would be located every 4.5 to five kilometres, generally within the existing rail corridor, however some may require private property lease arrangements. In these circumstances, landowners could be impacted through loss of productivity, damage to access tracks and poor rehabilitation. The details of these arrangements would be addressed through property agreements with landholders. These would define ARTC's commitments as to how construction would be managed as it affects individual properties.

New and/or upgraded signalling, power and communications would be provided along the proposal site as required. These works, which would mainly be undertaken within the existing rail corridor, would involve the provision of underground and above ground services. Utilities (such as water, sewer, electrical, gas and telecommunications) located within or crossing the rail corridor will need to be relocated in consultation with the relevant utility owner.

Frequent access to properties can disrupt private landholders through impacts to agricultural activities and lifestyles. These impacts generally occur as interruptions to normal routine in negotiating access and construction activities. This process can be time consuming and stressful for landholders and may exacerbate personal issues.

Property access would be coordinated through engagement with landholders. Access would be agreed upon with landholders and detailed in property agreements to provide certainty and reduce any potential stress resulting from this process.

Property acquisition

The work associated with the proposal is largely contained within the existing rail corridor, and therefore requires minimal acquisition. At this stage of the design process it is estimated that the proposal would require partial land acquisition of nine lots. Further property acquisition may be required for the Jones Avenue overbridge (due to changes to access). Details of these land acquisition requirements will be determined as the design is refined.

Of the nine lots being partially acquired, three are privately owned. One of these lots is zoned for light industrial use (in Moree, associated with Jones Avenue overbridge construction), while two are zoned for rural use (primary production).

Property acquisition would mostly affect land with existing rural, agricultural or utility uses, however properties adjacent to the Jones Avenue overbridge are also commercial. Potential property impacts include change to property access, interrupted management of agricultural operations, and disruption of services or utilities to individual properties as a result of relocation/upgrade or accidental damage. Affected landholders would be notified in advance of any disruptions.

It is anticipated that the impacts of property acquisition would be minimal for the proposal. Where it is considered that an intolerable impact occurs to a property, then consideration will be given to whole of property acquisition.

All acquisition of private property would be undertaken in consultation with landowners and in accordance with the requirements of the *Land Acquisition (Just Terms Compensation) Act 1991*.

While property owners would be compensated in accordance with the requirements of the *Land Acquisition (Just Terms Compensation) Act 1991*, depending on the extent of the acquisition, the process of negotiation can lead to health impacts such as stress and anxiety. Landholders are able to seek professional and legal advice to assist them in this process, with the services compensated, in accordance with the Act.

4.1.3 Impacts of workforce on nearby communities

ARTC anticipates that around 180 workers would be required for the construction of the proposal. Detailed information about the workforce composition and employment duration would be determined when the source of workers is confirmed.

As discussed in section 4.1.1, the construction workforce would comprise a mixture of local/regional and non-resident workers, with the proportion of each depending on a number of factors. Potential workforce issues that may need consideration are:

- Demographic changes to communities during construction and operation phases
- Increased demand for services
- Worker accommodation during construction – impacts on housing affordability and availability
- Social behaviour of workforce
- Transportation of workers to and from workers accommodation to proposal site during construction

- Sourcing of workforce during construction and operation phases and ability to procure these services locally
- Economic benefits of outsourced workforce.

These issues are considered in further detail below.

Demographic change

A non-resident workforce may lead to changes in the age and gender profile of communities. Construction workforces are typically dominated by young, single, male workers, which may potentially lead to minor short term changes in the age and gender profile of communities, with a likely increase in the transient male population aged between 18 to 49 years. The proportional increase in non-resident population would be determined when the source of workers is confirmed.

Increased demand for services

Recruitment and training of a local workforce can result in better social outcomes. Local residents would have existing accommodation, social networks and familiarity with the local area and services. A local workforce would not place additional pressures on existing social infrastructure, such as health care and social services, compared to an entirely non-resident workforce. Sourcing the workforce locally would also have implications on economic growth across towns, which is discussed in section 4.1.1.

Non-resident workers have the potential to increase demand for local goods and services, such as food, accommodation, recreation, community support and health services. However it is not expected to generate such a demand that would result in a skills shortage in these industries. It is expected that a non-resident workforce accommodated in Moree and Narrabri would be adequately catered for, without putting additional pressure on services. Any workers accommodated in North Star may need to travel to larger town centres of Moree or Goondiwindi for some of these services.

Housing affordability and availability

The non-resident workforce required for construction would generate demand for accommodation and housing facilities in the nearby towns. While accommodation arrangements are to be determined, a range of options have been identified in the region.

Based on the SIA consultation with Narrabri Shire Council, minor impacts to housing availability in the LGA are expected. There are two existing workers accommodation facilities located near the proposal, one on the outskirts of Narrabri and one at Boggabri, both with a similar capacity (500-800 rooms), which currently house workers employed at nearby coal mines.

There is an opportunity to accommodate future ARTC workers at these camps in particular the Narrabri workers camp, which currently houses 100 -200 mine workers, and is located closer to the proposal. This would avoid placing pressure on housing supply and affordability within towns, and decrease commuting times for future workers.

If workers are to seek rental housing in the area, this could impact affordability in the towns. Moree Plains Shire Council advised that rental housing within Moree Plains Shire has become less affordable and thus less accessible for low income households. Gwydir Shire Council also raised concerns that workforce housing demand could place pressure on housing availability in Gwydir Shire.

Future workers could also access the temporary accommodation options available in Narrabri, and Moree such as motels, hotels and caravan parks, where construction workers in the area regularly seek accommodation. As noted in section 3.5.5, there is a range of such accommodation available in Narrabri and Moree, though occupancy levels in Moree appear to be higher.

ARTC would develop a workers housing and accommodation plan which would be applicable to the proposal. Availability of accommodation specific to the proposal would be reviewed prior to construction. The review would include further consultation with respective councils and accommodation providers to support both the economic benefits of local accommodation yet avoid putting undue pressure on the housing market.

Anti-social behaviour

Perceived or real anti-social behaviour of construction workers residing at workers' accommodation may be a concern for local communities. Anti-social behaviour may involve crime and can negatively impact on community perceptions of safety. Anti-social behaviour is not necessarily a characteristic of a non-resident workforce. For example, consultation with Narrabri Shire Council indicated that there are no known issues with the workforce at the existing workers camp.

A mix of resident and non-resident workers, as well as accommodation options (including using existing housing within towns and worker's accommodation sites) would provide opportunities for social integration between existing communities and new workers, limiting opportunities for anti-social behaviour. Community, cultural, sport and recreation facilities are also available within the town centres with most of these located in Narrabri and Moree. These opportunities would also support social integration.

Whilst workforce composition and accommodation has not been confirmed, it is likely that non-resident workers will seek accommodation from existing providers in the region.

Transportation of workers

Workers are likely to be transported to construction work areas by bus, either from local towns or from various collection points with some use of light vehicles.

In terms of traffic impacts, using a bus to transfer the workforce would increase the daily number of buses on local roads but limit the increase in private vehicles. The location of collection points in relation to areas of high pedestrian activity (e.g. town centres, roads around child care centres and schools) should be considered to improve pedestrian and road safety, and maintain access for motorists and cyclists. Collection points should be located close to workers' accommodation to reduce the need for private vehicle use.

4.1.4 Local amenity and community values

Visual amenity and loss of privacy

Generally people living in rural and agricultural areas value the quiet and peaceful amenity offered in these localities. Due to the linear nature of the proposal it is likely that most visual amenity and privacy impacts will be temporary and short term, as the rail elements of the proposal are expected to progress at the rate of approximately 4.5 to 5 kilometres every eight to 10 weeks. Impacts will be of a longer duration at some locations where bridges and culverts are being constructed and/or demolished.

During the construction phase it is anticipated that some landowners may be impacted by a loss of privacy due to the proximity of workers to their properties. The rural amenity of the area may also be impacted during construction due to an increase in traffic and construction activities. It is anticipated that this would be most noticeable in the vicinity of construction compounds. Compounds would be located at least one kilometre from the nearest residence or other sensitive receiver, where feasible, to minimise direct impacts.

Construction worksites may have the potential to result in temporary visual impacts for people living nearby, particularly sites located within or near the towns. Additionally, visual amenity and privacy impacts may be greater where there are residential properties in proximity to proposal key features such as the Jones Avenue overbridge in Moree and the bridges crossing the Gwydir and Mehi rivers. Construction activities would be restricted to within fenced areas of the proposal site and construction traffic would be limited to designated routes and/or as agreed with landholders when working on or near private properties. Overall, the majority of potential construction related impacts would be short term and temporary in nature.

Construction noise and vibration

The potential noise and vibration impacts of the proposal are assessed in the *Inland Rail –Narrabri to North Star Noise and Vibration Assessment* (GHD, 2017c).

The degree of impact from construction noise would depend on the proximity to residential areas or individual properties, community facilities and businesses, and the type and duration of construction activities in the area. Since the majority of the proposal is linear, it is expected that noise and vibration impacts on community members would be experienced for limited periods through the construction phase.

The proposal would be generally located more than 200 metres from most residences. It is likely that noise and vibration impacts would affect residential areas located close to the proposal site, particularly in Moree due to activities including track, level crossing and bridge works.

Construction work would be undertaken during the primary proposal construction hours of 6 am to 6 pm, seven days a week. Due to the need for works within an operational rail corridor, some construction activities would also be undertaken during track possessions on a 24-hour basis. Other activities, such as delivery of oversized plant and materials, may also need to be undertaken outside standard hours. Works that occur outside of the primary proposal construction hours could affect people who reside in close proximity to the construction sites through disturbance to sleep.

Vibration generated by construction activities typically dissipates to negligible levels within 50 to 200 metres, depending on the type of activity and local geology. Widespread impacts from construction vibration are not anticipated. Vibration impacts may affect up to 219 sensitive receivers (208 residential and 11 non-residential) that are within 140 metres of the proposal (denoted as the distance at which construction vibration from general construction activities may be perceptible). These receivers are generally spread along the length of the proposal, but are also in greater density within Moree, Bellata, Edgeroi, Gurley, Croppa Creek and North Star. Further information on sensitive receivers is provided in the noise and vibration assessment (GHD, 2017c).

Construction activities may temporarily restrict existing rail operations, impacting on freight deliveries. Impacts would depend on the construction scenario adopted and associated shutdown periods required. Shutdowns would limit the days that trains can operate. On days that trains are able to run, trains could be longer (to a maximum of 1,800 metres) and run more frequently to complete freight tasks. Residential areas located close to the rail corridor may therefore experience increased frequencies of noise and vibration as a result of the increased freight train runs in the short term.

Consultation with potentially affected residences and other sensitive receivers would be undertaken to explain the duration and noise levels of the works and any respite periods that would be provided.

Based on the findings of the noise and vibration assessment (GHD, 2017c), it is considered that the noise and vibration impacts associated with the construction of the proposal can be satisfactorily managed through the implementation of the Inland Rail NSW Construction Noise and Vibration Management Framework. The framework has been developed to provide a consistent approach to management and mitigation across Inland Rail in NSW. It identifies the requirements and methodology to prepare Construction Noise and Vibration Impact Statements prior to specific construction activities. The statements would be prepared based on a more detailed understanding of the construction methods, including the size and type of construction equipment, duration and timing of works, and detailed reviews of local receivers if required.

Air quality

Construction would generate dust as a result of the operation or movement of construction vehicles and equipment or dust from land disturbed by construction that is blown by wind. This has the potential to affect some properties close to the proposal site in the short term. Dust may settle on agricultural crops, cattle, sheds, farm machinery, buildings and houses on those properties.

Properties close to the construction compounds may experience short term dust impacts. These are expected during site establishment only. Spoil sites may also generate minor dust impacts to nearby properties.

Increased dust may alter people's usual rural residential lifestyle by prompting them to close doors and windows to avoid dust entering their homes or work places. It may even increase people's workload by requiring the cleaning of settled dust.

Further information on the potential for air quality impacts and recommended mitigation measures are provided in the EIS.

Aboriginal Heritage

With a significant Indigenous population in the region, Aboriginal cultural heritage is likely to be valued by many community members.

The *Inland Rail – Narrabri to North Star Aboriginal Cultural Heritage and Archaeological Assessment* (Umwelt, 2017a) presents database searches, which indicate that four registered Aboriginal sites are located within or close to the proposal site. The Aboriginal sites consisted of artefact scatters/isolated artefacts, a scarred tree and two potential archaeological deposits.

An Aboriginal cultural heritage management plan would be developed to protect and/or manage potential impacts to Aboriginal heritage values within and near the proposal. Further information on potential impacts and the management plan are provided in the Aboriginal heritage assessment (Umwelt, 2017a).

Non-Aboriginal Heritage

The potential impacts to non-Aboriginal heritage are assessed in the *Inland Rail – Narrabri to North Star Non-Aboriginal Heritage Impact Statement* (Umwelt, 2017d). The assessment identified a number of non-Aboriginal heritage listed items within and near the proposal site.

The identified values were considered to be typical of a rail corridor and included elements of existing rail infrastructure such as rails, sleepers, ballast and sidings; railway stations at Moree, Edgeroi, Bellata and Gurley; and the Mehi River, Gwydir River and Croppa Creek bridges.

Replacement of existing rail infrastructure would largely be necessary for construction of the proposal however consideration would be given to documentation and/or preservation of heritage values of the existing rail infrastructure where practicable.

Several items near the proposal, including the locally significant Victoria Hotel and the National Heritage-listed Moree Baths in Moree, were also considered to have non-Aboriginal heritage value. The assessment found there was limited potential for these items to be affected. Mitigation measures to avoid indirect impacts such as vibration would be implemented where appropriate.

A non-Aboriginal heritage management plan would be developed to protect and/or manage potential impacts to non-Aboriginal heritage values within and near the proposal, including potential archaeological values. Further information on potential impacts and the management plan are provided in the non-Aboriginal heritage assessment.

4.1.5 Access and connectivity

Access and connectivity related social and economic impacts of the proposal have been assessed through consideration of the social context and review of the *Inland Rail – Narrabri to North Star Traffic, Transport and Access Assessment* (GHD, 2017e).

Community access and connectivity

Potential road diversions and detours due to construction activities may lead to some increased travel times and disruptions of journeys for community members including landholders close to the corridor.

Given the proposal is located outside of the larger town of Narrabri and to the west of North Star, and the existing low traffic volumes on local roads, impacts on community members travelling on local roads are expected to be minor and temporary.

As the rail corridor travels through the town of Moree, there may be some localised traffic and pedestrian impacts during the construction period. This would include disruptions to local traffic on Jones Avenue as the overbridge is constructed. Construction of the overbridge is predicted to have limited impacts on community access and connectivity, including impacts to business, given the availability of alternate access routes.

The proposed Newell Highway overbridge will be constructed off-line to minimise impacts to traffic during construction.

All materials will be imported to the proposal site resulting in increases in heavy vehicle traffic in the area. Light vehicle movement may also increase due to transport of construction workers, however as the majority of construction workers would be bussed to the sites each day, this is expected to be minor. The traffic, transport and access assessment (GHD, 2017e) projects around 234 heavy vehicle movements and 166 light vehicle movements per day during construction. Expected vehicle volumes have been assessed as being within the capacity of existing road network.

Proposed works on level crossings may result in disruptions to local traffic and temporary access restrictions to private property. Where this occurs, alternative access arrangements would be provided and/or appropriate traffic controls implemented.

The proposal is not expected to reduce street parking along local roads that may be used by the community. Adequate parking for workers' vehicles would be provided generally on site within the proposal site. Workers are therefore unlikely to park along surrounding roads.

Movement of traffic, cyclists and pedestrians including alternative access around level crossings would be managed in accordance with a construction traffic management plan.

Emergency response and safety

Given the location of the proposal outside the centre of Narrabri and the town of North Star, emergency response times are not expected to be significantly affected in these areas.

Emergency service response times could be affected in Moree, particularly for emergency vehicles accessing the eastern side of the rail line from service facilities located on the western side.

Emergency services providers would be consulted during detailed design and construction and would be informed of potential changes to access routes or delays along existing routes.

Increased traffic including heavy vehicles could impact on pedestrian and road safety, particularly near access points to the proposal site.

Connectivity for bus and rail passengers

Bus passengers may experience slight delays in the short term however given the relatively small number of bus services in the area, this would result in a minor, short term impact for those community members who use these services. Buses in Moree travelling between the east and west of town may be particularly impacted.

Consultation would be undertaken with the public transport and school bus providers regarding potential access changes or delays and to inform the construction traffic management plan.

During construction at Bellata and Moree, buses would be used in place of trains to transport passengers to the nearest active station. The location of the bus stops would take into consideration the safe access of passengers, and proximity to the construction impact zone. The train patronage levels using these stations are low, and therefore delays incurred due to the works are expected to be minimal.

Business impacts

Construction activities may temporarily affect existing freight operations delaying freight deliveries for businesses in the region. The extent of business impacts would depend on the construction scenario adopted and associated shutdown periods required however impacts would be negligible as alternate access routes would be provided through the construction traffic management plan.

Construction of the Jones Avenue overbridge would result in access modifications to Joyce Avenue from Jones Avenue, however alternative access is available via Frome Street. Some commercial properties may require their access to be adjusted as a result of the Jones Avenue overbridge design. Businesses would be consulted to establish alternate access arrangements.

4.2 Operation impacts

4.2.1 Economic impacts

Inland Rail has the potential for wide economic benefits, including enhanced efficiencies and increased freight capacity along the interstate rail network (ARTC n.d.). There would be numerous benefits as a result of Inland Rail, which would generally be experienced at a regional and national level. Economic benefits experienced at a local and regional level are likely to be limited to those industries which currently rely on rail freight or may modify their mode of freight transport from road to rail as a result of Inland Rail.

Local benefits

Connectivity to outside markets has been identified as a key challenge for businesses in the northern inland region of NSW (RDA Northern Inland, 2016). The proposal is expected to enhance access and connectivity as well as improve productivity and economic efficiency for regional economies by providing a more reliable service and ability to move increased freight volumes. Businesses that would have transported their freight by road along the coast would be able to use the rail network. Businesses are expected to save on time and operating costs due to these improvements, especially if the freight services are accessible to the local regions. Freight costs are estimated to be reduced by around \$10 per tonne (ARTC, 2015).

The Business Case notes that Inland Rail will enable farmers to move agriculture products more efficiently for domestic use and for export, as it will pass through some of Australia's most productive farming country. During consultation on the proposal, representatives of Moree Plains Shire Council indicated the proposal would provide the opportunity for cost effective and reliable transport of grain and cotton for their farmers. The business case also recognises further benefits to supply chain efficiencies for commercial freight, and benefits to consumers and regional areas.

Stop sequencing will have a significant influence on the level of economic benefit to local and regional businesses moving freight. Further, the degree to which any related rail freight infrastructure services and businesses evolve are also strongly linked to these stopping patterns and related infrastructure. Stopping patterns for Inland Rail trains are still under consideration and would be finalised in consultation with regional stakeholders, including Moree Plains Shire, Narrabri Shire and Gwydir Shire councils.

By providing a more efficient freight option, the proposal is expected to reduce heavy vehicle volumes on roads while increasing freight volumes and reducing environmental impacts and costs to regional communities. The Business Case noted that about 200,000 truck movements would be removed from roads each year. Narrabri Shire Council in particular raised the issue of heavy vehicles currently choking roads in Narrabri and that the impending potential tripling of road freight presents a serious challenge to Narrabri Shire Council. Narrabri Shire Council recognised that grain may mode change to rail upon proposal construction and this may ameliorate some the current use and anticipated future growth in road freight transport.

During SIA consultations, Moree Plains Shire Council raised concerns that the proposal could negatively impact on local businesses in the southern part of Moree. This includes a large agricultural commodity handler which has a receivable depot near Tycannah Street. The existing rail siding is not set up for the Inland Rail proposal and there could be a need to shut down Tycannah Street to allow for grain to be loaded onto trains. Given the length of future trains, this street may be closed temporarily during grain loading activities.

Wider benefits

The proposal would reduce the volumes of heavy vehicles on the road (Inland Rail Implementation Group, 2015), which would limit future road congestion. This would further reduce economic costs relating to road maintenance and social costs related to safer roads and decreased chances of accidents.

Wider economic impacts would also relate to the generation of economic multipliers due to investment in a major new form of public infrastructure, as well as the direct and indirect generation of local and regional employment and service opportunities.

The broader economic impacts of the proposal relate to the overall benefits of Inland Rail which include the following (ARTC, 2015):

- Strong benefit cost ratio – It is estimated that Inland Rail will have an economic benefit cost ratio of 2.62.
- Boost the Australian economy – Inland Rail is expected to increase Australia's gross domestic product by \$16 billion during its construction and first 50 years of operation.
- Create jobs – It is estimated that an average of 700 jobs would be created during operation.
- Improve connections within the national freight network – Inland Rail enhances the National Land Transport Network by creating a rail linkage between Parkes and Brisbane, providing a connection between Queensland and the southern and western States.
- Provide better access to and from regional markets – Inland Rail will make it easier for freight to move from farms, mines and ports to national and overseas markets. It is estimated that two million tonnes of agricultural freight will switch from road to rail.
- Reduce costs – Transport costs for freight travelling between Melbourne and Brisbane will reduce by \$10 per tonne.
- Increased capacity of the transport network – Inland Rail will increase capacity for freight and passenger services by reducing congestion along the busy coastal route and allow for growth in passenger services particularly in the Sydney region.
- Improve road safety – It is estimated that each year, Inland Rail will remove 200,000 truck movements from roads and reduce truck volumes in 20 regional towns; and reduce the number of serious crashes, avoiding fatalities and serious injuries.

4.2.2 Amenity impacts

The increase in the number of train movements during operation has the potential to impact on amenity for residents and other sensitive receivers located close to the proposal site.

Since the majority of the proposal is within the existing rail corridor amenity impacts due to the operation of the proposal are anticipated to be minimal, and are discussed below.

Visual amenity

The *Inland Rail, Narrabri to North Star Landscape and Visual Impact Report* (Urbis, 2017) found that the visual impact of the proposal is generally low as it represents mostly a low level of visual modification as it passes through long stretches of agricultural land with occasional townships and settlements.

There may be some properties with views of the Newell Highway overbridge, and residents may feel their visual amenity is impacted. This may also be the case for residents with views of the Mehi River Bridge, particularly as the existing heritage bridge would be demolished. This may impact on community values associated with local heritage.

The Jones Avenue overbridge would be within the existing urban setting of Moree, and is therefore not expected to significantly impact the visual amenity for residents in properties with a view towards the bridge.

Noise and vibration

The proposal would allow for an increase in train volumes, lengths and speeds along the rail line, all of which would result in an increase in noise levels. Although overall rail noise is expected to increase, there may also be potential to reduce local sources of noise (such as wheel-squeal) through the straightening of some curves as part of the proposal.

The *Inland Rail, Narrabri to North Star Noise and Vibration Assessment* (GHD, 2017c) found that most noise criteria exceedances would occur around towns such as Moree, North Star and Bellata, with the remainder at scattered locations close to the rail line.

The assessment found that mitigations at the source and in the path of noise transmission may be required to mitigate operational noise in some circumstances. The assessment also found mitigation would be required in the vicinity of Moree during operation to reduce night time vibration impacts and avoid or reduce potential levels that would create human discomfort.

An operational noise and vibration review would be prepared to detail how the predicted operation impacts would be mitigated. The operational noise and vibration review would define the further design work and iterative noise modelling required during detailed design to identify feasible and reasonable mitigation measures for operational noise.

Air quality

The proposal would operate through a rural area with few sensitive receivers close to the rail corridor.

An increase in the number of trains during operation would have the potential to increase dust, emissions from cargo and exhaust emissions from locomotives. Increased dust generation has the potential to impact agricultural crops, cattle, sheds, farm machinery and houses. The type and volume of emissions from cargo would depend on the nature of the goods while exhaust emissions would depend on the type of fuel and locomotive.

Air quality impacts during operation are nonetheless expected to be minimal and would decrease significantly with distance from the rail corridor.

Air quality impacts are assessed in chapter 13 of the EIS.

Strong connection with place

Moree Plains Shire Council identified that the new Moree ANZAC Centenary Memorial Park holds special significance and is located opposite the Moree Train Station on the corner of Gosport and Anne Street. This site is also adjacent to the Moree Baths, which is registered on the National Heritage List and holds both Aboriginal and European heritage significance. These sites are not expected to be impacted by operation of the proposal. Operational vibration impacts would be managed through the development and implementation of an operational noise and vibration review.

4.2.3 Access and connectivity

Operation of the proposal is not expected to result in significant adverse changes in traffic and transport activities and related access and connectivity for local and broader communities. The nature of these operation changes are discussed below.

Community access and connectivity

Based on the traffic, transport and access assessment (GHD, 2017e), the increased number of trains during operation may lead to more frequent delays at level crossings. An annual average of about 10 trains per day travelling north of Moree (between North Star and Moree) and 12 trains per day travelling south of Moree (between Moree and Narrabri) is estimated in 2025. This would increase to about 19 trains per day north of Moree (between North Star and Moree) and 21 trains per day south of Moree (between Moree and Narrabri) in 2040. These delays may increase travel times for a small number of road users, which is considered to be a minor impact. The duration of delays will in some cases be reduced due to the increased train speeds that will be possible with Inland Rail.

The greatest impact to access and connectivity is likely to be experienced in Moree. The existing rail corridor runs through the middle of the town. As discussed in section 3.4.2 consultation undertaken with Moree Plains Shire Council for the proposal has indicated concerns about the existing division of the east and west sides of the town as a result of the existing rail corridor. The increase in the number of trains would make interference to the movement of traffic through Moree a more common occurrence, which may further discourage east-west movements by community members and exacerbate this issue. Most community facilities and services are located in the west of Moree. Community access from the eastern part of the Moree to these facilities may be reduced as a result of the proposal.

SIA consultation with the Moree Plains Shire Council also indicated that residents of the eastern side tend to be from lower socio-economic groups, and there are existing issues associated with illegal and unsafe crossing of the rail line by pedestrians. There is a risk that these residents could be at further disadvantage or risk when trains become more frequent in 2025 and access to community infrastructure becomes more difficult.

To address this, along with potential impacts on emergency response times, the new Jones Avenue overbridge has been included in the proposed design to allow for continuous and safe access between the east and west of town. The overbridge, though primarily for light vehicles, will also permit use by emergency and public transport vehicles and include pedestrian and cycle paths, enhancing safety by providing a grade separated option for crossing the rail line.

The overbridge may help to address community concerns regarding the potential for further division caused by additional trains using the rail corridor, by providing a new connection and shared paths across the rail corridor. The increased connectivity provided by the overbridge would particularly benefit residents living to the east of the rail line, as the majority of community facilities and services are located in the main part of Moree to the west of the rail line.

As discussed in the traffic, transport and access assessment (GHD, 2017e) there will be little impact to pedestrians and cyclists given the generally low volumes within most of the proposal area. Pedestrians and cyclists using the Alice Street and Moree Station pedestrian crossings may experience some additional delay as a result of increased frequency and length of trains. The Jones Avenue overbridge will improve pedestrian and cyclist accessibility, by providing an additional crossing of the rail line that will not be disrupted by train movements.

The existing pedestrian level crossing at Moree Station will be upgraded to include gates with lights and bells to alert passengers of approaching trains. The increase in train numbers is not anticipated to impact access to the Moree Station for arriving and departing trains.

As the current proposal starts to the north of Narrabri town centre any impacts regarding access and traffic would be negligible and would mostly apply to private property access. Where the corridor passes through North Star there are only a few dwellings on the western side and therefore the impact would also be minimal.

The Camurra bypass would require the partial acquisition of land currently used as a travelling stock reserve. The land is part of a continuous 11 kilometre long north–south corridor connecting the Gwydir and Newell Highways. The proposal may temporarily disrupt access along this travelling stock reserve, which may impact the users of this route. ARTC would undertake consultation with Local Land Services to understand the current use, and how potential impacts could be addressed. Alternative access arrangements would be considered in detailed design to ensure safe continuity of this corridor.

Access impacts or inundation of buildings could occur as a result of changes to flooding largely due to lifting of the level of the rail formation. Modelling for the hydrology and flooding assessment (GHD, 2017a) has identified that the proposal would reduce the extent of flooding, but would increase the amount of buildings or structures that would be inundated during a one per cent annual exceedance probability flood event, from 16 to 20. Further modelling and consultation with potentially affected landowners would be undertaken during detailed design to determine how the proposal can be modified so that the existing flooding characteristics with regards to property inundation are not worsened.

Public transport connectivity and service

As identified in the *Inland Rail – Narrabri to North Star Traffic, Transport and Access Assessment* (GHD, 2017e), bus services which cross the rail line may experience a small increase in delays at level crossings due to the increased rail use, in line with other road users on these roads. These services include a regional coach service between Moree and Grafton which travels along the Gwydir Highway (Alice Street), a local bus service which travels along Alice Street, and school bus services.

The Jones Avenue overbridge would be restricted to light vehicles, emergency services, and public transport only, which provides an opportunity for a new local bus connection over the rail line. This would particularly benefit residents living to the east of the rail line, as the majority of community facilities and services are located in the main part of Moree to the west of the rail line.

Level crossings and private property access

Changes to property access roads and the local road network may be required in some locations as a result of the rationalisation of level crossings. The proposal may result in the consolidation of some level crossings. At this stage of the planning process, eight crossings have been identified as requiring further investigation and consultation in relation to consolidation options. These are mainly private crossings where alternative access is available, or access is no longer required. These changes to level crossings may affect local travel patterns in the area and may result in longer journeys for some road users however these are expected to be minor increases for a small number of community members.

The closure of some level crossings may result in changes to how landholders move farming equipment or livestock around their property particularly where their land is located on both sides of the rail corridor. This may disrupt agricultural activities and businesses in the short term.

Consultation with potentially affected landowners would continue during the detailed design stage to ensure that alternative access is available or confirm that access is no longer required. Closures would only be undertaken following agreement with the owner.

Emergency response and safety

During operation, emergency vehicles may experience delays at level crossings. The Jones Avenue overbridge would reduce the risk of emergency services being delayed at a level crossing and would be critical in the event of any train breakdown within Moree.

Outside of Moree, level crossings are primarily local roads outside of each town centre, therefore overall emergency response times are not expected to significantly impacted. Based on the traffic, transport and access assessment (GHD, 2017e), the level crossings at Alice Street and Bullus Drive would have the greatest predicted traffic volumes. The report estimates that the maximum delay at these crossings would last 143 seconds and 122 seconds respectively. This would have a localised impact only and the potential for queued vehicles to impact on adjacent intersections is considered to be very low.

Consultations with local emergency services during detailed design would ensure emergency service providers are aware of accessible routes during operation, particularly alternate routes in the case of level crossing delays.

An increase in the number of trains may impact on community safety, as there would be an increase in the potential for a pedestrian or cyclist to encounter a train. However, the likelihood of an incident occurring is very low.

The increased frequency of trains would cause a proportionate increase in risks to drivers at level crossings, including risks associated with illegal crossings while trains are approaching. The nature of these risk would be similar to existing conditions but would require further consideration in detailed design to ensure appropriate controls are in place.

The proposal, as part of Inland Rail as a whole, has the potential to reduce the volume of intercity freight trucks on the Newell Highway. This would provide a long term benefit to the community by improving travel times and road safety by reducing the risk of serious crashes with heavy vehicles, and therefore fewer fatalities and serious injuries (ARTC, n.d.).

Parking impacts

Community members are not expected to experience any accessibility impacts as a result of changes to car parking provision. This is because there is no existing parking provision that would be lost during operation, and no expected increase in parking demands as a result of the freight trains.

5. Mitigation and management

The recommended mitigation and management measures discussed below have been developed in response to the impacts and opportunities discussed in section 4, and in consideration of the consultation outcomes outlined in section 3.5.

5.1 Employment and local and regional economic benefit

To maximise opportunities for the local and regional communities, at a wider program level ARTC will develop the following plans that would apply to ARTC and contractors engaged for the proposal:

- Local business and industry procurement plan – would include (but not be limited to) specific goals and targets set for local procurement and suppliers across the social study area for the proposal.
- Workforce management plan including an Indigenous participation plan – would include (but not be limited to) specific goals and targets for local and regional sourcing of workforce, worker support programs. Indigenous participation through training and apprenticeship opportunities. Skills and up-skilling opportunities would be provided to ensure that training and apprentice/trainee development are encouraged by the proposal, subject to regulatory and associated restrictions.
- Workforce housing and accommodation plan – would be developed in consultation with the local councils and accommodation service providers within the social study area. Through consultation, consideration would be given to maximise business opportunities for local and regional accommodation facilities, yet avoid undue pressure on local housing markets and ensuring there are vacancies within the accommodation facilities left for other users. The plan would also consider the location of accommodation so that the potential for efficient transportation of workers (e.g. by bus from accommodation facilities) to construction sites is maximised.

As discussed in section 4.2.1, stop sequencing will also have a significant influence on the level of economic benefit to local and regional businesses moving freight. Stopping patterns for Inland Rail trains are still under consideration and would be finalised in consultation with regional stakeholders, including local councils.

5.2 Property impact management

The impacts on properties would be significantly reduced and managed by:

- Effective construction design and planning.
- Implementation of the property management strategy that would be prepared for Inland Rail. This strategy would provide the framework for the development of individual property management agreements. All acquisitions/adjustments would be undertaken in consultation with landowners and in accordance with the requirements of the Land Acquisition (Just Terms Compensation) Act 1991. Property management agreements would be developed in consultation with landowners/lessees who would be directly impacted during construction. They would include (but not limited to) specific agreements with landholders regarding:
 - Process and timeframes for permissions to enter and access different parts of the property

- Speed of vehicles on private properties
- Protocols relating to weed and seed management where appropriate
- Temporary access requirements and locations of any relevant ancillary infrastructure and agreement to occupy land with a commercial arrangement
- Management of loss or damage to property
- Compensation for any impacts caused by the proposal including property acquisition
- Minimising the need for local road and access closures.
- Providing alternative access arrangements in the event that access closures are necessary.
- Consultation with individual landowners to identify individual concerns, and develop and document strategies to address these concerns.
- Ongoing communication.
- A number of other mitigation measures specified in the EIS and other technical reports to manage land use, construction traffic within and outside properties, hydrology and flooding on properties, health and safety, biodiversity, stakeholder consultation would also assist in managing impacts on properties.

5.3 Stakeholder engagement

Engagement with stakeholders is an important component to managing and monitoring the potential social impacts and opportunities of the proposal. A communications management plan would be developed for Inland Rail to ensure this process is managed appropriately and will include stakeholder feedback and grievance management mechanism.

5.4 Managing impacts from non-resident workforce

The CEMP prepared by the construction contractor would include a code of conduct for the construction workforce to manage real or perceived impacts on community values and safety related to workforce anti-social behaviour, including a zero tolerance policy regarding drugs and alcohol at work sites.

ARTC would prepare and implement a workforce housing and accommodation plan to mitigate potential accommodation impacts. Consultation would be undertaken with local accommodation providers and councils with consideration given to availability of housing and accommodation in the nearby towns, the need to maintain vacancies for other users of temporary accommodation, avoiding exacerbating housing affordability issues, potentially utilising existing labour camps and considering transport of workers. The plan would also consider the distribution of benefits from accommodation of workers in developing the plan.

5.5 Traffic, access and connectivity

A construction traffic management plan would be prepared as part of the CEMP, and construction of the proposal would be undertaken in accordance with this plan.

The plan would include a detailed list of the measures that would be implemented during construction to minimise the potential for impacts on the community and the operation of the surrounding road and transport environment. It would address all aspects of construction relating to the movement of vehicles, pedestrians and cyclists, and the operation of the surrounding road network, including:

- Construction site traffic control, worker car parking and access arrangements

- Construction material, equipment and spoil haulage, including arrangements for oversize vehicles
- Road pavement and access road condition management
- Management of impacts to public transport, including school buses, pedestrian and cyclist access, and safety
- Management of impacts to access for surrounding residents and business owners/operators
- Arrangements for level crossings during construction
- Safety for all road users including education about the hazards of level crossings, with a focus on pedestrians and cyclists in Moree
- Facilitation of safe stock movements
- Traffic control procedures (e.g. temporary speed limit requirements)
- Access to and within properties, where changes to access arrangements are necessary, ARTC would advise property owners/occupiers and consult with them in advance regarding alternate access arrangements

The construction traffic management plan would be developed in consultation with relevant parties including Narrabri Shire Council, Moree Plains Shire Council, Gwydir Shire Council, Roads and Maritime Services, and public transport/bus operators, emergency services, and affected property owners/occupants.

Consultation has suggested underpasses or fencing be considered where the removal of level crossings would severely impact agricultural activities. Consultation would continue with stakeholders as part of the proposal's level crossing strategy (refer to the EIS for further information).

With existing issues of unsafe and illegal crossing of the rail line in Moree, and Moree Plains Shire Council's concerns about the proposal exacerbating disconnection of the east side of town from the west, it will be important to ensure design of the proposal (especially the location and design of noise walls, fencing and the Jones Avenue overbridge) consider community values and concerns. This would be achieved through ongoing consultation on the detailed design with Moree Plains Shire Council and the local community, including residents living on the eastern side of town. A safety awareness program would also encourage use of the bridge (see section 5.6 below).

All operational activities would be undertaken in accordance with ARTC's standard operating procedures and the environmental protection licences, which are available on ARTC's website (<https://www.artc.com.au/customers/operations/rules-procedures/nsw/procedures>).

Further details on traffic management are provided in the EIS.

5.6 Safety

Due to the increase in frequency of trains it will be important that the community is provided with information about the changes to rail operations. This will include any changes to level crossing access, including public and private level crossings. Landholders with private level crossings that remain will need to be informed about the changes in train frequency and requirements for use of the level crossings, particularly if agricultural practices need to change.

A safety awareness program would be developed and implemented to educate the community regarding safety around trains. Based on the rural setting of the majority of the proposal site, the education program would target the community and rural property operators who cross the rail corridor to access their properties.

A targeted approach would be required in Moree to ensure that residents are aware of the safety concerns associated with trains passing through town, and encourage use of the Jones Avenue overbridge for all pedestrians who are travelling between the east and west side of towns.

Social behaviour in towns accommodating workforce can be managed through a zero tolerance policy for worksites and adoption of appropriate codes of conduct (see section 5.4).

Further details on safety are provided in the EIS.

5.7 Amenity impacts

Measures to mitigate social amenity impacts are detailed in the EIS in the relevant chapters for noise and vibration, air quality, landscape and visual and Aboriginal and non-Aboriginal heritage.

5.8 Summary of impact mitigation/management measures

A range of mitigation and management measures developed in various technical studies and chapters in the EIS together will assist in avoiding and/or managing social impacts identified and described in section 4. Additional recommended measures are summarised in Table 5.1 below.

Table 5.1 Summary of social impact management measures

Category	Mitigation or management
Employment, regional economic benefits, economic impacts	<p>Employment and regional economic benefits would be managed through development and implementation of:</p> <ul style="list-style-type: none"> Local business and industry procurement plan – would include opportunities for local procurement and suppliers across the social study area region for the proposal. Consideration would be given to the requirements of the <i>Sustainable Procurement Guide</i> (Australian Government, 2013) and the <i>NSW Government Resource Efficiency Policy</i> (OEH, 2014). Support skills and up-skilling opportunities would be provided to ensure that training and apprentice/trainee development are encouraged by the proposal, subject to regulatory and associated restrictions. Workforce management plan including an Indigenous participation plan – would include (but not be limited to) specific goals and targets for local and regional sourcing of workforce, induction and training, worker support programs and Indigenous participation through training and apprenticeship opportunities. Skills and up-skilling opportunities would be provided to ensure that training and apprentice/trainee development are encouraged by the proposal, subject to regulatory and associated restrictions.

Category	Mitigation or management
Property impacts	<p>Impacts on properties would be managed through:</p> <ul style="list-style-type: none"> • Comprehensive construction design and planning. • Implementation of the property management strategy to be prepared for Inland Rail. This strategy would provide the framework for the development of individual property agreements. This would include consultation, negotiation and compensation as per the Land Acquisition (Just Terms Compensation) Act 1991. • Providing alternative access arrangements in the event that access closures are necessary. • Consultation with individual landowners to identify individual concerns, and develop and document strategies to address these concerns. • Ongoing communication through the construction phase.
Workforce impacts	<p>Impacts of a non-resident workforce would be managed through:</p> <ul style="list-style-type: none"> • Implementation of the CEMP which would include a code of conduct for the construction workforce to manage real and perceived impacts on community safety (community values) related to workforce anti-social behaviour, including a zero tolerance policy regarding drugs and alcohol at work sites. • Implementation of a workforce housing and accommodation plan. With respect to the proposal consultation would be undertaken with local accommodation providers and councils in Narrabri Shire, Moree Plains Shire and Gwydir Shire, and consideration would be given to availability of housing and accommodation in the nearby towns and the need to maintain vacancies in each town for other usual usage.
Local amenity and community values	<p>Implement mitigation measures proposed in the:</p> <ul style="list-style-type: none"> • GHD, 2017c, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Noise and Vibration Assessment. • GHD, 2017e, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Traffic, Transport and Access Assessment. • Umwelt, 2017a, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Aboriginal Cultural Heritage and Archaeological Assessment. • Urbis, 2017, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Landscape and Visual Assessment.

Category	Mitigation or management
Access and connectivity	<p>Access and connectivity impacts would be managed through:</p> <ul style="list-style-type: none"> • Implementation of the construction traffic management plan which would include consultation with the public transport, school bus providers and emergency services providers to inform them of potential access changes or delays. • The plan would provide alternate access arrangements if modification of roads or closure of level crossings is required. • Further consultation would be undertaken with key stakeholders regarding the design of the Jones Avenue overbridge including Moree Plains Shire Council and local community.
Safety	<p>A safety awareness program would be developed in consultation with local councils and emergency service providers and implemented to educate the community regarding safety around trains. This would focus on:</p> <ul style="list-style-type: none"> • Community and rural property operators who cross the rail corridor to access their properties. • Residents in Moree, particularly those living on eastern side of town, to ensure that residents are aware of the safety concerns associated with trains passing through town, and encourage use of the Jones Avenue overbridge.
Stakeholder engagement	<p>Ongoing stakeholder engagement would be undertaken as part of the communications management plan.</p>

6. Conclusion

The proposal has the potential to generate social and economic benefits as well as impacts in the social study area.

Key potential benefits would include:

- Increased employment opportunities through demand for construction and operation workforce and business opportunities through demand for goods and services mainly during the construction phase.
- Potential of reduced freight road traffic along regional and local roads as some freight would be transported by rail during operation.

Adverse social impacts would include:

- Impacts on properties and landholders due to property acquisition and land access required during construction.
- Altered access during operation for some rural properties due to fewer level crossings, and associated potential impacts to agricultural operations.
- More frequent delays at level crossings in Moree due to higher train frequency, potentially exacerbating existing social disconnection of the east side of town from the west.
- Increased frequency of trains causing safety concerns, particularly for residents in Moree due to existing illegal and unsafe crossing of rail line.
- Amenity impacts due to changes in noise levels, air quality, views and landscape during construction and operation most notably in Moree.

Through the implementation of the recommended mitigation and management measures outlined in section 5.8, it is anticipated that the potential benefits and opportunities would be enhanced and the potential negative impacts on properties and communities would be minimised.

7. References

- ABS [Australian Bureau of Statistics] 2016. *Quick Stats*. Viewed 3 May 2016. Available: <<http://www.abs.gov.au/websitedbs/censushome.nsf/home/quickstats?opendocument&navpos=220>>.
- ABS 2011 *Census Quick Stats Gwydir LGA*. Viewed 3 May 2016, available: http://www.censusdata.abs.gov.au/census_services/getproduct/census/2011/quickstat/LGA13660?opendocument&navpos=220
- ABS 2011 *Census Quick Stats Moree Plains LGA*. Viewed 3 May 2016, available: http://www.censusdata.abs.gov.au/census_services/getproduct/census/2011/quickstat/LGA15300?opendocument&navpos=220
- ABS 2011 *Census Quick Stats Narrabri LGA*. Viewed 3 May 2016, available: http://www.censusdata.abs.gov.au/census_services/getproduct/census/2011/quickstat/LGA15750?opendocument&navpos=220
- ABS 2015, 92230DO001_201410 Road Freight Movements, Australia, 12 months ended 31 October 2014. Viewed 7 March 2017, available: <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/9223.012%20months%20ended%2031%20October%202014?OpenDocument>
- ARTC 2015. *ARTC 2015 Inland Rail Programme Business Case*. Available: <https://inlandrail.artc.com.au/business-case>
- ARTC n.d. *The Case for Inland Rail*. Viewed 19 May 2016. Available: <<http://inlandrail.artc.com.au/business-case/documents/30189/download>>
- ARTC 2017, *Consultation Report, 23 February 2017*
- Civeo, 2017, Workforce accommodation village. Available at <http://civeo.com/lodges-villages/australia/narrabri-village/?gclid=CM3PmPfi0tMCFUoFKgodljMHWA>
- Department of Employment. *LGA Data tables - Small Area Labour Markets - September quarter 2016*. Viewed 6 March 2017. Available: <https://docs.employment.gov.au/node/34693>
- Department of Environment and Climate Change 2009, *Interim Construction Noise Guideline*. Viewed 5 May 2016. Available: <http://www.epa.nsw.gov.au/resources/noise/09265cng.pdf>
- Department of Trade and Investment 2015, *Economic Development Strategy for Regional NSW*, viewed 13 July 2016. Available at: http://www.industry.nsw.gov.au/_data/assets/pdf_file/0010/67699/Economic-Development-Strategy-for-Regional-NSW-with-APPENDIX_Feb2015.pdf
- Department of Planning and Environment 2016, *Population Projections*, Viewed 3 May 2016. Available: <http://www.planning.nsw.gov.au/Research-and-Demography/Demography/Population-Projections>
- Destination NSW 2016. "Moree Information Centre – Moree". *Destination NSW: Sydney*. Viewed 4 May 2016, Available: <<http://www.sydney.com/visitor-information-centres/moree-visitor-information-centre>>
- Destination NSW 2016, *Narromine*. Viewed 5 May 2016. Available: http://www.visitnsw.com/destinations/country-nsw/dubbo-area/narromine?sm_au=iHVnDfRFHrg2jNws

GHD, 2017a, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Hydrology and Flooding Assessment

GHD, 2017b, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Water Quality Assessment

GHD, 2017c, Australian Rail Track Corporation Narrabri to North Star Inland Rail Noise and Vibration Assessment

GHD, 2017e, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Traffic, Transport and Access Assessment

Gwydir Shire Council 2012, *Gwydir Shire Tourism Plan 2006 – 2011*. Wialda, NSW

Gwydir Shire Council 2015. *Community Strategic Plan 2014-2024*. Wialda, NSW

Gwydir Shire Council n.d. “Gwydir Shire Council – Our vital Statistics”. *Gwydir Shire Council*. Viewed 4 May 2016. Available <<http://gwydirshire.com/our-vital-statistics/>>

Gwydir Shire Council n.d.a “About the Gwydir Shire”. *Gwydir Shire Council*. Viewed 4 May 2016. Available: <<http://gwydirshire.com/about-the-gwydir-shire/>>

Inland Rail Implementation Group 2015, *Inland Rail*. Viewed 19 May 2016. Available: <https://infrastructure.gov.au/rail/inland/files/Inland-Rail-Implementation-Group-Report_0915.pdf>

Moree Plains Shire Council 2010, *Moree Plains 2030 – The Community Strategic Plan*. Viewed 5 May 2016. Available: http://www.mpsc.nsw.gov.au/index.php?option=com_content&view=article&id=112&

Moree Plains Shire Council 2015. “Moree Plains Shire Our Home”, *Moree Plains Shire*. Viewed 4 May 2016. Available: <<http://www.mpsc.nsw.gov.au/index.php/home/for-residents>>

Moree Plains Shire Council 2015a. “We are Moree Plains”. *Moree Plains Shire*. Viewed 4 May 2016. Available: <<http://www.mpsc.nsw.gov.au/index.php/community-and-services>>

Narrabri Pony Club 2016, *Pony Camp*. Viewed 28 April 2017. Available: <<http://www.narrabriponyclub.com/ponycamp.html>>

Narrabri Shire Council, 2013, *Narrabri Shire Community Strategic Plan...towards 2023*. Viewed 4 May 2016. Available: <http://www.narrabri.nsw.gov.au/files/uploaded/file/Your%20Council/Strategic%20and%20Corporate%20Plans/Integrated%20Planning%20and%20Reporting/2012/Community%20Strategic%20Plan%20Final%20Towards%202023.pdf>

Narrabri Shire Council 2016. ‘Our History’. *Narrabri Shire: Heart of the North West*. Viewed 4 May 2016. Available: <<http://www.visitnarrabri.com.au/our-history/>>

Narrabri Shire Council 2016a. ‘Narrabri’. *Narrabri Shire: Heart of the North West*. Viewed 4 May 2016. Available: <<http://www.visitnarrabri.com.au/our-towns/narrabri/>>

Narrabri Shire n.d. “Introduction to Narrabri Shire”. *Narrabri Shire: Heart of the North West, NSW Australia*. Viewed 4 May 2016. Available: <<http://www.narrabri.nsw.gov.au/introduction-to-narrabri-shire-1167.html>>

Narrabri Shire n.d.a “Narrabri Shire Industries”. *Narrabri Shire: Heart of the North West, NSW Australia*. Viewed 4 May 2016. Available: <<http://www.narrabri.nsw.gov.au/narrabri-shire-industries-1071.html>>

Narrabri Shire n.d.b "The Kamilaroi Tribe". *Narrabri Shire: Heart of the North West, NSW Australia*. Viewed 15 March 2017. Available: < <http://www.narrabri.nsw.gov.au/kamilaroi-tribe-1078.html>>

Narrabri Shire 2014 "Narrabri Tourism Plan", *Narrabri Accommodation, NSW*. Viewed 28 April 2017. Available: < <http://www.narrabri.nsw.gov.au/files/uploaded/file/Economic%20Development/Tourism%20Plan/9&10.pdf>>

NSW Government 2013. *New England North West Regional Transport Plan*. Transport for NSW. Chippendale NSW

Regional Development Australia 2016. *Regional Plan 2016 – 2019*. Available: http://www.rdani.org.au/files/pages/our-region/regional-plan/RDANI_Regional_Plan_V4_Web.pdf

Regional Development Australia 2012. *Northern Inland Region of NSW Freight Study*. NSW Government and Australian Government. Armidale, NSW

Roads and Maritime Services, 2013 *Environmental Impact Assessment – Practice note EIA-N02*. Viewed 9 May 2016. Available: <http://www.rms.nsw.gov.au/documents/about/environment/planning-and-assessment/strategic-assessment-report-appendix-b.pdf>

Tourism Moree 2016. "The History of Moree". *Moree Plains: Artesian Water Country*. Viewed 4 May 2016. Available: <<http://www.moreetourism.com.au/about-moree-plains/history.html>>

Umwelt, 2017a, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Aboriginal Cultural Heritage and Archaeological Assessment

Umwelt, 2017b, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Aquatic Ecology Assessment

Umwelt, 2017c, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Biodiversity Assessment Report

Umwelt, 2017d, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Non-Aboriginal Heritage Impact Statement

Urbis, 2017, Australian Rail Track Corporation Inland Rail – Narrabri to North Star Landscape and Visual Assessment

Vanclay F 2003, *International Principles for Social Impact Assessment*, Impact Assessment and Project Appraisal, vol. 21, no. 1, pp.5-11

Vanclay, F., Esteves, A., Aucamp, I., Franks, D. 2015, *Social Impact Assessment: Guidance for assessing and managing the social impacts of projects*, International Association for Impact Assessment, available: <http://www.iaia.org/uploads/pdf/SIA_Guidance_Document_IAIA.pdf>

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