

TECHNICAL REPORT

INLAND
RAIL 

14

Economic assessment

NARROMINE TO NARRABRI ENVIRONMENTAL IMPACT STATEMENT

ARTC

The Australian Government is delivering
Inland Rail through the Australian
Rail Track Corporation (ARTC), in
partnership with the private sector.



Inland Rail

Narromine to Narrabri

Environmental Impact Statement

Economic Assessment

Revision C

21 October 2020

Disclaimers

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KPMG have indicated within this report the sources of the information provided. We have not sought to independently verify those sources unless otherwise noted within the report.

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The findings in this report have been formed on the above basis.

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Summary

Introduction

The following Economic Assessment (EA) report has been prepared to identify potential economic impacts of the proposed Narromine to Narrabri proposal ('the proposal') which forms part of the Inland Rail program (Inland Rail or the Inland Rail program). Inland Rail is a direct interstate freight rail corridor, approximately 1,700 kilometres, between Melbourne and Brisbane via central-west New South Wales (NSW) and Toowoomba, Queensland (QLD).

The proposal is State significant infrastructure and is subject to approval by the NSW Minister for Planning and Public Spaces under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposal is also determined to be 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. The Commonwealth Minister must consider economic and social matters in deciding whether to grant approval and, if so, what conditions to impose.

This report has been prepared by KPMG as part of the environmental impact statement (EIS) for the proposal. The EIS has been prepared to support the application for approval of the proposal, and to address the environmental assessment requirements of the Secretary of the NSW Department of Planning, Industry and Environment (the SEARs), dated 28 November 2018. Revised SEARs that address project features comprising of borrow pits, minor realignment at Black Hollow and future rail connections are dated 9 September 2020.

Specifically, this assessment:

- Establishes the **existing economic environment and local context** to understand the local economic context and form the baseline to measure the economic impacts;
- Identifies potential **economic benefits and impacts** on affected local and regional communities, businesses and industry. This was drawn from local community consultation and industry engagement undertaken by ARTC, evaluation of publicly available information, and the outputs from the Social Assessment¹, economic benefits assessment and regional impact analysis;
- Assesses the projected economic benefits of the proposal, including the basis for their estimation through a detailed economic benefits assessment. The outcomes of the proposed proposal section-specific analysis will be contextualised against the results of the **cost benefit analysis** (CBA) undertaken for the entire Inland Rail program, as per the Inland Rail program Business Case (2015);
- Assesses the economic significance of the proposal on the regional, state and national economies through **computable general equilibrium modelling (CGE)**;
- Evaluates the potential **cumulative impacts** on local and regional economies resulting from the construction and operation of related programs, including adjacent Inland Rail project sections; and
- Proposes measures to **enhance economic benefits** and to **avoid, mitigate or manage adverse economic impacts**.

¹ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Social Assessment*

Study area

The proposal traverses five local government areas (LGAs) – Coonamble, Gilgandra, Narrabri, Narromine and Warrumbungle Shire. Combined, these LGA boundaries form the study area for assessing the local economic impacts of the proposal, reflecting a local catchment for workers and economic activity.

For the purposes of the regional impact analysis, the regional economic catchment area is defined as the Australian Bureau of Statistics (ABS) labour market region boundaries of the Australian Statistical Geography Standard that captures the regional economy within which the proposal is located. The proposal crosses the Far West and Orana and New England North West labour market regions. These regions are defined as the regional economic catchment.

Baseline and impact assessment

Existing labour market conditions

Labour force

According to the Australian Government's quarterly regional estimates of unemployment, as at December 2019 there were a total of 681 unemployed persons in the study area (44.8 percent located in Narrabri), 1,670 unemployed persons in Far West and Orana, and 4,207 in New England and North West. Excluding Coonamble (which had an unemployment rate of 5.0 percent), the unemployment rate across the study area was lower than the NSW state average of 4.5 percent. The regional economic catchment (detailed in Figure 2) had an unemployment rate of 3.1 percent (Far West and Orana) and 4.3 percent (New England and North West). The region is characterised by significantly volatile labour market indicators, driven by the agricultural industry and the seasonal nature of harvest periods. This volatility is particularly noted in Far West and Orana where the unemployment rate can reach 0 percent following the region's harvest period (between October and November).²

While the rate of unemployment across the study area is predominantly lower than the NSW average, it is likely that unemployment for the study area may not reflect a number of local conditions, including: under-employment amongst those who are self-employed in the agricultural sector, or the transient nature of the agricultural workforce against harvest periods.

Employment by industry

The sectoral distribution of employment for local residents reflects the study area's primary land use for agricultural and grazing purposes, with 24.7 percent of the local workforce employed in the Agriculture, Forestry and Fishing industry.

The strength of the Agriculture, Forestry and Fishing industry is reflected at a local government level, with the sector employing 31.2 percent of the workforce in Coonamble, 28.0 percent in Gilgandra, 27.6 percent in Warrumbungle Shire, 26.2 percent in Narromine and 19.6 percent in Narrabri.

There are a number of residents within the regional economic catchment area employed in industry sectors and occupations directly relevant to support the construction of the proposal. Across the Far West and Orana region, 1,854 workers were employed in Construction Services and 362 workers in Heavy and Civil Engineering

² Australian Government's Small Area Labour Markets publication, December 2019; ABS, *Labour Force Survey, Australia*, December 2019 (12 month moving average) published 26 March 2020

Construction. In the New England and North West region, 3,140 workers were employed in Construction Services and 457 workers in Heavy and Civil Engineering Construction.³

Occupation

The study area's primary occupations of employment are reflective of strong resident employment in the Agriculture, Forestry and Fishing industry. The largest occupational group within the study area is Farmers and Farm Managers (16.0 percent). Across all LGAs, Farmers and Farm Managers are the largest occupational group, employing 22.4 percent of the workforce in Coonamble, 21.4 percent in Gilgandra, 20.1 percent in Warrumbungle Shire, 16.0 percent in Narromine and 10.4 percent in Narrabri.

Labourers (12.8 percent) and Technicians and Trades Workers (12.4 percent) represent approximately one-quarter of the local workforce within the study area (25.2 percent), a marginally higher representation compared to the NSW state average of 21.5 percent.⁴

Workforce profile

Direct employment resulting from the construction and operation of the proposal has been estimated based on the indicative construction schedule and component activities.

Given the scale and length of the proposal, the construction strategy is based on an approach of dividing the overall alignment into four construction areas, with each construction area made up of a number of work fronts. The construction areas are:

- Narromine – the southern end of the proposal site to Leechs Creek Road;
- Gilgandra – Leechs Creek Road to Black Hollow;
- Baradine – Black Hollow to Pilliga East State Forest; and
- Narrabri – Pilliga East State Forest to the northern end of the proposal site.

During site establishment and preliminary activities, testing and commissioning and finishing and rehabilitation, the direct employment would vary but would typically be up to 1,200 people across the four construction areas.

For the construction period, the size and composition of the workforce will vary depending on the construction activities being undertaken and the staging strategy adopted. The construction workforce for the proposal is expected to be up to 2,000 people over the construction period. For the majority of the construction period, the workforce averages 500 people in each of the four construction areas. For some limited items of work, an additional short-term workforce may also be required. A workforce of approximately 10 people is expected for the project's operation.

Local, youth and Indigenous employment

The proposal is a significant opportunity to support local, youth and Indigenous employment. A variety of roles and skills would be required during construction including labourers, tradespeople, machinery operators, engineers, surveyors, and site supervisors.

There are a range of training programs available (or proposed) in the region which could assist the local workforce to gain the necessary skills and increase job readiness for the employment opportunities available during construction and operation of the proposal. These initiatives are being led or facilitated by local councils, local Chambers of Commerce, and Local Aboriginal Land Councils.

In addition to these local initiatives, ARTC is establishing the Inland Rail Skills Academy to help create opportunities for education, training, skills development and employment for communities along the Inland Rail program alignment. Inland Rail Skills Academy members will benefit from access to Inland Rail's partnerships

³ ABS, 2016 Census of Population and Housing

⁴ ABS, 2016 Census of Population and Housing

with recognised industry experts who will deliver programs designed to build skills and prosperity in local communities, regions and nationally. The Inland Rail Skills Academy will result in an increase of skilled local workers, increased student awareness regarding major projects, supply chain integration and upskilling Inland Rail employees.

Local businesses and industry

Agriculture industry

According to the Australian Bureau of Agricultural and Resource Economics (ABARES), the Far West and Orana agricultural region covers approximately 42 percent of the NSW land area (33,400 square kilometres). Within this region, agricultural land accounts for approximately 90 percent of land use reflecting the dominant industry of employment within the study area. In 2017-18, the gross value of agricultural production within Far West and Orana was \$1,292 million, representing approximately 10 percent of total agricultural production in NSW. The New England and North West region covers approximately 12 percent of the NSW land area, and agricultural land accounts for 80 percent of the region's land use. In 2017-18, the gross value of agriculture production within the region was \$2,637 million, representing approximately 20 percent of the total agricultural production in NSW. Together, Far West and Orana and New England and North West (\$3,929 million) represent approximately one-third (29.6 percent) of the value of gross agricultural production in NSW (\$13,264 million).⁵

At a local government level, 2,431 businesses (employing and non-employing) in the study area are in the Agriculture, Forestry and Fishing industry.⁶ This includes a diverse range of agricultural enterprises and agribusinesses which support the industry across the supply chain, responsible for agricultural input supplies, production, storage and processing, and transportation.

The construction and operation of the proposal has the potential to impact high value farming operations within the region based on the gross value of agricultural production, including cotton (\$305 million), cattle and calves (\$257 million) and wool (\$248 million) and general agricultural uses across the study area.⁷ These impacts include:

- Loss of agricultural land;
- Severance of agricultural land;
- Disruption to access and infrastructure;
- Disruption to stock movement; and
- Improvements in supply chain efficiency.

These impacts may change the value of agricultural production in the region, due to changes in accessibility, connectivity and / or productivity.

Loss of agricultural land

As detailed in the Agriculture and Land Use Assessment⁸, the proposal will result in the temporary or longer term loss of agricultural land and infrastructure from agricultural production. During the proposal's construction, 3,316 hectares (Ha) of agricultural land will be temporarily lost to facilitate construction activities (0.10 percent of the total agricultural land across the study area). Following construction, almost half of this land will be reinstated and rehabilitated to enable the land to be returned to its former agricultural production levels, assuming reinstatement is effectively completed. Following the construction phase, an estimated 1,300 ha of land will be

⁵ ABS, 7503.0 – Value of Agricultural Commodities Produced, Australia, 2017-18.

⁶ ABS, Counts of Australian Businesses, including Entries and Exits, June 2014 to June 2018, cat no. 8165.0

⁷ ABS, 7503.0 – Value of Agricultural Commodities Produced, Australia, 2018-19.

⁸ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Agriculture and Land Use Assessment*

permanently removed from agricultural production, representing 4 percent of the total agricultural land across the study area.

According to JacobsGHD, the annual economic impact during the construction phase is estimated at \$4.25 million (value forgone) based on the area of land impacted (approximately 0.43 percent of the annual value of agricultural production across the regional study area). During operation, the annual economic impact is estimated at \$1.54 million (approximately 0.16 percent of the regional study area).⁹

ARTC will continue its ongoing consultation with directly affected landowners during the detailed design phase to develop measures to mitigate impacts resulting from the loss of agricultural land. All property acquisitions / adjustments would be undertaken in consultation with landowners and, where relevant, in accordance with the requirements of the *Land Acquisition (Just Terms Compensation) Act 1991*. In line with the Land Acquisition Act, ARTC's preference is for acquisition by agreement where practicable.

Severance of agricultural land

The design has sought to follow property boundaries as far as practicable in order to minimise severance of properties, however this has not been possible in some instances. A total of 142 private properties (comprising 228 lots) will be impacted by the proposal. The severance of the land would not limit the capacity of the land to be used for its existing purposes, however in some instances may make it difficult to achieve development approval for new uses due to the change in land size.

Further details relating to the severance of holdings can be found in the Agriculture and Land Use Assessment.¹⁰

Disruption to access and infrastructure

During construction and operation, broader accessibility impacts due to changes in the surrounding road network may also affect local agricultural businesses and properties. Roadworks, re-alignments and changes to travel distances may permanently affect farming businesses by increasing travel and time costs to move livestock and machinery between parcels of land.

The potential impacts on transport access and infrastructure would be managed through the appropriate measures identified in consultation with individual landholders and defined in the individual property agreements.

Disruption to stock movement

The proposal alignment crosses or passes close to nine Travelling Stock Reserves. Disruption to these stock routes may require landholders to make alternative travel arrangements for their stock or take alternate routes, potentially increasing travel time and associated costs.

Local Land Services, New South Wales Government have been consulted during reference design and further consultations will take place during the detailed design phase to understand how impacts on travelling stock reserves can be avoided during construction and operation. Alternative access arrangements would be made as required, subject to maintaining rail safety. In the majority of cases, the corridor crosses nearly perpendicular to the reserve. However, between the Pilliga and Narrabri, the alignments are more parallel to the reserves as both the reserves and the rail alignment tend to follow the Newell Highway. The proposal will result in the permanent removal of a strip of land between the two corridors which has been as identified rarely, if ever used for travelling stock or emergency management, but are important, valued and used for other reasons.

⁹ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Agriculture and Land Use Assessment*; The loss of annual value on agricultural production is inclusive of the direct loss of agricultural land, indirect impact via impeded access, interrupted land and farm management, and labour and other costs. The impacts are calculated by multiplying the area of agricultural land impacted by the weighted averaged adopted gross income of \$739.24 (refer Agriculture and Land Use Assessment). It is noted that these calculations are dependent on the maintenance of current agricultural capability within the proposal site. If the capability is compromised by the proposal, the calculation of the costs of the impacts on agricultural land would need to be recalculated. In addition, economic impacts will be offset via compensation payments to directly affected landholders.

¹⁰ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Agriculture and Land Use Assessment*

Improvements in supply chain efficiency

Efficient supply chains support the regional and national capacity to enhance economic opportunities within local communities. As a greenfield development, the proposal is a critical link in the broader Inland Rail program to create a more direct rail freight corridor, offering a more efficient solution for intra and interstate freight operators who will be able to avoid inland and coastal road and rail networks. The proposal will increase competition between road and rail freight modes, driving savings in freight costs which will benefit producers, consumers and the regional community.

Tourism industry

The New England North West regional economic catchment area is recognised as a popular tourist destination for visitors seeking to explore Australia's rural landscape. According to Tourism Research Australia (TRA), during the year ending December 2018, the New England and North West region received over 3.3 million visitors, with tourism expenditure totalling approximately \$943 million. Domestic daytrip visitors comprised the largest proportion of visitors, with 39.9 percent of these visitors travelling for holiday and a further 20.2 percent visiting friends and relatives.¹¹ At a local government level, the region is home to a number of tourism destinations including national parks and forests, space observatories, and a range of rural attractions. The proposal has the potential to change local amenity and service capacity within the study area, during both construction (temporary) and operation (permanent).

During construction, there is potential for construction works, the visual impact of laydown areas, and the accommodation of non-residential workers to affect tourists' experience and travel times. This impact is anticipated to be small and will be temporary whilst construction activities are undertaken in particular areas.

During operation, there is potential for reduced scenic amenity due to the proposal location within the rural and regional landscape. It is likely that some visitors will see the proposal as diminishing rural character while others will find interest in the proposal structure. Accordingly, the proposal is not expected to have a significant impact on the tourism industry.

Mineral resources

As detailed in the Agriculture and Land Use Assessment¹², the proposal passes through areas with active mining exploration or assessment licenses, and areas subject to exploration applications. According to the Department of Planning, Industry and Environment, there are no active mines in the vicinity of the proposal. The size of the mineral resource exploration area in the study area is very large relative to the operational footprint of the proposal, making the likelihood of high value resources being discovered under the footprint reasonably low. The proposal is generally aligned close to other major infrastructure and property boundaries, minimising the potential for the proposal to sterilise land from mining.

The Department of Planning, Industry and Environment indicates that there are a number of coal seam gas boreholes in the study area. While there are no production wells currently in service, there are a number of operational exploration and pilot wells. The nearest non-plugged coal seam gas well is over five kilometres from the proposal. Given the nature of coal seam gas extraction processes, it is unlikely that the proposal will impact on the capacity to extract coal seam gas.¹³

Local businesses

Consultation undertaken for the Social Assessment¹⁴ indicated that there are a number of local businesses within the study area that would have capacity to support the proposal during construction. Overall, stakeholders

¹¹ Destination NSW, Travel to New England North West, Year ended December 2018

¹² JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Agriculture and Land Use Assessment*

¹³ NSW Department of Planning, Industry & Environment – Division of Resources & Geoscience, Geological Survey of New South Wales (GSNSW)

¹⁴ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Social Assessment*

indicated the types of businesses available in the region with capacity and resources for procurement opportunities include:

- Bus operators;
- Traffic controllers;
- Steel suppliers;
- Concrete works (i.e. mixing and casting);
- Bulk haulage;
- Machinery hire;
- Accommodation;
- Catering; and
- Special food retailers.

During consultation, the local chambers of commerce indicated that they would be willing to work with Inland Rail and the primary contractor to identify specific local businesses that could be involved in the construction activities, and would be available to assist local businesses prepare for available opportunities. ARTC has also established a partnership with the Australasian Railway Association, which will support opportunities to build capability and supply chain readiness to meet the requirements of major projects.

Indigenous businesses

During the development of the Social Assessment ¹⁵, consultation indicated that there are few Indigenous businesses in the region that would have the relevant skills or capacity for procurement opportunities provided by Inland Rail. Some Indigenous businesses may require support to increase their readiness and capacity for the procurement requirements. A number of Local Aboriginal Land Councils in the region indicated that they or other organisations could auspice individuals who desire to establish a business, as well as provide support to businesses to increase their readiness and capacity for the procurement requirements.

ARTC's Inland Rail program Indigenous Procurement Policy, which refers to the Australian Government Indigenous Procurement Policy, states that a minimum of three percent of contracts must be awarded to Indigenous businesses.

Further, ARTC requires measures to be taken during the construction of the proposal to maximise social performance outcomes in accordance with the Inland Rail Social Performance Program and the Inland Rail program's Australian Industry Participation Plan. This will include strategies such as preparing an industry participation sub-plan which identifies how opportunities during construction will be communicated to local and Indigenous businesses.

Given the current capacity of local Indigenous businesses in the study area, it is expected that Indigenous businesses located within the broader regional economic catchment would also benefit from procurement opportunities.

Local service and supply businesses

The proposal is likely to offer opportunities in secondary service and supply industries (such as retail, hospitality and other support services) for businesses in close proximity to the construction footprint and accommodation camps. The expansion in construction activity has the potential to support additional temporary flow-on demand and additional spending by the construction workforce in the local community which may lead to increased trading levels for small businesses, such as food and beverage businesses in the study area.

Inland Rail program impacts

As per the requirements of the SEARs, this EA has focussed on the specific economic impacts resulting from the construction and operation of the proposal. However, the assessment acknowledges the role of the proposal, and the remaining program sections, in collectively delivering the benefits of the Inland Rail program. In its entirety, Inland Rail will enhance Australia's existing national rail network and serve the interstate freight

¹⁵ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Social Assessment*

market. As per the Inland Rail program Business Case (2015), key economic impacts of the Inland Rail program include:

- Lower prices for consumers as a result of lower intercapital freight transport costs, which reduces the cost of living for households.
- Positive direct net economic benefits, driven by improvements in freight productivity, reliability and availability, and benefits to the community from reduced environmental externalities, reduced road congestion and improved safety benefits. The program is stated to be economically viable with a benefit cost ratio of 1.02 at a 7 percent discount rate (2.62 at a 4 percent discount rate).
- Economic growth as increased profits (for industries and producers where intercapital freight is an input or output) and incomes are multiplied through the economy. The program is anticipated to deliver a net positive impact of \$16 billion on Gross Domestic Product (\$2015) over its 10 year construction period and 50 years of operation.
- Nationally, the program is also expected to deliver an additional 16,000 jobs at the peak of construction, and an average of 700 additional jobs per annum during operation.
- Enhanced competition between rail and road freight, by providing a credible transport alternative, which will drive further innovation and efficiency.
- Potential to promote the expansion and development of freight precincts around Inland Rail terminals as a result of the benefits from co-location and clustering of industries (as a result of reduced transport costs to warehousing, economies of scale and knowledge-sharing opportunities).

Economic benefits assessment

An economic benefits assessment has been undertaken to identify and assess the likely benefits of the proposal, as a discrete project, to the community. These economic benefits have been estimated based on the impacts of the proposal on the transport network, in particular freight operators, along with the benefits accrued by non-users (the community). Where the proposal improves the transport connectivity and efficiency between freight originators and destinations, these movements across road and rail have been assessed in the appraisal.

Accordingly, for the purposes of this EA, there are two components to the CBA:

1. Evaluation of the likely benefits of the discrete the proposal (economic benefits assessment). This analysis assesses only those impacts that would be likely if freight operators were to respond to the completion of the individual proposal (in isolation of the whole Inland Rail program). A proposal-specific CBA has not been undertaken as the results will not capture the full economic impact that is expected to be delivered upon completion of the Inland Rail program.
2. Description of the economic performance measures calculated for the Inland Rail program as a whole (as per the Inland Rail program Business Case (2015)).

Economic benefits assessment results

The results of the economic benefits assessment estimate that the proposal is expected to provide a total of \$258.9 million (\$2019 present value terms) in incremental benefits to the project area¹⁶ (at a 7 percent discount rate). This consists of \$243.72 million in freight benefits and \$15.18 million in community benefits (\$2019 present value terms).

Observing the composition of benefits, the largest share of benefits for the proposal is improved availability of freight, representing ~62 percent of the total benefits (at a 7 percent discount rate). Freight benefits more broadly (including freight time travel savings, operating cost savings, as well as improved reliability and

¹⁶ The transport network and surrounding areas impacted by freight movements that will utilise N2N represent the project area for the purposes of the economic benefits assessment.

availability) represent ~94 percent of the total projected benefits for the proposal. Reductions in environmental externalities (i.e. air pollution and greenhouse gas emissions) from reduced heavy vehicle kilometres travelled represents ~2 percent of the total benefits (at the 7 percent discount rate). Crash reduction represents ~1 percent of the total benefits which are underpinned by safer roads as a result of the reduced number of large trucks on the road.

The full results of the economic benefits assessment are presented in the table below.

Results of the economic benefits assessment, present value terms (\$2019)

Benefits	Discount Rate		
	4%	7%	10%
Freight Benefits	\$530.57 m	\$243.72 m	\$130.65 m
Travel Time Savings	\$13.51 m	\$6.97 m	\$4.14 m
Operating Cost Savings	\$50.75 m	\$26.79 m	\$16.19 m
Improved Availability	\$363.08 m	\$161.48 m	\$83.63 m
Improved Reliability	\$103.22 m	\$48.48 m	\$26.69 m
Community Benefits	\$27.96 m	\$15.18 m	\$9.41 m
Crash Reduction	\$3.84 m	\$2.08 m	\$1.29 m
Environmental Externalities	\$11.15 m	\$6.05 m	\$3.75 m
Road Decongestion Benefits	\$12.97 m	\$7.04 m	\$4.36 m
TOTAL BENEFITS	\$558.53 m	\$258.90 m	\$140.06 m

Cost Benefit Analysis: Inland Rail program Business Case

As detailed above, due to the nature of the incremental assessment approach adopted for this EA, a proposal-specific CBA has not been undertaken as the results will not capture the full economic impact that is expected to be delivered upon completion of the Inland Rail program. The total Program is anticipated to deliver benefits above the sum of the individual benefits of each individual section.

The results of the economic analysis undertaken for the full Inland Rail program, as presented in the Inland Rail program Business Case (2015), are provided in the table below. As shown, the construction and operation of Inland Rail is estimated to deliver positive net economic benefits with a cost benefit ratio above one.

Economic appraisal results for Inland Rail (\$2015)

	Net Present Value	Benefit Cost Ratio
PV at 4% Discount Rate	\$13,928 m	2.62
PV at 7% Discount Rate	\$116.1 m	1.02

Source: Inland Rail program Business Case 2015

Note: Assumes complementary investment on the QR network (Western Line and Brisbane metropolitan network).

Regional impact analysis

A regional impact analysis has been undertaken to highlight the economic impacts of the proposal on the regional, state and national economy using an equilibrium modelling framework.

A CGE model (KPMG-SD) was developed to examine the direct and indirect (flow-on) effects arising from the construction of the proposal on the broader economy. The modelling framework assesses the direct and indirect effects of significant net government expenditure on traditional measures of regional economic performance, such as Gross Regional product (GRP), Gross State Product (GSP) and Gross Domestic Product (GDP). KPMG-SD also provides estimates of employment supported through these investment shocks, noting that estimates of employment produced by the model reflect the direct and indirect jobs generated across the economy.¹⁷

The key impacts of the proposal on the Far West and Orana and New England and North West regions during the construction phase are summarised in the table below.

Summary of the direct and indirect economic impacts of the proposal

	Far West and Orana		New England and North West	
Measure	Slack Labour Markets	Tight Labour Markets	Slack Labour Markets	Tight Labour Markets
Additional Real Gross Regional Product (\$2018-19)	\$564 m	\$236 m	\$206 m	\$82 m
Average annual additional direct and indirect jobs (persons)	1,103	192	432	69

The labour market conditions that are likely to prevail during the construction phase of the proposal will be most consistent with the “slack” labour market scenario.

Recent labour market trends can be used to inform workforce capacity and capability within the local region. In Far West and Orana, the unemployment rate has been about 3 percent over the course of 2019.¹⁸ However, the number of employed persons as at December 2019 was 9.9 percent lower than in the corresponding period last year.¹⁹ The average participation rate rose to 77.0 percent in 2019, up from 74.6 percent in 2018.²⁰ In New England and North West, the unemployment rate averaged 5.2 percent in 2019, down from 6.5 percent in 2018.²¹ The participation rate averaged 78.1 percent in 2019, up from 72.4 percent in 2018.²² The upward trend in the participation rates indicates that there may be a growing pool of people that could be drawn back into the labour force in the future. It is noted that the official labour force data at this level of regional granularity is quite volatile, and it is important to consider these statistics in a broader context, including with regards to labour market conditions at the state and national levels.

At the time of writing, the latest available regional labour market statistics in the Small Area Labour Markets (SALM) publication contained data to December 2019. More recent macro-economic data suggest that labour market conditions may have deteriorated further and the economic shock associated with the COVID-19 has added considerable downside risks to the broader economy in the short to medium term. The National Accounts data for Quarter 4, 2019 show domestic demand has remained soft, even before recent natural disaster events (i.e. bushfires and floods) and the global COVID-19 outbreak. Economic conditions are anticipated to deteriorate markedly in the short to medium term, increasing the likelihood that the national and regional labour markets will be consistent with the “slack” labour market scenario during the construction phase.

¹⁷ As compared to the direct jobs determined through the indicative construction schedule and component activities as described in the workforce profile.

¹⁸ Based on Australian Government’s Small Area Labour Markets (SALM) publication.

¹⁹ Based on ABS, Labour Force Survey 2020, cat. no. 6291.0. Released 27 February 2020.

²⁰ Based on population of working age: 15 – 64 years; ABS, Labour Force Survey 2020, cat. no. 6291.0. Released 27 February 2020.

²¹ Based on Australian Government’s Small Area Labour Markets (SALM) publication.

²² Based on population of working age: 15 – 64 years; ABS, Labour Force Survey 2020, cat. no. 6291.0. Released 27 February 2020.

Looking specifically at skilled labour capacity, recent Labour Force Survey results indicate that a relatively high proportion of unemployed workers were last employed in the Construction sector.²³ In NSW, during the reference week in the quarter ended November 2019, 20,300 unemployed persons (approximately 11 percent) reported that their last job was in Construction, representing a 28.3 percent increase from the corresponding quarter in the previous year. Nationally, over the same period, 15.1 percent of unemployed persons who reported losing their job last worked in the Construction industry. The ABS estimates that job vacancies in the Construction sector have fallen sharply as at November 2019 (around 14.0 percent) from their peak in the quarter ended February 2019.²⁴ These indicators suggest a degree of softness in the Construction sector. The industry and occupational profile of the Far West and Orana and New England and North West workforce, together with evidence that the Construction sector is not currently stretched, means that it is reasonable to assume that the regional labour market has the capacity to supply a significant portion of the workforce requirements of the proposal without major disruption.²⁵

Cumulative economic impacts

In considering the cumulative impacts of the proposal, it is necessary to identify the range of existing, planned and potential projects, within or adjacent to the study area, that may contribute to local and regional economic impacts. Cumulative impacts may result from the spatial and / or temporal interaction between these projects.

Specifically, the EA considers the potential economic impacts of Inland Rail's adjacent Narrabri to North Star (N2NS) and Parkes to Narromine (P2N), and other significant projects which may have material cumulative impacts on the proposal (refer figure overleaf).

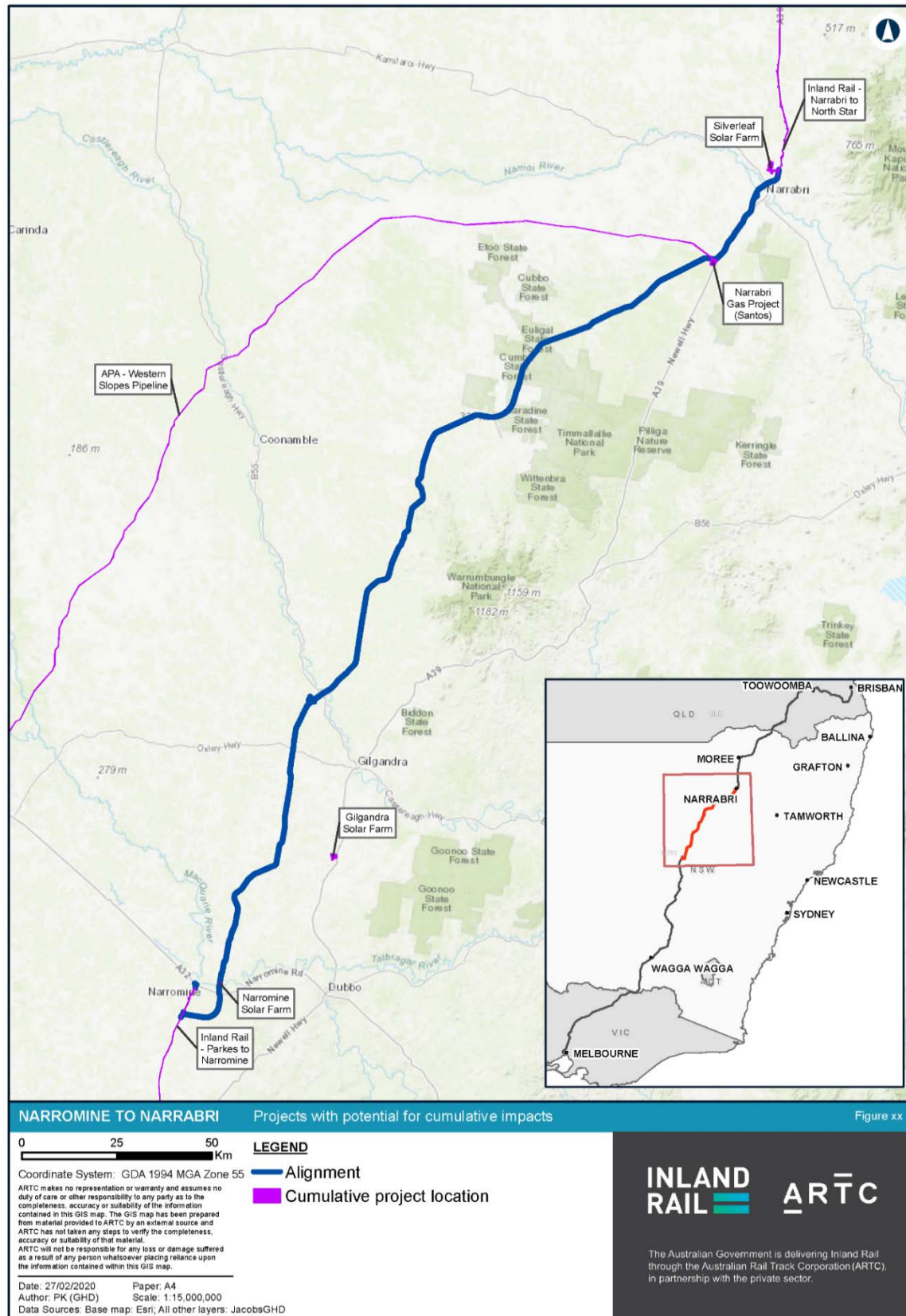
The details provided below reflect known information as at the time of drafting this report. Due to the availability and completeness of relevant economic data, the potential cumulative impacts resulting from interacting projects are assessed qualitatively in this EIS.

²³ Based on ABS, Labour Force Survey, Quarterly, November 2019, cat no. 6291.0.55.003. Released 23 December 2019.

²⁴ Based on ABS, Job Vacancies, November 2019, cat no. 6354.0. Released 8 January 2020.

²⁵ Workers with specialist skills may be sourced from outside of the local region.

Projects with the potential for cumulative impacts



Source: ARTC

Labour market

The concurrent construction of interacting projects has the potential to increase the demand for labour in the local and regional economy, particularly for workers with trade and construction skills / knowledge. The demand for construction workers within a similar timeframe will lead to cumulative demands on construction labour, not only within the local and regional economy, but also across NSW, and potentially nationally.

The results of the regional economic assessment indicate that it is reasonable to assume that the regional labour market will have the capacity to supply a portion of the workforce requirements of the proposal. However, the possibility of some tightness in the labour market cannot be completely dismissed.

Prior to the COVID-19 shock, the known major infrastructure projects in the adjacent and surrounding areas, including those associated with Inland Rail, had the potential to put some pressure on labour markets if inopportune scheduling resulted in cumulative and competing demand for trades and construction labour. KPMG's assessment is that the overall labour demands of the various infrastructure projects expected to be constructed are modest and that scheduling could be optimised to minimise market impact. The prevailing trends in the Far West and Orana and New England and North West labour market and the ability of workers to mobilise to project locations suggested that the risks of labour market disruption were limited.

The COVID-19 shock has impacted these existing labour markets, by opening up labour markets which has increased the labour market for the proposal. The potential labour market risk has now been further reduced as a result of COVID-19 economic shock.

However, the possibility of some tightness in the labour market cannot be completely dismissed. Government's health and economic policy responses to the COVID-19 may result in some projects being brought forward. If these health and economic stimulus projects are highly effective, the economy may grow much faster than is expected, resulting in significantly more activity in the construction sector. This increased construction activity may put some pressure on labour markets.

It is noted that there may also be benefits from having additional infrastructure projects in the adjacent and surrounding areas around the same time as the proposal. These benefits come in the form of lowered mobilisation costs and transfer of labour experience and skills to projects, particularly those constructed in the period leading up to and the period following the proposal's construction phase.

Supply chain

Cumulative supply chain impacts are also likely to be realised where construction timeframes occur concurrently and comparable material is required. Opportunities to supply these projects may include supply of fuels, equipment, steel, borrow and quarried material. Where materials are sourced within the surrounding regions, increased local expenditure is likely to increase local and regional economic activity.

Local businesses

The expansion in construction activity and regional employment (with a subsequent increase in the temporary and non-resident population) has the potential to increase demand for a range of local infrastructure and services, including housing, health care, child care, and education. Additional spending on consumer orientated products by the construction workforce has the potential to benefit local businesses by increasing their trading levels.

Mitigation and management strategies

ARTC are committed to enhancing the economic benefits of the proposal while avoiding, mitigating or managing any adverse economic impacts. Accordingly, there are a range of actions that ARTC will undertake and / or require its contractor to undertake to manage the social and socio-economic impacts of the proposal and enhance the associated benefits and opportunities. At the highest level, these actions include ensuring that the proposal adheres to the guidance of the NSW Government Inland Rail Infrastructure Skills Legacy Program, Inland Rail's Sustainable Procurement Policy and the Inland Rail program's Australian Industry Participation Plan, the Land Acquisition (Just Terms Compensation) Act 1991 and that individual property agreements will be developed in consultation with landowners / occupants (where relevant). These measures are consistent with the Social Assessment²⁶ and Agriculture and Land Use Assessment²⁷.

Conclusions

A detailed EA has been undertaken for the proposal section of the Inland Rail program, in accordance with the requirements under Section 5 of the SEARs (Socio-economic, Land Use and Property). DITRCD are investigating infrastructure investments that will support the development of Inland Rail. Specifically, these include intermodal terminals connecting ports (including the Inland Port at Narrabri) and the Interface Improvement Program.

Local and regional employment, business and industry impacts

At a local level, the proposal will support regional economic development through opportunities for local and regional employment, businesses and industries.

Specifically, the proposal offers:

- Opportunities to promote Indigenous, local, and youth employment through jobs offered by the construction of the proposal. This includes leveraging initiatives that facilitate the upskilling of the local and Indigenous workforce to ensure they are 'work ready';
- Opportunities to engage Indigenous, local, and regional businesses in proposal construction through the supply of resources and materials. This includes leveraging programs that increase the readiness and capacity of local businesses (particularly Indigenous businesses) to meet the proposal's procurement requirements;
- Opportunities for businesses in secondary service and supply industries (such as retail, hospitality and other support services) in close proximity to the construction footprint and proposed accommodation camps. The expansion in construction activity is also likely to support additional temporary flow-on demand and additional spending by the construction workforce in the local community;
- Increased competition between road and rail freight modes which will encourage a mode shift to rail freight. This mode shift will improve freight efficiency, reduce freight costs and increase productivity, ultimately benefiting producers (particularly in export industries), consumers and the regional community; and
- The potential to act as a catalyst for further private sector investment in the study area, particularly for freight and logistics operations (by providing efficient transport access to intrastate and interstate markets).

²⁶ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Social Assessment*

²⁷ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Agriculture and Land Use Assessment*

The proposal alignment has been designed to minimise impacts to local business and industry as far as practicable, however the proposal may result in the disruption of the agriculture and tourism industries through:

- The loss of agricultural land (through disturbance, acquisition, or sterilisation), disruption to farm management, or changes in accessibility or connectivity to market. According to an assessment undertaken by JacobsGHD, it is estimated that the loss of agricultural land from the proposal could result in a loss of approximately \$1.39 million in agricultural production per annum (once the proposal is operational).²⁸ ARTC will work with individual land owners to develop suitable management solutions based on individual farm management practices to mitigate and manage these impacts; and
- A potential change to local amenity and tourism service capacity within the study area. During construction, there is potential for construction works, the visual impact of laydown areas, and the accommodation of non-residential workers to affect tourists' experience and travel times. During operation, there is potential for reduced scenic amenity due to the proposal location within the rural and regional landscape. It is likely that some visitors will see the proposal as diminishing rural character while others will find interest in the proposal structure. Accordingly, the proposal is not expected to have a significant impact on the tourism industry.

Economic benefits assessment

The economic benefits assessment estimates that the proposal is expected to provide a total of \$258.90 million (\$2019 present value terms) in incremental benefits (at a 7 percent discount rate).

These benefits result from improvements in freight productivity, reliability and availability, and benefits to the community from crash reductions, reduced environmental externalities and road decongestion benefits. Observing the composition of benefits, the largest share of benefits for the proposal is improved availability of freight, representing ~62 percent of the total benefits (at a 7 percent discount rate).

Regional economic assessment

The prevailing trends in the Far West and Orana and New England and North West labour market, and the ability of workers to mobilise to project locations, suggest that the risks of labour market disruption are likely to be limited. At the end of the construction phase, real GRP for the Far West and Orana and New England and North West regions is projected to be \$564 million and \$206 million, respectively, higher than the baseline level under the assumption of slack labour markets.

Under this labour market scenario, the proposal is also expected to deliver an additional 1,103 direct and indirect jobs generated in Far West and Orana, and 432 in New England and North West per year over the construction period.

Impact management

ARTC are committed to enhancing the economic benefits of the proposal while avoiding, mitigating or managing any adverse economic impacts as far as practicable. Accordingly, there are a range of actions that ARTC will undertake and / or require its contractor to undertake to manage the social and socio-economic impacts of the proposal, and to enhance proposal benefits and opportunities. At the highest level, these actions include ensuring that the proposal adheres to the guidance of the NSW Government Inland Rail Infrastructure Skills Legacy Program, Inland Rail's Sustainable Procurement Policy and the Inland Rail program's Australian Industry Participation Plan, the Land Acquisition (Just Terms Compensation) Act 1991 and that individual property agreements will be developed in consultation with landowners / occupants (where relevant).

²⁸ The loss of annual value on agricultural production is inclusive of the direct loss of agricultural land, indirect impact via impeded access, interrupted land and farm management, and labour and other costs. The impacts are calculated by multiplying the area of agricultural land impacted by the weighted averaged adopted gross income of \$739.24 (refer Agriculture and Land Use Assessment).

1 Introduction

1.1 Overview

1.1.1 Inland Rail and the proposal

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, via central-west New South Wales (NSW) and Toowoomba in Queensland. Inland Rail is a major national program that will enhance Australia's existing national rail network and serve the interstate freight market.

The Inland Rail route, which is about 1,700 kilometres long, involves:

- using the existing interstate rail line through Victoria and southern NSW
- upgrading about 400 kilometres of existing track, mainly in western NSW
- providing about 600 kilometres of new track in NSW and south-east Queensland.

The Inland Rail program has been divided into 13 sections, seven of which are located in NSW. Each of these projects can be delivered and operated independently with tie-in points on the existing railway.

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

1.1.2 Approval and assessment requirements

The proposal is State significant infrastructure and is subject to approval by the NSW Minister for Planning and Public Spaces under the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act). The proposal is also determined to be a controlled action under the *Commonwealth Environment Protection Biodiversity Conservation Act 1999* (EPBC Act), and requires approval from the Australian Minister for the Environment.

This report has been prepared by the KPMG as part of the environmental impact statement (EIS) for the proposal. The EIS has been prepared to support the application for approval of the proposal and address the environmental assessment requirements of the Secretary of the NSW Department of Planning, Industry and Environment (the SEARs), dated 28 November 2018. Revised SEARs that address project features comprising of borrow pits, minor realignment at Black Hollow and future rail connections are dated 9 September 2020.

1.2 The proposal

The proposal consists of about 306 kilometres of new single-track standard gauge railway with crossing loops. The proposal also includes changes to some roads to facilitate construction and operation of the new section of railway, and ancillary infrastructure to support the proposal.

The proposal would be constructed to accommodate double-stacked freight trains up to 1,800 metres long and 6.5 metres high. It would include infrastructure to accommodate possible future augmentation and upgrades of the track, including a possible future requirement for 3,600 metre long trains.

The land requirements for the proposal would include a new rail corridor with a minimum width of 40 metres, with some variation to accommodate particular infrastructure and to cater for local topography. The corridor would be of sufficient width to accommodate the infrastructure currently proposed for construction, as well as

possible future expansion of crossing loops for 3,600 metre long trains. Clearing of the proposal site would occur to allow for construction and to maintain the safe operation of the railway.

1.2.1 Location

The proposal would be located between the towns of Narromine and Narrabri in NSW. The proposal would link the Parkes to Narromine section of Inland Rail located in central western NSW, with the Narrabri to North Star section of Inland Rail located in north-west NSW. The proposal location is shown in Figure 1.

1.2.2 Key features

The key design features of the proposal are detailed in the table below and shown in Figure 2 and Figure 3.

Table 1: Key components of the proposal

Key Component	
Start and finish point	The proposal would be located between the towns of Narromine and Narrabri in NSW. The proposal would link the Parkes to Narromine section of Inland Rail located in central western NSW, with the Narrabri to North Star section of Inland Rail located in north western NSW.
Local government areas	<ul style="list-style-type: none"> • Coonamble; • Gilgandra; • Narrabri; • Narromine; and • Warrumbungle Shire.
Key features	<p>Rail infrastructure</p> <ul style="list-style-type: none"> • A new 306 kilometre long rail corridor between Narromine and Narrabri. • A single-track standard gauge railway and track formation within the new rail corridor. • Seven crossing loops, at Burroway, Balladoran, Curban, Black Hollow/Quanda, Baradine, The Pilliga and Bohena Creek. • Bridges over rivers and other watercourses (including the Macquarie River, Castlereagh River and the Namoi River/Narrabri Creek system), floodplains and roads. • Level crossings. • New rail connections. • Possible future connections with existing ARTC and Country Regional Network rail lines. <p>Road infrastructure</p> <ul style="list-style-type: none"> • Road realignments at various locations, including realignment of the Pilliga Forest Way for a distance of 6.7 kilometres. • Limited road closures. <p>Ancillary infrastructure</p> <p>Ancillary infrastructure to support the proposal would include signalling and communications, drainage, signage and fencing, and services and utilities.</p>
Construction	It is anticipated that the site establishment and preliminary activities would commence in late 2021, and construction would be completed in 2025.

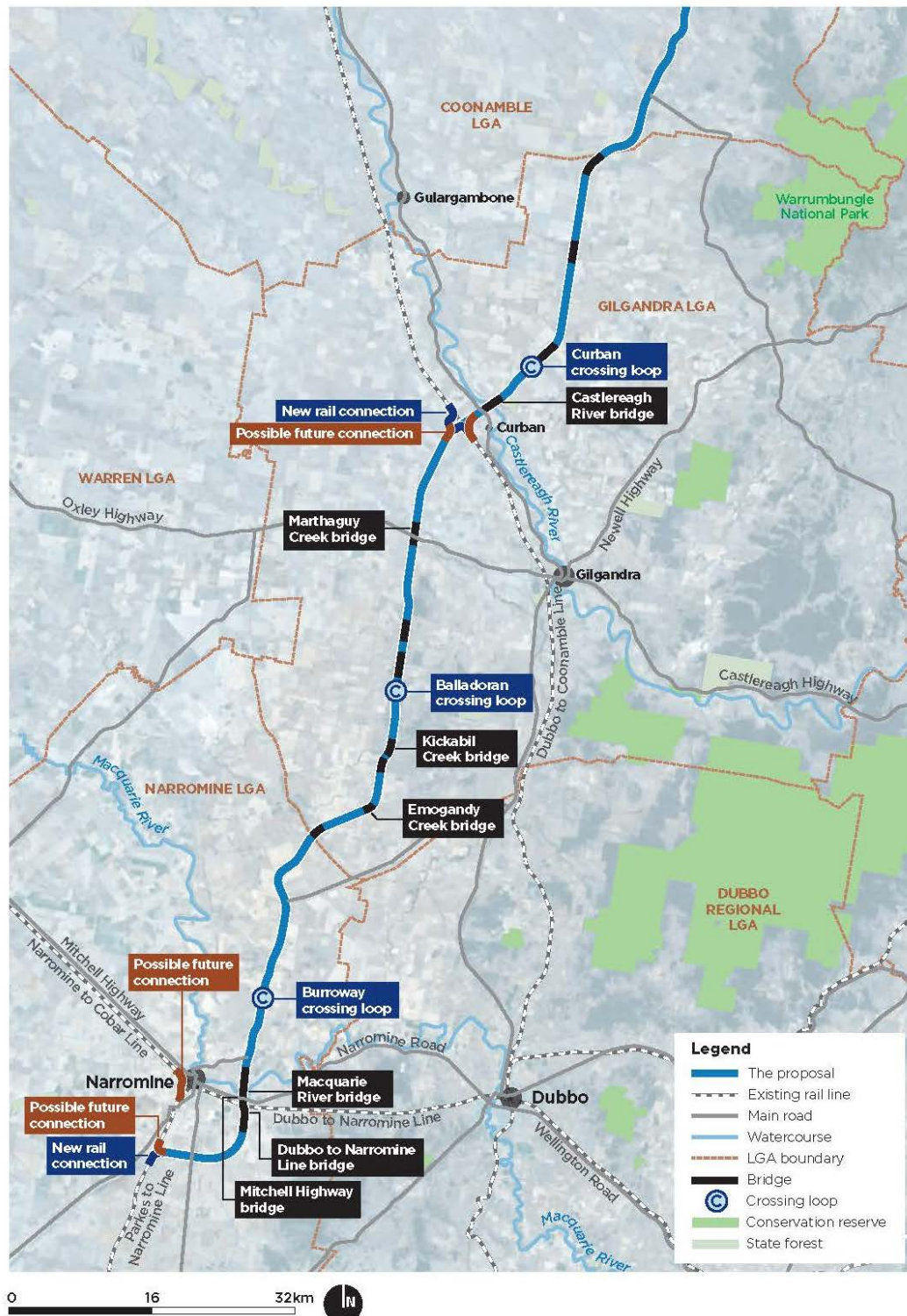
Source: ARTC Constructability Report

Figure 1: Location of the proposal



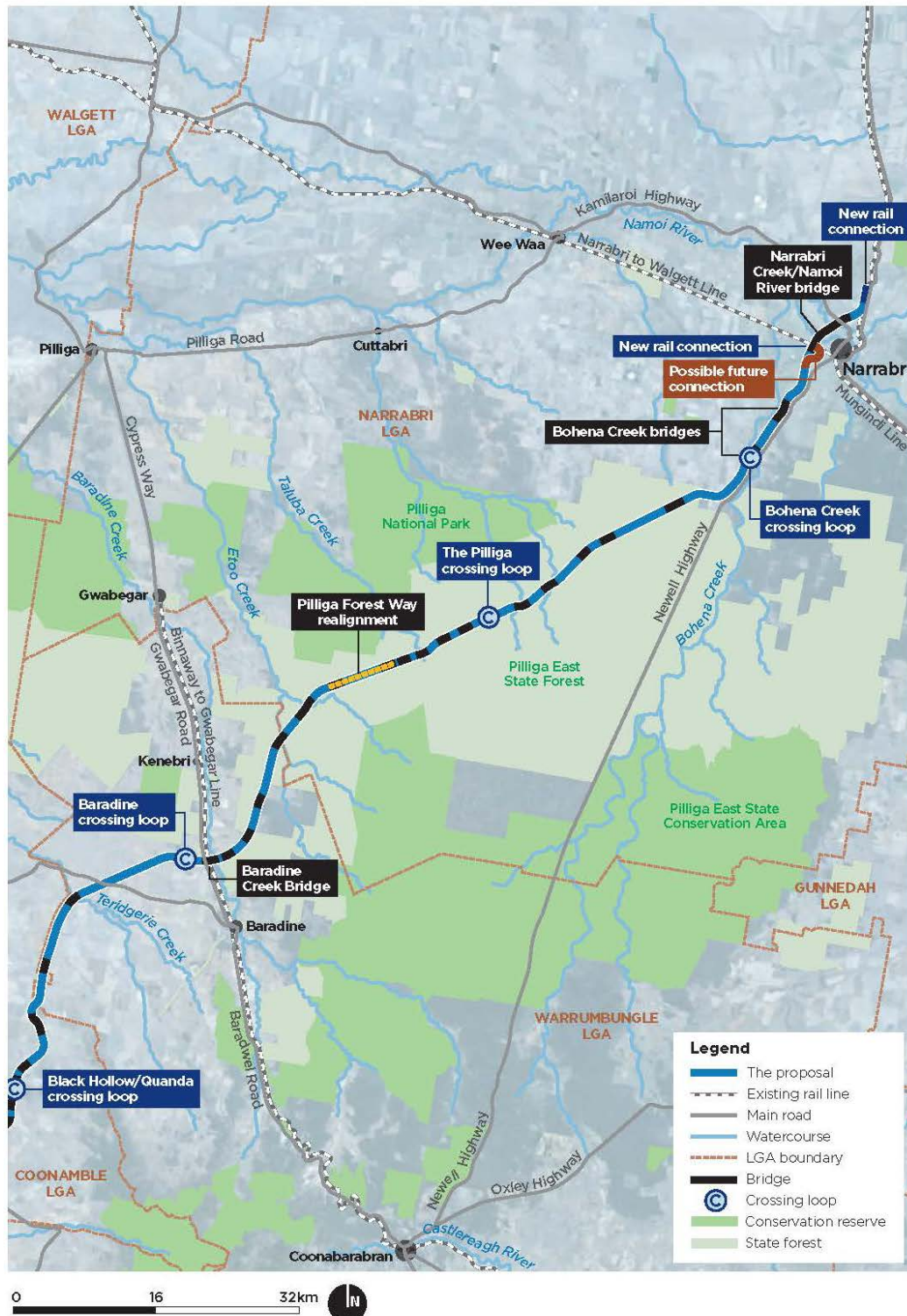
Source: JacobsGHD

Figure 2: Key features the proposal (1 of 2)



Source: JacobsGHD

Figure 3: Key features of the proposal (2 of 2)



Source: JacobsGHD

Timing and work phases

Construction of the proposal would involve five main phases of work as outlined in Table 2. It is anticipated that the first phase would commence in 2021, and construction would be completed in 2025.

Table 2: Main construction phases and indicative activities

Phase	Indicative construction activities
Pre-construction	<ul style="list-style-type: none"> Establishment of areas to receive early material deliveries. Delivery of certain materials that need to be brought to site before the main construction work.
Site establishment	<ul style="list-style-type: none"> Establishment of key construction infrastructure, work areas and other construction facilities. Installing environmental controls, fencing and site services. Preliminary activities including clearing/trimming of vegetation.
Main construction works	<ul style="list-style-type: none"> Construction of the proposed rail and road infrastructure, including earthworks, track, bridge and road works.
Testing and commissioning	<ul style="list-style-type: none"> Testing and commissioning of the rail line and communications and signalling systems.
Finishing and rehabilitation	<ul style="list-style-type: none"> Demobilisation and decommissioning of construction compounds and other construction infrastructure. Restoration and rehabilitation of disturbed areas.

1.2.3 Operation

The proposal would form part of the rail network managed and maintained by ARTC. Train services would be provided by a variety of operators. Inland Rail as a whole would be operational once all 13 sections are complete, which is estimated to be in 2025.

It is estimated that Inland Rail would be trafficked by an average of 10 trains per day (both directions) in 2025, increasing to about 14 trains per day (both directions) in 2040. This rail traffic would be in addition to the existing rail traffic using other lines that the proposal interacts with.

The trains would be a mix of grain, bulk freight, and other general transport trains. Total annual freight volumes are forecast at around 10 million tonnes in 2025, increasing to about 17.5 million tonnes in 2040.

Train speeds would vary according to axle loads, and range from 80 to 115 kilometres per hour.

1.3 Purpose and scope of this report

The purpose of this report is to assess the potential economic impacts from constructing and operating the proposal. Specifically, this report:

- Addresses **Section 5 of the SEARs** (refer Table 3);
- Establishes the **existing economic environment** for the defined economic catchment area, to understand the local economic context and form the basis to measure change or impacts;
- Identifies potential **economic benefits and impacts** on affected local and regional communities and businesses. This will be drawn from local consultation and industry engagement undertaken by ARTC,

evaluation of publically available information, and the outputs from the social assessment²⁹, economic benefits assessment and regional impact analysis;

- Assesses the projected economic benefits of the proposal, including the basis for their estimation through a detailed economic benefits assessment. The outcomes of the proposed the proposal section-specific analysis will be contextualised against the results of the **cost benefit analysis** (CBA) undertaken for the entire Inland Rail program, as per the Inland Rail program Business Case (2015);
- Assesses the economic significance of the proposal on the regional, state and national economies through **computable general equilibrium modelling (CGE)**;
- Evaluates the potential **cumulative impacts** on local and regional economies resulting from the construction and operation of related programs, including adjacent Inland Rail project sections; and
- Proposes measures to **enhance** economic benefits and to **avoid, mitigate or manage** adverse economic impacts.

The methodology for the assessment is described in Section 2.

Table 3: SEARs requirements – Section 5: Socio-economic, Land Use and Property

Desired Performance Outcome	
<p>The project minimises adverse social and economic impacts and capitalises on opportunities potentially available to affected communities.</p> <p>The project minimises impacts to property and business and achieves appropriate integration with adjoining land uses, including maintenance of appropriate access to properties and community facilities, and minimisation of displacement of existing land use activities, dwellings and infrastructure.</p>	
Current Guidelines	
<ul style="list-style-type: none"> • Environmental Planning and Impact Assessment Practice Note: Socio-economic Assessment (RMS, 2013). • Social Impact Assessment Guideline for State significant mining, petroleum production and extractive industry development (DPE, 2017). • Social Impact Assessment Scoping Tool (DPE, 2017). • Infrastructure Proposals on Rural Land Primefact 1063, second edition (DPI, 2013). • NSW Invasive Species Plan 2018-202 (DPI, 2018). • Land Use Conflict Risk Assessment (LUCRA) Guide (DPI, 2011). • Central West and Orana Regional Plan 2036 (DPE, 2017) propertyacquisition.nsw.gov.au. 	

EIS Requirement	Where addressed in this report
The Proponent must assess social and economic impacts in accordance with the current guidelines.	Sections 3, 4 and 6

²⁹ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Social Assessment*

EIS Requirement	Where addressed in this report
<p>The Proponent must assess agricultural land use impacts in accordance with the current guidelines, including:</p> <ul style="list-style-type: none"> a) Current and potential Important Agricultural Land within the project and surrounding locality, including land capability and agricultural productivity; b) Division or fragmentation of property and changes to property management, which could lead to the loss of viability; c) Process for the amalgamation or subdivision of land affected by the rail corridor, taking into account council zoning and minimum lot size requirements for subdivisions and dwellings; d) Property access and the efficient and safe crossing of the rail corridor by vehicles, machinery and livestock, with consideration of grade separated access; e) Connectivity of property infrastructure severed by the rail corridor; and f) Livestock exclusion/management and rail corridor protection measures to minimise harm and losses. 	<p>Section 4.3 and Agriculture and Land Use Assessment.</p>
<p>The Proponent must assess impacts from construction and operation on potentially affected properties, businesses, recreational users and land and water users (for example, recreational and commercial fishers, including property acquisitions/adjustments, access, amenity and relevant statutory rights).</p>	<p>Section 4, Social Assessment and Agriculture and Land Use Assessment.</p>
<p>The Proponent must consider the capacity for communities along or near the rail corridor to house construction workers in existing accommodation. Where temporary accommodation for construction workers (construction camps) is proposed, the Proponent must assess their social and economic impact on local communities.</p>	<p>Section 4.2 and 4.3 and Social Assessment.</p>
<p>The Proponent must identify opportunities and processes to prioritise local participation practices to source construction and operation employment, goods and services from communities along or near the rail alignment.</p>	<p>Section 4.2 and 4.3 and Social Assessment.</p>
<p>The Proponent must assess biosecurity risks and identify management measures to minimise the spread of pests, diseases or weeds along the rail corridor (including residual lands), in accordance with the 'general biosecurity duty' under the <i>Biosecurity Act 2015</i>.</p>	<p>Agriculture and Land Use Assessment. Biodiversity Development Assessment Report.</p>
<p>The Proponent must assess the impact of the project on significant mineral and extractive resources, including:</p> <ul style="list-style-type: none"> a) Any operating mines, extractive industries or known mineral, extractive or petroleum resources; b) Exploration activities in the vicinity of the proposed development; and c) Access for future exploration in the area. 	<p>Section 4.3 and Agriculture and Land Use Assessment.</p>
<p>The Proponent must identify encroachments into adjoining road reserves, travelling stock routes, Crown land and paper roads.</p>	<p>Section 4.3 and Agriculture and Land Use Assessment.</p>

1.4 Structure of this report

The following report is structured as follows:

- Section 1 – provides an introduction to the report, including a description of the proposal.
- Section 2 – describes the methodology for the assessment and outlines the planning context of the proposal.
- Section 3 – provides an overview of the existing economic environment of the study area.
- Section 4 – identifies and describes the potential economic impacts arising from the construction and operation of the proposal, including potential cumulative impacts.
- Section 5 – outlines the recommended impact mitigation, management and enhancement measures for the identified impacts.
- Section 6 – provides a conclusion to the report.

2 Methodology

2.1 Study area

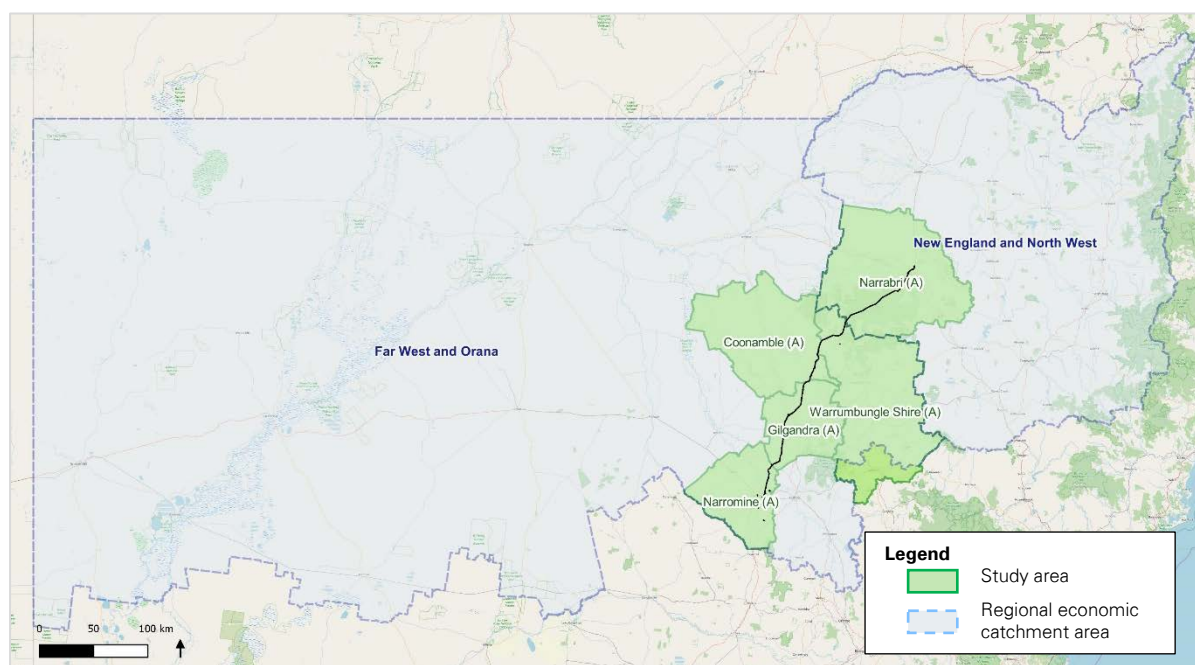
The proposal traverses five local government areas (LGAs) – Coonamble, Gilgandra, Narrabri, Narromine and Warrumbungle Shire. Combined. These LGA boundaries form the **study area** for assessing the local economic impacts of the proposal, reflecting a local catchment for workers and economic activity.

For the purposes of the regional impact analysis, the **regional economic catchment area** is defined as the Australian Bureau of Statistics (ABS) labour market region boundaries of the Australian Statistical Geography Standard that captures the regional economy within which the proposal is located. The proposal crosses the Far West and Orana and New England and North West labour market regions. These regions are defined as the regional economic catchment.

Area Definitions:

- **Study area:** Coonamble, Gilgandra, Narrabri, Narromine and Warrumbungle Shire Local Government Areas.
- **Regional economic catchment area:** Far West and Orana and New England and North West Statistical Area Level 4 (SA4).

Figure 2: Study area and regional economic catchment for the proposal



Source: ARTC

The majority of the proposal site extends through low population areas dominated by rural properties. Land surrounding the southern and central portions of the proposal site is mainly used for agricultural and grazing purposes. While the area is not densely populated, this EA acknowledges the potential impacts of the proposal

on local residents, businesses and industry within the study area and the regional economic catchment. This aligns with ARTC's local business and industry participation catchment – within 125 kilometres of the proposal.

2.2 Assessment methodology

The following methodology outlines the key activities that have been undertaken to inform the EA, and meet the requirements of the SEARs.

2.2.1 Existing economic environment

The existing economic environment section describes the existing economic profile of the study area, and provides a baseline for assessment of the potential economic impacts of the proposal. The economic baseline includes key socio-economic characteristics and identifies existing economic activities in the study area. This section has been developed based on data and information sourced from:

- Strategic economic development, transport and community plans for the study area and regional economic catchment (refer Section 2.3);
- ABS 2016 Census of Population and Housing;
- ABS Regional Population Growth, 2017-18;
- NSW Government 2019 Population, Household and Implied Dwelling Projections by LGA (ASGS 2019).;
- ABS, Labour Force Survey, Australia, December 2019;
- Australian Government's Small Area Labour Markets publication, December 2019;
- Other technical studies prepared for the proposal EIS including:
 - Agriculture and Land Use Assessment³⁰; and
 - Social Assessment³¹.

2.2.2 Economic benefits assessment

A large proportion of the benefits of the Inland Rail program stem from improving the connection between producers and markets; through to both domestic markets in cities and international markets through ports. Due to the structure of the EIS (assessing each of the 13 Inland Rail project sections in isolation of the whole program), an incremental CBA approach assessing each section of the Inland Rail program individually will not capture the full impact that is expected to be delivered upon completion of the entire Melbourne to Brisbane connection. Put simply, the benefits of Inland Rail will outweigh the sum of the individual projects.

Accordingly, for the purposes of this EA, there are two components to the assessment:

1. Evaluation of the likely benefits of the discrete proposal (economic benefits assessment). This analysis assesses only those impacts that would be likely if freight operators were to respond to the completion of the individual proposal. While the scope of this EA is to assess the core Inland Rail infrastructure, it is recognised that ancillary infrastructure, such as signalling and communications, level crossings, drainage, signage and fencing, and services and utilities, has the potential to support the realisation of additional economic benefits to the local community.
2. Description of the CBA economic performance measures calculated for the Inland Rail program as a whole (as per the Inland Rail program Business Case (2015)).

³⁰ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Agriculture and Land Use Assessment*

³¹ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Social Assessment*

The approach to the economic benefits assessment taken in this Technical Report draws from the existing literature and guidelines surrounding the economic appraisal of infrastructure projects, including, but not limited to:

- Infrastructure Australia's (IA) Assessment Framework;
- Transport for NSW's Principles and Guidelines for Economic Appraisal of Transport Investment and Initiatives (2018); and
- The Australian Transport Assessment and Planning (ATAP) guidelines.

2.2.3 Regional impact analysis

A regional impact analysis has been undertaken to highlight the economic impacts of the proposal on the regional, state and national economies using an equilibrium modelling framework. For the purposes of this analysis, a CGE model has been developed to examine the flow-on impacts arising from the proposal on the broader economy. These impacts have been modelled using KPMG-SD, a proprietary regional CGE model of the Australian economy developed and maintained by KPMG.

KPMG-SD is ideally suited to quantifying the industry, regional and economy-wide impacts of major projects like Inland Rail, because it can capture the upstream and downstream linkages between a project's activities and the rest of the economy. KPMG-SD also provides estimates of employment supported through these investment shocks, noting that estimates of employment produced by the model reflect the direct and indirect jobs generated across the economy.

As described above, the regional economy is represented by the Far West and Orana and New England and North West labour market regions.

2.2.4 Local economic assessment

The local economic assessment section describes potential economic impacts resulting from the proposal on local business, industry and the community. This assessment has been developed based on:

- Consultation with the local community undertaken by ARTC; and
- The outcomes of the Social Assessment³² process to identify local and regional business capacity, aspirations and initiatives.

2.2.5 Cumulative impact assessment

The cumulative economic assessment refers to the potential impact of cumulative stimulus to the economy resulting from a set of existing or planned projects within or adjacent to the study area.

Specifically, the EA considers the potential impacts of Inland Rail's adjacent Parkes to Narromine (P2N) and Narrabri to North Star (N2NS) projects, and other state significant projects which may have material cumulative impacts on the proposal.

The cumulative economic impact of interacting projects was assessed by developing a construction and operation timeline (including workforce profile) to evaluate the spatial and temporal relationship between the proposal and other projects. The cumulative impact on local business and industry, and demand for labour and material was assessed.

³² JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Social Assessment*

2.2.6 Limitations of the assessment methodology

The findings of this EA are subject to the following limitations:

- This assessment has not been prepared to inform financial or commercial decision-making processes. The sole purpose of the impact assessment is to meet the requirements of the SEARs.
- Demand inputs to the economic benefits assessment have been sourced from the freight demand projections developed by ACIL Allen Consulting for the Inland Rail program Business Case (2015). These values have been apportioned based on the information available to represent freight movements that would benefit from the improved rail connectivity provided by the proposal, and represent those that are reasonably likely to make use of the proposal as an independent project.
- The assessment assumes capital expenditure consistent with the Inland Rail program Business Case (2015).
- A large proportion of the benefits of the Inland Rail program stem from improving the connection between producers and markets; through to both domestic markets in cities and international markets through ports. As such, an incremental EA approach assessing each section of the Inland Rail program individually and in isolation of the whole program will not capture the full impact that is expected to be delivered upon completion of the entire Melbourne to Brisbane connection.

ARTC Statement

Although further costs and other technical and economic data is expected as each project progresses through design development, the 2015 Inland Rail program Business Case endorsed by the Australian Government is currently the most detailed assessment for the Inland Rail Project. For this reason, and in the interests of maintaining consistency, cost and demand profiles for the Inland Rail Project economic assessments have been based on the 2015 Inland Rail program Business Case.

2.3 Policy and planning

Inland Rail will deliver on key national priorities for infrastructure and economic policy. Inland Rail will provide a comprehensive and accessible rail transport system that links communities and strengthens industry.

The Department of Infrastructure, Transport, Cities and Regional Development (DITCRD) manages the Australian Government's rail investments. The Australian Government is investigating the following infrastructure investments that will support the development of Inland Rail:

- Intermodal terminals connecting ports, regional networks and capital cities between Melbourne and Brisbane; and
- Interface Improvement Program integrating regional lines into the national freight rail network.

There are a number of strategic policy and planning documents that align to the economic objectives and intent of the development of the proposal. These documents are discussed below.

2.3.1 Australian Government

Australian Infrastructure Plan 2016

The Australian Infrastructure Plan (the Plan) was developed by Infrastructure Australia as a long-term plan for infrastructure reform and investment in Australia. The Plan is guided by four headline aspirations:

- Productive cities, productive regions;
- Efficient infrastructure markets;

- Sustainable and equitable infrastructure; and
- Better decisions and better delivery.

Within the ‘productive cities, productive regions’ aspiration, the Plan recognises that at a national level the efficient movement of freight into, out of and across Australia is critical to the nation’s ongoing productivity growth and competitiveness. The Plan identifies a number of challenges facing the freight network and supply chains, including constraints such as missing links, pinch points, operational restrictions, and first and last mile access challenges.

The Plan highlights the importance of the Melbourne to Brisbane freight corridor in supporting population, production and employment precincts along the east coast of Australia. Inland Rail will improve the efficiency, effectiveness and safety of freight movements travelling along this corridor. As a greenfield project, the proposal will contribute to the realisation of these benefits, including improvements to the productivity and competitiveness of Australia’s freight sector.

2.3.2 New South Wales Government

2.3.2.1 Transport Strategy and Planning

Transport for NSW Future Transport Strategy 2056

The Future Transport Strategy 2056 (the Strategy) is an update of the 2012 Long Term Transport Master Plan for NSW. The Strategy sets a 40 year vision to ensure NSW is prepared and responsive to rapid changes in technology and innovation that are likely to disrupt the transport sector in the future.

The Strategy’s vision is that ‘transport is an enabler of economic and social activity and contributes to long term economic, social and environmental outcomes’. The Strategy is built on six outcomes: customer focused, successful places, a strong economy, safety and performance, accessible services and sustainability.

The Strategy recognises the importance of innovation and new service models across the freight network to ensure reliability, efficiency and certainty, and to maximise productivity, lower costs, and reduce energy intensity. Within the Strategy, the Inland Rail program is recognised as a project of national significance; Inland Rail will optimise the movement of freight in NSW through efficient links to ports and economically sustainable freight hubs. The proposal is a key link in the Inland Rail program, and is required to achieve these outcomes.

Transport for NSW Future Transport – Regional NSW Services and Infrastructure Plan 2056

The Regional NSW Services and Infrastructure Plan focuses on supporting businesses, industry and communities in regional NSW by supporting freight and port projects to better connect regional NSW to global Markets. The Plan supports the overarching Future Transport Strategy 2056 (summarised above), alongside the Greater Sydney Services and Infrastructure Plan and a suite of supporting plans.

The Regional NSW Services and Infrastructure Plan outlines the vision and customer outcomes that will inform detailed transport planning in each region and will support future decision making. Inland Rail is a major infrastructure feature of the plan, in addition to other key freight issues such as ensuring efficient and effective networks. A key focus of the plan is to ensure that Inland Rail optimises the movement of freight in regional NSW through efficient port and freight hubs.

NSW Freight and Ports Plan 2018-2023

The NSW Freight and Ports Plan (the Plan) seeks to mobilise collaboration between government and industry to set clear initiatives and targets for NSW freight, to ensure efficiency and safety as the sector grows (expected to grow by 28 percent by 2036). From an economic perspective, the Plan’s objectives seek to drive economic growth, deliver freight capacity enhancements, and increase efficiency, connectivity and access.

The Plan supports the Future Transport Strategy 2056 and aligns with state wide land use and infrastructure plans including the NSW Regional Plans and the State Infrastructure Strategy. The Plan includes over 70 initiatives to be delivered by 2023, which are focused on achieving the key objectives of the Plan.

To deliver on the capacity objectivity, the Inland Rail Project is identified as investment in the rail freight network to rail capacity and improve east-west freight movements. The proposal forms a critical part of the Inland Rail program, particularly within NSW. The NSW Government is committed to supporting the Australian Government to deliver Inland Rail.

2.3.2.2 Regional Transport Plans

The Regional Transport Plans released by the NSW Government are a suite of 10 plans that provide a blueprint for the future of transport within the regions. The plans support the implementation of the NSW Long Term Transport Master Plan and set the strategic direction for the delivery of transport infrastructure and services within regional NSW.

Central West Regional Transport Plan (2014-15 Update)

The Central West Regional Transport Plan identifies that the right network capacity and configuration is required to enable efficient freight movements, meet future capacity and complexity needs, support productivity, and operate in a sustainable way.

The Plan recognises the role of the Inland Rail program in supporting the efficient movement of rail freight through the Central West region, and enabling freight to avoid coastal routes to transport between Melbourne and Brisbane.

New England North West Regional Transport Plan (2014-15 Update)

The New England North West Regional Transport Plan (the Plan) also identifies that the right network capacity and configuration is required to enable efficient freight movements, meet future capacity and complexity needs, support productivity, and operate in a sustainable way.

The Inland Rail program is identified as an opportunity for investigation within the Plan, intended to address regional transport challenges, including:

- Improving regional road links and road safety; and
- Supporting the regional economy.

As a greenfield development, the proposal is a critical component of the Inland Rail program and will contribute to achieving aspirations of the Plan, including improvement of freight connections and regional economic development.

2.3.2.3 Regional Plans

The NSW Department of Planning, Industry and Environment developed a suite of Regional Plans. The Regional Plans set the framework, vision and direction for strategic planning and land use, planning for future needs for housing, jobs, infrastructure, a healthy environment and connected communities. A summary of Regional Plans relating to the proposal are included below.

New England North West Regional Plan 2036

The New England North West Regional Plan 2036 (the Plan) provides a 20 year blueprint for the future of the region. The NSW Government's vision for the New England and North West region is: 'nationally valued landscapes and strong, successful communities from the Great Dividing Range to the rich black soil plains.'

Narrabri is within the New England North West region and is identified as a strategic focus centre for employment and services. Narrabri has fertile land and produces high quality wheat, cotton, lamb and beef, with the local economy underpinned by agricultural production, agribusiness and mineral resource production.

Narrabri is a service centre responsible for providing essential retail, commercial and community services to local communities.

The proposal's economic impacts (improved rail freight efficiency and productivity) would contribute to achieving the Plan's goals of:

- Creating a strong and dynamic regional economy; and
- Creating strong infrastructure and transport networks for a connected future.

The Regional Plan recognises the Inland Rail program as critical infrastructure for enabling access to new markets, and for expanding emerging industries through improved freight and logistics connectivity. Specifically, the proposal (within the Inland Rail program) will support the realisation of these benefits within the region through direct employment opportunities across the pre-construction, construction and operational phases of the proposal. Additionally, the proposal has a significant opportunity to support local, youth and Indigenous employment within the region.

Central West and Orana Regional Plan 2036

The Central West and Orana Regional Plan 2036 (the Plan) sets a vision, goals and actions focused towards supporting economic opportunities for the region. The vision for the Central West and Orana Region is to be 'the most diverse regional economy in NSW with a vibrant network of centres leverage the opportunities of being at the heart of NSW'.

Within the proposal study area, Coonamble, Gilgandra, Narromine and Warrumbungle Shire are all located within the Central West and Orana region:

- Coonamble is the local service centre and has a strong rural service and retail sector combined with access to education facilities including primary and high schools and a TAFE. Agriculture is the main employing industry in Coonamble, producing cereals, oil seed and legume crops and livestock.
- Gilgandra is identified within the Central West and Orana Regional Plan as home to a strong agricultural sector and identifies the potential for economic growth in aged care and renewable energy generation.
- Narromine is identified as having significant opportunities for freight and logistics, with the proposal identified as planned infrastructure to connect with existing rail freight infrastructure in Narromine.
- Warrumbungle has a strong agricultural sector and the Plan identifies opportunities to expand the freight network and economic growth through value-add manufacturing and freight-related opportunities.

The Inland Rail Program is identified within the Plan as a key opportunity to transform the Central West and Orana region into a key freight and logistics centre within Australia. The proposal (within the Inland Rail program) is expected to provide capacity and connectivity for agribusiness, manufacturing, tourism and mining.

2.3.2.4 Regional Economic Development Strategies

The NSW Government has worked with local councils to develop Regional Economic Development Strategies (REDS) for Functional Economic Regions incorporating more than one LGA. Table 4 provides an overview of the REDS within the study area.

Table 4: Regional Economic Development Strategy within the study area

LGA	REDS	Summary
Coonamble Shire Council	Western Plains Regional Economic Development Strategy 2018 – 2022	<p>The REDS seeks to leverage the region’s identified endowments and specialisations to promote economic development. The five elements of the REDS are:</p> <ol style="list-style-type: none"> 1. Drive growth in agriculture and the manufacturing of agricultural products by optimising access to markets and consumers through investment facilitation. 2. Optimise economic activity across agriculture, mining and tourism industries by enhancing telecommunications and climate infrastructure that increases business certainty and resilience. 3. Unlock growth in agriculture, manufacturing of agricultural products and mining by improving energy and water infrastructure. 4. Grow tourism to enrich and diversify the regional economy. 5. Improve the region’s social and demographic fabric to grow mining, tourism and agriculture industries. <p>The Inland Rail program, and subsequently the proposal, is identified as a key enabler of greater freight accessibility for the region’s agricultural and mining products, and will support improvements to the local supply chain.</p>
Gilgandra Shire Council and Warrumbungle Shire Council	Castlereagh Regional Economic Development Strategy 2018 – 2022	<p>The REDS aims to:</p> <ol style="list-style-type: none"> 1. Boost key industries’ access to market and labour to reduce cost of transport, transactions, treatment and training. 2. Invest in water and energy utilities infrastructure to achieve a sustainable economy and improve quality of life. 3. Develop and enhance the regional lifestyle as attractive for work, leisure and business. 4. Develop and promote a broad event and destination profile to increase visitation, and diversify the economy. 5. Build support for local business by taking advantage of Inland Rail, integrating advantage into major projects and tenders and providing business upskilling opportunities. <p>The REDS recognises the economic potential of the Inland Rail program (via the proposal) through the region, and the requirement to capitalise on this opportunity through investment in enabling infrastructure. Through strategic infrastructure investment, local businesses will be able to benefit from improved connectivity, accessibility and productivity.</p>
Narrabri Shire Council	Upper North West Regional Economic Development Strategy	<p>The objectives of the REDS are to build and enhance existing strengths, identify new opportunities and facilitate and support sustainable growth. To achieve this, four core strategies have been identified:</p> <ol style="list-style-type: none"> 1. Improve freight efficiency in the engine industries of agriculture and mining. 2. Encourage investment, increased productivity and value adding. 3. Invest in people, skills, community and lifestyle to address the region’s skills gap. 4. Diversify the economy through emerging industry sectors.

LGA	REDS	Summary
		<p>The Inland Rail program aligns to a number of these core strategies and is identified as an opportunity for the region. There are existing bulk grain and cotton handling facilities, major transport and logistics hubs and intermodal terminals within the region. The REDS identifies investment in road and rail infrastructure to improve the efficiency and connectivity of these facilities and ensures effective use of the Inland Rail program as critical to improving productivity and promoting employment and economic growth.</p>
Narromine Shire Council	Central Orana Regional Economic Development Strategy	<p>The five elements of the REDS are to:</p> <ol style="list-style-type: none"> 1. Establish Central Orana as a centre of excellence for agricultural research to underpin the region's strengths in the agricultural sector. 2. Develop the logistics cluster to accompany the anticipated growth in export-oriented sectors. 3. Establish Central Orana as an effective and interconnected business destination. 4. Capitalise on the growth potential of the mining and construction sectors to boost related clusters in energy, manufacturing, and transportation. 5. Develop a mature and diversified tourism sector. <p>The REDS recognises the region's potential to become a major freight and transport hub through the use of pre-existing infrastructure and development of Inland Rail. Further, the Strategy identifies the Inland Rail program (and subsequently the proposal) as important for supporting significant growth within the region's Agricultural, Forestry and Fishing, Mining and Manufacturing industries.</p>

3 Existing economic environment

The following section describes the key demographic and socio-economic characteristics of the study area including the local population and the existing regional and local economic environment. Unless otherwise stated, all information within this section has been drawn from the ABS 2016 Census of Population and Housing.

3.1 Population summary

Population and age profile

As at June 2018, the study area had an estimated resident population of 37,437 persons. Between 2008 and 2018, the population declined by an annual average rate of 0.3 percent, due to negative growth across all LGAs within the study area. The negative growth experienced in Coonamble (-0.5 percent), Gilgandra (-0.6 percent) and Warrumbungle Shire (-0.5 percent) was marginally stronger than the rate experienced in Narromine (-0.2 percent) and Narrabri (-0.05 percent). In comparison, the population in NSW grew at an average annual rate of 1.4 percent over the same period. The population within the study area is projected to continue to decline by an average of 232 persons per year (-0.6 percent) to 2026. In absolute terms, this decline will be most significant in Warrumbungle Shire, where an average of 76 people are projected to leave the area each year over this period.

Table 5: Estimated resident population and projections, study area

Area	2008	2018	2026	% average annual growth 2008 – 2018	% average annual growth 2018 – 2026
Coonamble LGA	4,233	4,014	3,697	-0.5%	-1.0%
Gilgandra LGA	4,471	4,226	3,819	-0.6%	-1.3%
Narrabri LGA	13,303	13,231	13,176	-0.05%	-0.05%
Narromine LGA	6,726	6,567	6,097	-0.2%	-0.9%
Warrumbungle Shire LGA	9,925	9,399	8,791	-0.5%	-0.8%
Study Area	38,658	37,437	35,580	-0.3%	-0.6%
New South Wales	6,943,461	7,988,241	9,011,010	1.4%	0.3%

Source: ABS Estimated Resident Population by LGA (ASGS 2018); NSW Government 2019 Population, Household and Implied Dwelling Projections by LGA (ASGS 2019).

The study area's projected age profile reflects a broader and ongoing out-migration trend in rural NSW as the population, particularly young people, leave rural areas and relocate to larger, urbanised areas to access employment, education and social opportunities.³³ By 2026, the proportion of young people (0 to 24 years) residing in the study area is projected to decline to represent 28.9 percent of the area's population (from 36.2 percent in 2016). By 2036, young people will represent just 27.0 percent of the study area's population.

³³ ABS, Australian Social Trends, cat.no. 4102.0.

The study area has a marginally lower working age population (15 to 64 years) of 62.9 percent, compared to the NSW state average of 65.1 percent. Notably, this population segment is projected to decline to represent 56.6 percent of the population by 2026, compared to 62.3 percent across NSW. As the working age population declines, the aged population (65 years and older) in the study area is projected to increase to 24.8 percent of the population, above the NSW projection (20.9 percent). A declining working population may reduce the local supply of skilled or non-skilled workers available to support the proposal.

3.1.1 Indigenous population

A high proportion of the study area's population identifies as Indigenous (Aboriginal, Torres Strait Islander, or both), 15.1 percent compared to the NSW state average of 2.9 percent. Coonamble (30.1 percent) and Narromine (20.0 percent) have the highest proportion of the population that identify as Indigenous within the study area. In absolute terms, Narrabri (1,592 persons) has the largest Indigenous community within the study area (12.2 percent of the total population).

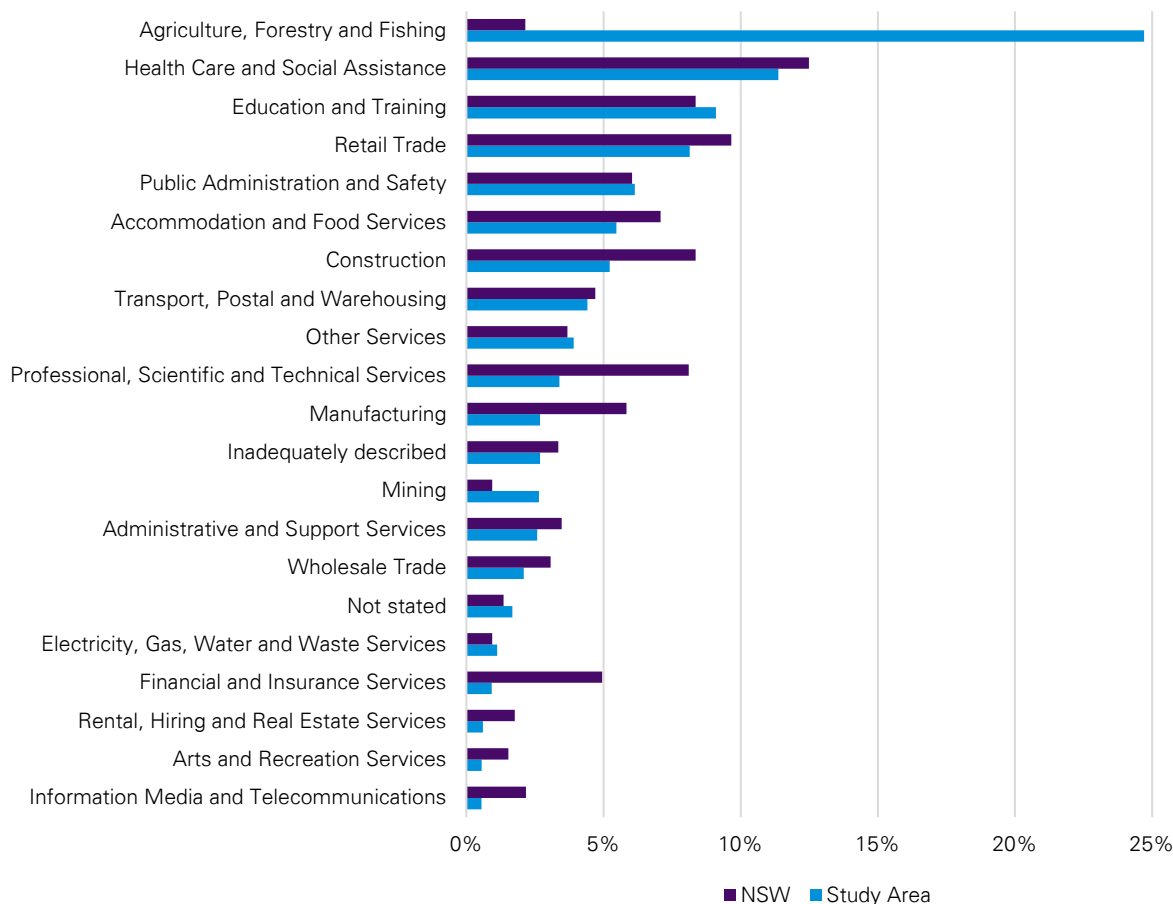
3.2 Description of the economy

3.2.1 Labour market and employment characteristics

Employment by industry

The sectoral distribution of employment for local residents within the study area compared to the NSW state average is shown in Figure 5. The Agriculture, Forestry and Fishing industry employs a significant proportion of the local workforce (24.7 percent), reflecting the study area's primary land use for agricultural and grazing purposes.

Figure 3: Employment by industry, study area, 2016³⁴



Source: ABS 2016 Census of Population and Housing

The strength of the Agriculture, Forestry and Fishing industry is reflected at a local government level, with the sector employing 31.2 percent of the workforce in Coonamble, 28.0 percent in Gilgandra, 27.6 percent in Warrumbungle Shire, 26.2 percent in Narromine and 19.6 percent in Narrabri. Within this industry, the primary source of employment is in Sheep, Beef Cattle and Grain Farming (16.4 percent).

As shown in Figure 3, service based industries also support employment within the area. Following Agriculture, Forestry and Fishing, Health Care and Social Assistance (11.4 percent), Education and Training (9.1 percent) and Retail Trade (8.1 percent) are the largest employing sectors within the study area. This is similar to the NSW state trends, where Health Care and Social Assistance employs 12.5 percent of the workforce, Retail Trade employs 9.7 percent and Education and Training employs 8.4 percent.

In 2016, there were a number of residents within the study area employed in directly relevant industry sectors and occupations to support the construction of the proposal. The construction sector employed 5.4 percent of the study area's population as at June 2016, with 481 workers employed in Construction Services and 115 in Heavy and Civil Engineering. Across the Far West and Orana region, 1,854 workers were employed in Construction Services and 362 workers in Heavy and Civil Engineering Construction. In the New England and North West region, 3,140 workers were employed in Construction Services and 457 workers in Heavy and Civil Engineering Construction.

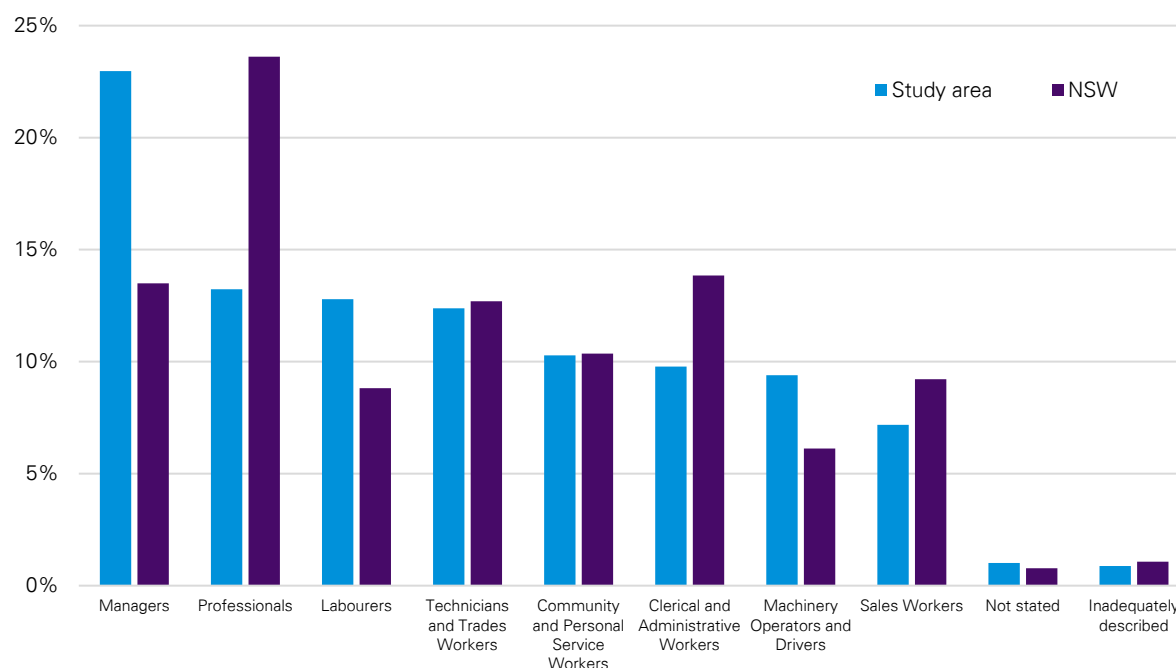
³⁴ Employment by industry (and industry by employment) from the ABS Census is unable to discern the specific level of activity in the tourism or defence industries. This is because there are difficulties in trying to link a commodity classification with an Australian and New Zealand Standard Industrial Classification (ANZSIC) type industry classification; any one supplier category may overlap several product categories.

Occupation

The study area's primary occupations of employment are reflective of the study area's strong resident employment in Agriculture, Forestry and Fishing industry. The largest occupational group within the study area is Farmers and Farm Managers (16.0 percent). Across all LGAs, Farmers and Farm Managers are the largest occupational group, employing 22.4 percent of the workforce in Coonamble, 21.4 percent in Gilgandra, 20.1 percent in Warrumbungle Shire, 16.0 percent in Narromine and 10.4 percent in Narrabri.

The study area has a larger proportion of workers employed as Managers (23.0 percent) compared to the NSW state average (13.5 percent). Professionals within the study area represent a significantly lower proportion of the workforce (13.2 percent) compared to the NSW state average, where professionals represent the largest occupation within the workforce (23.6 percent). Labourers (12.8 percent) and Technicians and Trades Workers (12.4 percent) represent approximately one-quarter of the local workforce within the study area (25.2 percent), a marginally higher representation compared to the NSW state average of 21.5 percent (Labourers (8.8 percent) and Technicians and Trades Workers (12.7 percent)).

Figure 4: Local workers occupation, study area, 2016



Source: ABS 2016 Census of Population and Housing

Skilled worker shortages

There are a range of occupational groupings that will be required in the construction of the proposal. These range from professionals, skilled trades and unskilled / semi-skilled workers. Currently, there is a perceived skills shortage across the construction industry, specifically for skilled trades workers.

In 2018, a Railway Skills Capability Study was undertaken by the Australasian Railway Association which evaluated workforce capability for the rail industry based on planned and forecast rail infrastructure development in Australia and New Zealand over the next 10 years. By 2021, the results of the analysis found that in NSW workforce gaps are projected in rail infrastructure construction sectors, most severe among specialist managers and engineering professionals. The analysis also found that there is currently a slight over-supply of labourers. By

2024, these workforce gaps are projected to widen, including a moderate shortage of construction trades workers.³⁵

These trends have also been observed at a local level. In 2018, the Dubbo Gilgandra and Narromine Regional Council's and NSW Department of Premier and Cabinet commissioned an *Industry Skills and Opportunities: Dubbo, Gilgandra and Narromine* study. Related to the proposal, the results of this study found that there was a current skills shortage in engineers and truck drivers, with strong future demand identified for these skills in addition to semi-skilled workers.³⁶

Qualifications

Across the study area, 32.3 percent of the population have a non-school qualification, with the largest proportion holding a certificate level qualification (17.1 percent). The study area has lower levels of completion for tertiary qualifications compared to NSW state averages, with 7.4 percent of the study area population holding a Bachelor Degree, 0.7 percent with a Graduate Diploma and Graduate Certificate and 1.1 percent with a Postgraduate Degree compared to the NSW state averages of 16.0 percent, 1.7 percent and 5.7 percent respectively.

The largest proportion of the population within the study area have attained a secondary education including Years 10 and above (33.5 percent). This is reflective of the occupational profile of the study area, with key occupations not requiring higher levels of tertiary education.

Labour force

According to the Australian Government's quarterly regional estimates of unemployment, as at December 2019, there were a total of 681 unemployed persons in the study area (44.8 percent located in Narrabri), 1,670 unemployed persons in Far West and Orana, and 4,207 in New England and North West (Table 6). Excluding Coonamble (which had an unemployment rate of 5.0 percent), the unemployment rate across the study area was lower than the NSW state average of 4.5 percent. As at December quarter 2019, the regional economic catchment had an unemployment rate of 3.1 percent (Far West and Orana) and 4.3 percent (New England and North West), while the 12 month average unemployment rate was 3.0 percent and 5.2 percent respectively.

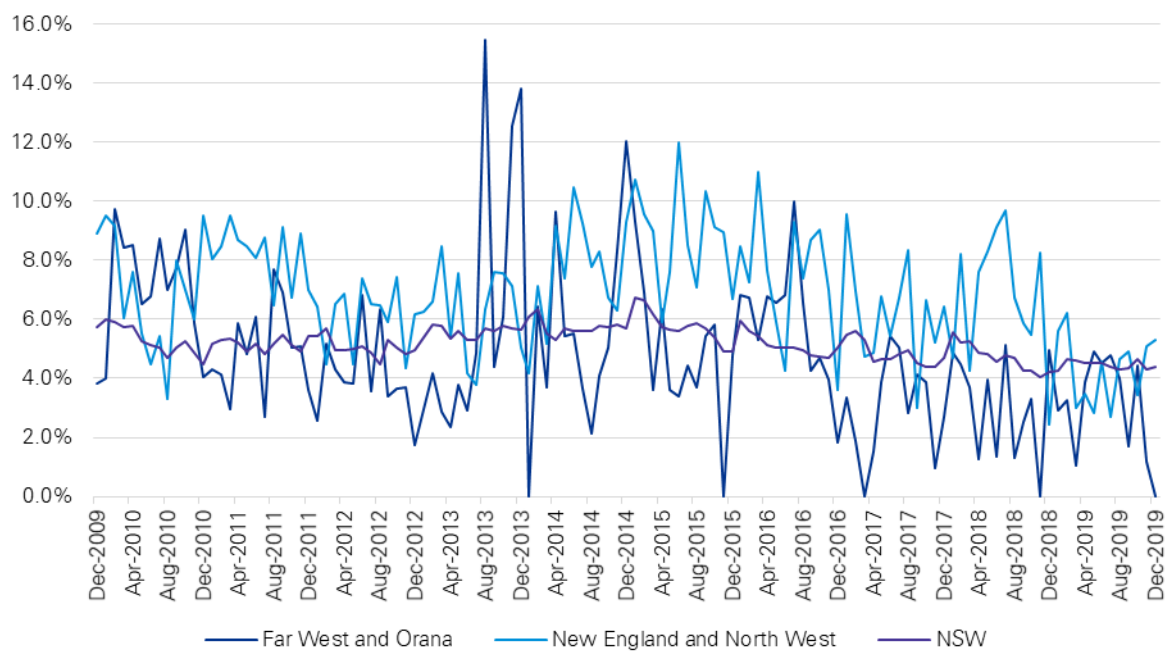
The region is characterised by significantly volatile labour market indicators, driven by the agricultural industry and the seasonal nature of harvest periods. As shown in Figure 7, this volatility is particularly noted in Far West and Orana where the unemployment rate can reach 0 percent following the region's harvest period (between October and November).

Overall, it is likely that unemployment may not reflect a number of local conditions, including: under-employment amongst those who are self-employed in the agricultural sector, or the transient nature of the agricultural workforce against harvest periods.

³⁵ Australasian Railway Association, 2018, Skills Capability Study

³⁶ Western Research Institute Ltd, 2018, *Industry Skills and Opportunities: Dubbo, Gilgandra and Narromine*.

Figure 5: Monthly Unemployment Rate December 2009 to December 2019



Source: ABS, Labour Force Survey, Australia, December 2019 (original series) published 26 March 2020

Table 6: Summary of labour force characteristics, December 2019

Area	Labour force	Participation rate*	Unemployed persons	Unemployment rate	12 month average unemployment rate
Coonamble LGA	1,805	60.3%	90	5.0%	5.1%
Gilgandra LGA	1,990	69.8%	75	3.8%	3.5%
Narrabri LGA	7,395	70.0%	305	4.1%	4.8%
Narromine LGA	2,992	68.6%	79	2.6%	2.7%
Warrumbungle Shire LGA	4,033	61.2%	132	3.3%	3.4%
Far West and Orana SA4	54,302	77.0%	1,670	3.1%	3.0%
New England and North West SA4	97,894	78.1%	4,207	4.3%	5.2%
New South Wales	4,371,894	78.4%	191,071	4.5%	4.5%

Source: Australian Government's Small Area Labour Markets publication, December 2019; ABS, *Labour Force Survey, Australia*, December 2019 (12 month moving average) published 26 March 2020; ABS 2016 Census of Population and Housing. *Participation rate for working age population 15 to 64 years – LGA data sourced from ABS 2016 Census, SA4 and State data sourced from ABS Labour Force Survey.

As outlined in Table 6, the labour force participation rate across the study area and regional economic catchment was lower than the state average. Within the study area, the lowest rate of labour force participation was in

Coonamble at 60.3 percent, followed by Warrumbungle Shire at 61.2 percent (compared to the NSW participation rate of 78.4 percent). Across the study area, the highest rate of labour force participation was in Narrabri at 70.0 percent, while the regional economic catchment recorded a labour force participation rate of 77.0 percent and 78.1 percent (Far West and Orana and New England and North West respectively).

Indigenous labour force

Within the study area, Indigenous Australians are under-represented in the workforce, reflected in the high unemployment rates within the Indigenous population and low labour force participation rate. According to the 2016 Census, the highest Indigenous unemployment rates in the study area are within Coonamble (28.5 percent), Warrumbungle Shire (27.7 percent) and Gilgandra (25.1 percent), where over one-quarter of the Indigenous population are unemployed. Indigenous unemployment within Narrabri (17.9 percent) and Narromine (16.4 percent) is also significantly higher than the total unemployment rate average within the study area (3.9 percent).

Across the regional economic catchment areas, approximately one-fifth of the Indigenous population is unemployed (20.6 percent in Far West and Orana and 19.7 percent in New England and North West). The Indigenous labour force participation rate within these areas is 48.1 percent and 49.8 percent respectively, compared to the rate for the non-Indigenous population at 62.1 percent and 61.2 percent.

Within the study area, the labour market participation rate of Indigenous people is reflective of the regional economic catchment areas trend, with 60.8 percent participation for non-Indigenous people and 50.2 percent for Indigenous people. Coonamble had the greatest disparity in participation rates with Indigenous participation (45.4 percent) compared to non-Indigenous (63.0 percent), equivalent to a 17.6 percentage point difference. The Indigenous participation rate in Gilgandra (46.0 percent), Narrabri (51.7 percent), Narromine (54.5 percent) and Warrumbungle Shire (46.4 percent) were all less than the non-Indigenous participation rates. The non-Indigenous participation rate in Gilgandra (60.6 percent), Narrabri (66.0 percent), Narromine (61.7 percent) and Warrumbungle Shire (52.7 percent) were on average 10.6 percentage points higher than the Indigenous participate rate.

The proposal may provide opportunities for Indigenous employment within the study area, however targeted programs or initiatives designed to up-skill workers may be required.

Youth labour force

Youth unemployment rates (persons aged 15 to 24 years) are significantly higher than the total unemployment rate across the regional economic catchment and study area, on average more than 12.1 percentage points higher than the total labour market unemployment rate within the regional economic catchment and study area. Within the study area, Coonamble (22.6 percent) has the greatest youth unemployment rate, followed by Warrumbungle Shire (19.3 percent) and Narromine (17.0 percent). Narrabri (13.8 percent) and Gilgandra (10.7 percent) have the lowest youth unemployment rates within the study area. Importantly, there were a high number of young persons who did not state their employment status in the Census, thereby under-representing the actual unemployment rate.

High youth unemployment is a key factor in the continuing trend for young people to leave rural areas and relocate to larger population centres.

Table 7: Youth labour force

Area	Youth Labour Market			Total Labour Market		
	Unemployment rate	Unemployed persons	Participation rate	Unemployment rate	Unemployed persons	Participation rate
Coonamble LGA	22.6%	48	50.6%	5.0%	90	60.3%
Gilgandra LGA	10.7%	26	54.0%	3.8%	75	69.8%
Narrabri LGA	13.8%	119	60.3%	4.1%	305	70.0%
Narromine LGA	17.0%	63	53.2%	2.6%	79	68.6%
Warrumbungle Shire LGA	19.3%	72	42.7%	3.3%	132	61.2%
Far West and Orana SA4	14.6%	1,065	56.4%	3.1%	1,670	77.0%
New England and North West SA4	13.9%	1,733	56.3%	4.3%	4,207	78.1%

Source: Australian Government's Small Area Labour Markets publication, December 2019; ABS; ABS 2016 Census of Population and Housing.
Note: Participation rate for working age population 15 to 64 years, June 2016; Youth Labour Market data as per 2016 Census.

As shown in Table 7, the youth labour force participation rate within Far West and Orana (56.4 percent) and New England and North West (56.3 percent) is significantly lower than the total population participation rate within these regional economic catchment areas (77.0 percent in Far West and Orana, and 78.1 percent in New England and North West). This trend is further reflected at a local government area level.

Lower levels of labour force participation indicates that a high proportion of young people are either not able to work or are not actively looking for work (for example, students or those who are voluntarily inactive). Across the study area, 68.5 percent of young persons who are not in the labour force are studying full time (54.4 percent in Coonamble, 62.1 percent in Gilgandra, 67.4 percent in Narrabri, 73.0 percent in Narromine, 74.6 percent in Warrumbungle Shire).

Overall, the youth labour market profile (high unemployment and low labour force participation) indicates that there may be some latent capacity in the youth labour force, and current job seekers may have the skills, or ability to be upskilled, to be engaged in the proposal. Local workforce participation programs may be required to support youth employment.

Household income

The distribution of the population by total weekly household income level in the study area and regional economic catchment area is compared in Table 8 below. As a measure of socio-economic disadvantage, household income levels reflect relative disadvantage across the study area and regional economic catchment compared to the NSW state average. Close to one-fifth of households in each LGA and the regional economic catchment areas (excluding Warrumbungle Shire at 26.2 percent) earn less than \$500 per week, compared to 15.2 percent in NSW.

The proportion of the population in the lowest income bracket are reflected in the median weekly household income, which averages \$1,056 per week across the study area and regional economic catchment area, compared to \$1,486 for NSW. The median weekly household income is highest in Narrabri (\$1,242) which is reflective of the largest proportion of households earning over \$1,250 per week (50.0 percent) within the study

area. The lowest incomes are within Warrumbungle Shire (\$878), Coonamble (\$976) and Gilgandra (\$998), which on average earn \$535 less per week than the NSW median weekly household income.

Table 8: Distribution of population by weekly household income, June 2016

That help	< \$500	\$500 - \$1,249	> \$1,250	Median Income
Coonamble LGA	24.5%	37.2%	38.9%	\$976
Gilgandra LGA	21.8%	39.3%	37.9%	\$998
Narrabri LGA	19.0%	31.1%	50.0%	\$1,242
Narromine LGA	20.7%	35.5%	43.2%	\$1,078
Warrumbungle Shire LGA	26.2%	40.2%	33.7%	\$878
Far West and Orana SA4	20.9%	34.7%	44.4%	\$1,110
New England and North West SA4	20.1%	35.7%	44.2%	\$1,107
New South Wales	15.2%	27.7%	57.1%	\$1,486

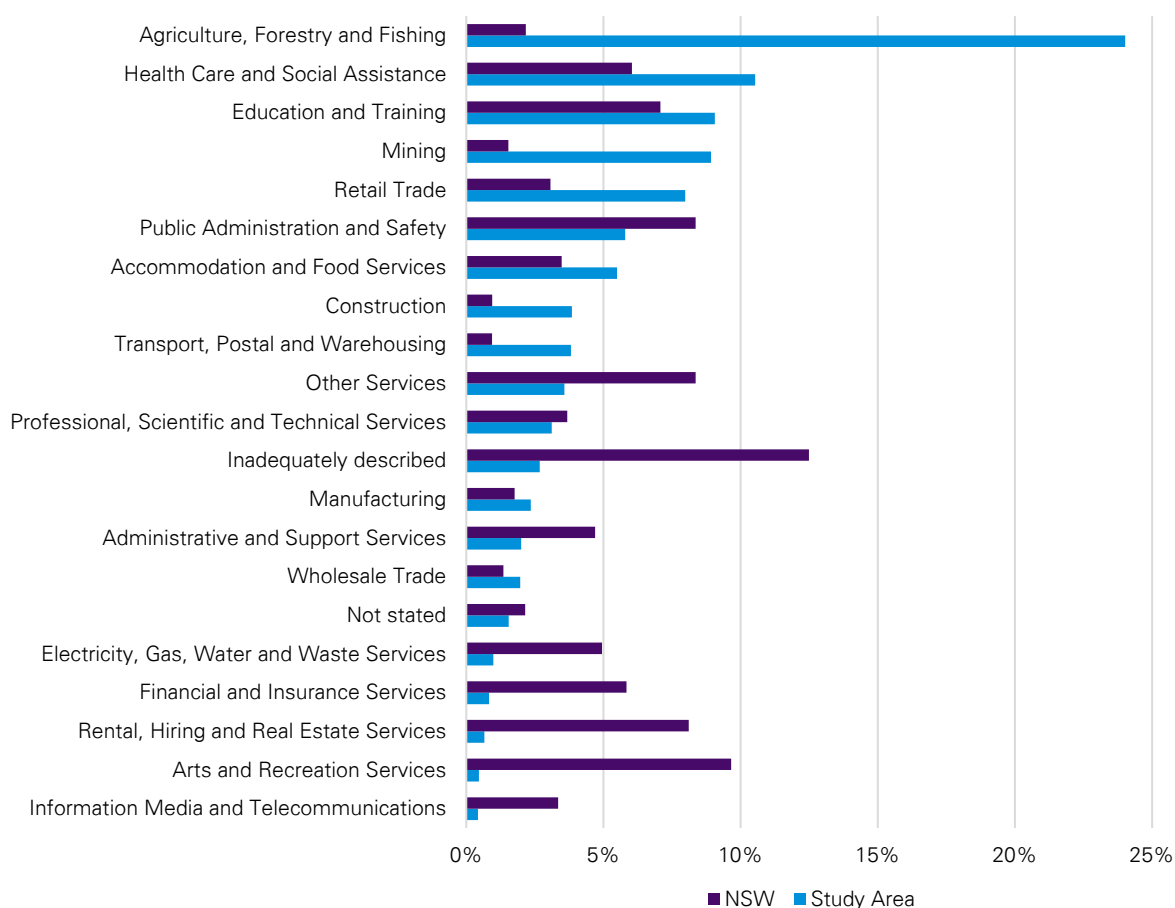
Source: ABS 2016 Census of Population and Housing. This excludes all of the following responses: partial, incomplete declaration and not applicable. Table may not sum to 100% due to rounding.

3.2.2 Business and industry

Industry by employment

The study area is a place of work for approximately 14,593 persons (who live both within and outside the catchment area).³⁷ Industry by employment in the study area is shown in the figure below.

Figure 6: Industry by employment, study area



Source: 2016 Census of Population and Housing

Agriculture, Forestry and Fishing is the largest industry of employment in the study area, accounting for nearly one-quarter of total jobs (24.0 percent). This industry is the strongest employing industry across the study area, with the exception of Narrabri, where the Mining industry employs a marginally higher proportion of the workforce (17.8 percent) compared to Agriculture, Forestry and Fishing (16.4 percent). The strength of the study area's agricultural sector highlights the importance of supply chain efficiency in supporting the local and regional economy. In this regard, the proposal provides opportunities to support improved freight efficiency and industry productivity.

Excluding the Agriculture, Forestry and Fishing industry, the sectoral and distribution of jobs is diverse and focused on service-based industries such as Health Care and Social Assistance (10.5 percent), Education and Training (9.1 percent) and Retail Trade (8.0 percent). Mining is the fourth largest industry (8.9 percent), however this is primarily contributed to by a strong industry within Narrabri (17.8 percent).

³⁷ Industry by employment is used to analyse the sectoral distribution of jobs located within a defined geographic area. It captures all jobs located within an area which may be occupied by residents or workers who travel to the area for employment.

3.3 Local businesses and industry

3.3.1 Agriculture industry

Across the study area, the largest proportion of all business (employing and non-employing) is in the Agriculture, Forestry and Fishing industry, represented by 311 businesses in Coonamble (55.1 percent), 350 businesses in Gilgandra (59.2 percent), 767 businesses in Narrabri (43.3 percent), 499 business in Narromine (53.2 percent) and 504 business in Warrumbungle Shire (51.5 percent).³⁸ There are a diverse range of agricultural enterprises and agribusinesses which support the industry across the supply chain, responsible for agricultural input supplies, production, storage and processing, and transportation.

According to the Australian Bureau of Agricultural and Resource Economics (ABARES), the Far West and Orana region covers approximately 42 percent of the NSW land area (339,400 square kilometres). Within this region, agricultural land accounts for approximately 90 percent of land use, reflecting the dominant industry of employment within the study area. In 2017-18, the gross value of agricultural production within Far West and Orana was \$1,292 million, representing approximately 10 percent of the total agricultural production in NSW.³⁹ The region's main agricultural products (as a proportion of total agricultural production) was cotton (\$305 million), cattle and calves (\$257 million) and wool (\$248 million).

The New England and North West region covers approximately 12 percent of the NSW land area, and agricultural land accounts for 80 percent of the region's land use. In 2017-18, the gross value of agriculture production within the region was \$2,637 million, representing approximately 20 percent of total agricultural production in NSW. Cotton (\$884 million), cattle and calves (\$679 million) and wheat (\$215 million) are the highest value products within the region based on the gross value of agricultural production. Together, Far West and Orana and New England and North West (\$3,929 million) represent approximately one-third (29.6 percent) of the value of gross agricultural production in NSW (\$13,264 million).

3.3.2 Tourism industry

Within the study area, Coonamble, Gilgandra and Narromine have small tourism industries that attract a variety of visitors each year. The Pilliga Forest is a local tourist attraction within the proposal study area. Coonamble has a small tourism industry with key tourist attractions including the Macquarie Marshes and the Coonamble Rodeo and Campdraft. Within Gilgandra, the Coo-ee Heritage Centre attracts tourists interested in the history of the 'coo-ee' bush call, and other tourist attractions include the Emu Logic Farm, Gilgandra Rural Museum, Warrumbungle National Park, the Windmill Walk and Toonraweenah scenic drive. Narromine features an Aviation Museum highlighting the history of aviation in Narromine. Many natural attractions within the study area are easily accessible from Narromine. Tourism Research Australia is unable to publish visitation information for these areas due to small sample sizes and data validity.

The New England and North West regional economic catchment area is recognised as a popular tourist destination for visitors seeking to explore Australia's rural landscape. According to Tourism Research Australia (TRA), during the year ending December 2018, the New England and North West region received over 3.3 million visitors, with tourism expenditure totalling approximately \$943 million. Domestic daytrip visitors comprised the largest proportion of visitors, with 39.9 percent of these visitors travelling for holiday and a further 20.2 percent visiting friends and relatives.⁴⁰

³⁸ ABS, Counts of Australian Businesses, including Entries and Exits, June 2014 to June 2018, cat no. 8165.0

³⁹ ABS, 7503.0 – Value of Agricultural Commodities Produced, Australia, 2017-18.

⁴⁰ Destination NSW, Travel to New England North West, Year ended December 2018

At a local government level, Narrabri received approximately 245,086 visitors in 2018, the majority of which were domestic overnight visitors (140,693 visitors), spending approximately \$52.5 million.⁴¹ Tourism in Narrabri is underpinned by its accessible location on the Newell and Kamilaroi Highways that run through Narrabri Shire, and attractions including the CSIRO's Australia Telescope National Facility, Nandewar Ranges and Mt Kaputar National Park. There are approximately 135 recorded tourism businesses in Narrabri.⁴²

Tourism in Warrumbungle Shire is underpinned by natural attractions such as the Warrumbungle National Park, Coolah Tops National Park and observatories for stargazing.⁴³ In 2018, Warrumbungle Shire received approximately 262,676 visitors, 55.3 percent of which were domestic overnight visitors, 43.9 percent domestic day visitors and 0.8 percent international visitors. Expenditure by these visitors totalled \$47.1 million, with the significant proportion of this spend (77.1 percent) coming from domestic overnight visitors. Within Warrumbungle Shire, there are 112 tourism businesses that support the sector.⁴⁴

Table 9: Tourism visitation and expenditure, 2018

Area	Domestic Overnight Visitors		International Overnight Visitors		Domestic Daytrip Visitors	
	Total Visitors	Expenditure	Total Visitors	Expenditure	Total Visitors	Expenditure
Narrabri LGA	140,693	\$41,344,718	2,563	\$2,065,729	101,830	\$9,138,761
Warrumbungle Shire LGA	145,224	\$36,331,367	2,050	\$1,209,706	115,402	\$9,568,499

Source: Tourism Research Australia, Local Government Area Profiles, 2019. Data unavailable for Coonamble, Gilgandra and Narromine.

3.3.3 Mineral resources

As detailed in the Agriculture and Land Use Assessment⁴⁵, the proposal passes through areas with active mining exploration or assessment licenses, and areas subject to exploration applications. According to the Department of Planning, Industry and Environment, there are no active mines in the vicinity of the proposal.

Coal seam gas wells

The Department of Planning, Industry and Environment indicates that there are a number of coal seam gas boreholes in the study area. While there are no production wells currently in service, there are a number of operational exploration and pilot wells. The nearest non-plugged coal seam gas well is over five kilometres from the proposal.⁴⁶ Given the nature of coal seam gas extraction processes, it is unlikely that the proposal will impact on the capacity to extract coal seam gas.⁴⁷

⁴¹ Tourism Research Australia, Local Government Area Profiles 2018 – Narrabri.

⁴² Tourism Research Australia, Local Government Area Profiles 2018 – Narrabri.

⁴³ Tourism Research Australia, Local Government Area Profiles 2018 – Warrumbungle Shire.

⁴⁴ Tourism Research Australia, Local Government Area Profiles 2018 – Warrumbungle Shire.

⁴⁵ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Agriculture and Land Use Assessment*

⁴⁶ NSW Department of Planning, Industry & Environment – Division of Resources & Geoscience, Geological Survey of New South Wales (GSNSW)

⁴⁷ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Agriculture and Land Use Assessment*

4 Economic impacts

4.1 Inland Rail program impacts

As per the requirements of the SEARs, this EA has focussed on the specific economic impacts resulting from the construction and operation of the proposal. However, the assessment acknowledges the role of the proposal, and the remaining Inland Rail program sections, in collectively delivering the benefits of the Inland Rail program. In its entirety, Inland Rail will enhance Australia's existing national rail network and serve the interstate freight market. As per the Inland Rail program Business Case (2015), key economic impacts of the Inland Rail program include:

- Lower prices for consumers as a result of lower intercapital freight transport costs, which reduces the cost of living for households.
- Positive direct net economic benefits, driven by improvements in freight productivity, reliability and availability, and benefits to the community from reduced environmental externalities, reduced road congestion and improved safety benefits. The program is stated to be economically viable with a benefit cost ratio of 1.02 at a 7 percent discount rate (2.62 at a 4 percent discount rate).
- Economic growth as increased profits (for industries and producers where intercapital freight is an input or output) and incomes are multiplied through the economy. The program is anticipated to deliver a net positive impact of \$16 billion on Gross Domestic Product (\$2015) over its 10 year construction period and 50 years of operation.
- Nationally, the program is also expected to deliver an additional 16,000 jobs at the peak of construction, and an average of 700 additional jobs per annum during operation.
- Enhanced competition between rail and road freight, by providing a credible transport alternative, which will drive further innovation and efficiency.
- Potential to promote the expansion and development of freight precincts around Inland Rail terminals as a result of the benefits from co-location and clustering of industries (as a result of reduced transport costs to warehousing, economies of scale and knowledge-sharing opportunities).

4.2 Workforce impacts

4.2.1 Direct employment

The proposal will result in a number of direct employment opportunities across the pre-construction, construction and operational phases of the proposal. These jobs have been estimated based on the indicative construction schedule and component activities.

Construction

Given the scale and length of the proposal, the construction strategy is based on an approach of dividing the overall alignment into four construction areas, with each construction area made up of a number of work fronts. The construction areas are:

- Narromine – the southern end of the proposal site to Leechs Creek Road;

- Gilgandra – Leechs Creek Road to Black Hollow;
- Baradine – Black Hollow to Pilliga East State Forest; and
- Narrabri – Pilliga East State Forest to the northern end of the proposal site.

During site establishment and preliminary activities, testing and commissioning and finishing and rehabilitation, the workforce numbers would vary but would typically be up to 1,200 people across the four construction areas.

For the construction period, the size and composition of the workforce will vary depending on the construction activities being undertaken and the staging strategy adopted. The construction workforce for the proposal is expected to be up to 2,000 people over the construction period. For the majority of the construction period, the workforce would average up to about 500 people in each of the four construction areas. For some limited items of work, an additional short-term workforce may also be required. During site establishment and preliminary activities, testing and commissioning, and finishing and rehabilitation the workforce numbers would vary, but would typically be up to 1,200 people across the four construction areas. A workforce of approximately 10 people is expected for the proposal's operation.

Local employment

Overall, the proposal has a significant opportunity to support local, youth and Indigenous employment.

A variety of skills would be required during construction including labourers, tradespeople, machinery operators, engineers, surveyors, and site supervisors. ARTC is committed to creating opportunities for the development of skilled local workers through Inland Rail; ARTC will require its contractors to have regard to the NSW Infrastructure Skills Legacy Program.

Local employment is dependent on a number of factors, including labour market conditions, skills availability and the existence of local workforce training and participation programs to support Indigenous and youth employment.

There are a range of training programs available (or proposed) in the region which could assist the local workforce to gain the necessary skills and increase job readiness for the employment opportunities available during construction and operation of the proposal:

- Narrabri Council has been working with the Department of Premier and Cabinet on an initiative to facilitate upskilling of the local and Aboriginal workforce to ensure they are 'work ready' for future large projects in the region, such as the proposal;
- During consultation undertaken for the Social Assessment⁴⁸, the local chambers of commerce indicated that they are willing to connect Inland Rail to local Registered Training Organisations (RTOs) and Australian Testing Services (ATS) Rail providers, including providing a comprehensive list of training providers in the region;
- Regional Development Australia Northern Inland have received funding for a Regional Employment Trials Program which provides an employment facilitator to work with local stakeholders (e.g. councils, employers, training organisation) to provide tailored employment initiatives to meet local needs; and
- Gilgandra Shire Council has received NSW Government funding to assist agricultural workers with gaining civil construction qualifications.

⁴⁸ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Social Assessment*

In addition to these local initiatives, ARTC is establishing the Inland Rail Skills Academy to help create opportunities for education, training, skills development and employment for communities along the Inland Rail program alignment. The Inland Rail Skills Academy partners with Councils, State Governments, RTOs, employment service agencies, Aboriginal Land Councils and others, to facilitate training for local residents interested in working on Inland Rail projects. This training is offered pre-principal contract award.

Priority training areas include civil construction competencies, White Card accreditation and understanding 'work readiness' for major infrastructure projects. Requisite rail competency training is also offered to ensure compliance with industry standards. Participants who successfully complete these training components are invited to 'meet the contractor' sessions when the principal contractor is appointed. These events provide participants with information on work opportunities available and how to access them as well as profiling local skills to the contractor and its supply chain. The Inland Rail Skills Academy provides information about skills required on Inland Rail Projects to interested stakeholders to inform other training provided in the region.

Inland Rail Skills Academy members will benefit from access to Inland Rail's partnerships with recognised industry experts who will deliver programs designed to build skills and prosperity in local communities, regions and nationally. The Inland Rail Skills Academy will result in an increase of skilled local workers, increased student awareness regarding major projects, supply chain integration and upskilling Inland Rail employees.

Indigenous participation

As identified in the Social Assessment⁴⁹, the proposal offers the potential to increase Indigenous employment and business opportunities. Local consultation has indicated there is a significant proportion of Indigenous people across the study area who are willing to work, but would require support to obtain the necessary training and certification required for employment opportunities.

In addition to the local employment initiative discussed above, the Narrabri Local Aboriginal Land Council have indicated that they will continue to work with local industry to help local Indigenous people find work placements.

Workforce housing

Due to the length and location of the proposal, a proportion of the non-resident workforce will be accommodated in temporary workforce accommodation located at the major population centres along the length of the proposal alignment:

- Narromine South multi-function compound -located about 8 kilometres south of Narromine with a combined capacity with Narromine North of up to 500 workers.
- Narromine North – located on Euromedah Road about 10 kilometres north-east of Narromine with a combined capacity with Narromine South of up to 500 workers.
- Gilgandra – located on the north-western edge of Gilgandra on Federation Street with capacity for 500 workers.
- Baradine – located on the western edge of Baradine on Lachlan Street with capacity for 500 workers.
- Narrabri – preferred option is to use the existing Civeo accommodation village located on the western side of Narrabri. If this is not available due to other major projects in the area, a facility would be established in the multi-function compound located about four kilometres south-west of Narrabri. Both options have capacity for 500 workers.

The specific sites will be finalised during detailed design in accordance with ARTC's Inland Rail Accommodation Principles.

⁴⁹ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Social Assessment*

There is the potential that some workers will require short term accommodation, e.g. contractors required for specialist activities. It is envisaged that the use of local accommodation will be maximised during construction, without impacting on seasonal demand, tourism accommodation or the local housing market.

4.2.2 Indirect employment

The industrial and consumption effects of the proposal will result in the creation of indirect jobs both due to upstream and downstream linkages between the proposal's activities and the rest of the economy, such as the stimulation of businesses further up the supply chain (e.g. manufacturers and suppliers of industry inputs), and the stimulation of activities downstream (e.g. through the provision of inputs to other sectors and the expenditure patterns of employees). The regional economic impact modelling results (Section 4.5) indicate that indirect employment during the proposal's construction will be generated in the Professional, Scientific and Technical Services and Wholesale Trade sectors, reflecting the importance of these two sectors in the construction sector's supply chain.

4.3 Business and industry impacts

The following business and industry impacts have been identified through local consultation and analysis of local businesses undertaken by ARTC.

4.3.1 Agriculture industry

The construction and operation of the proposal has the potential to impact high value farming operations within the region based on the gross value of agricultural production including cotton (\$305 million), cattle and calves (\$257 million) and wool (\$248 million) and general agricultural uses across the study area.⁵⁰ These impacts include:

- Loss of agricultural land;
- Severance of agricultural land;
- Disruption to access and infrastructure;
- Disruption to stock movement; and
- Improvements in supply chain efficiency.

These impacts may change the value of agricultural production in the region, due to changes in accessibility, connectivity and / or productivity.

Loss of agricultural land

As detailed in the Agriculture and Land Use Assessment⁵¹, the proposal will result in the temporary or longer term loss of agricultural land and infrastructure from agricultural production.

During the proposal's construction, 1,613 ha of agricultural land will be temporarily lost to facilitate construction activities (0.07 percent of the total agricultural land across the study area). Currently, primary agricultural land use on this land is cropping (682.3 ha) and grazing native vegetation (444.3 ha). Following the construction phase, this land would be rehabilitated and returned to pre-construction condition where possible, or as agreed with landowners.

⁵⁰ ABS, 7503.0 – Value of Agricultural Commodities Produced, Australia, 2018-19.

⁵¹ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Agriculture and Land Use Assessment*

Following the construction phase, an estimated 1,300 ha of land will be permanently removed from agricultural production, representing 0.04 percent of the total agricultural land across the study area.

According to an assessment undertaken by JacobsGHD, the annual economic impact during the construction phase is estimated at \$4.25 million (value forgone) based on the area of land impacted (approximately 0.43 percent of the annual value of agricultural production across the regional study area). During operation, the impact is estimated at \$1.54 million (approximately 0.16 percent of the regional study area).⁵²

ARTC will continue its ongoing consultation with directly affected landowners during the detailed design phase to develop measures to mitigate impacts resulting from the loss of agricultural land. All property acquisitions / adjustments would be undertaken in consultation with landowners and, where relevant, in accordance with the requirements of the *Land Acquisition (Just Terms Compensation) Act 1991*. In line with the Land Acquisition Act, ARTC's preference is for acquisition by agreement where practicable.

Severance of agricultural land

The proposal design has sought to follow property boundaries as far as practicable in order to minimise severance of properties, however this has not been possible in some instances. A total of 142 private properties (comprising 228 lots) will be impacted by the proposal. The majority of properties (70 percent) with an original holding size of 500 to 750 ha, will still be between 500 and 750 ha in size post-construction. Similarly, the majority of properties with an original size of 1,000 to 2,000 ha will still be greater than 1,000 ha.

Further details relating to the severance of holdings can be found in the Agriculture and Land Use Assessment.⁵³

Disruption to access and infrastructure

During construction and operation, broader accessibility impacts due to changes in the surrounding road network may also affect local agricultural businesses and properties. Roadworks, re-alignments and changes to travel distances may permanently affect farming businesses.

Without mitigation, impacts during the construction phase could include inability to access areas for routine husbandry operations and inability for livestock to graze pastures. Further, interrupted access to facilities for beekeepers could reduce honey production.

During operation, changes in transport access could result in additional travel and time costs to move livestock and machinery between parcels of land. This could reduce agricultural output.

The potential impacts on transport access and infrastructure would be managed through the appropriate measures identified in consultation with individual landholders and defined in the individual property agreements.

Disruption to stock movement

The proposal alignment crosses or passes close to a number of Travelling Stock Reserves located at:

- Webb's Siding: Mitchell Highway near High Park Rd, Narromine.
- Bugabada: Collie Road, Kickabil.
- Buramilong: Berida Road, Collie.
- Dubbo-Coonamble Railway, Curban.
- Callangoan, Terrabile: Near National Park Road and East Coonamble Road, Curban.
- Newell Highway between Pilliga and Narrabri West.
- Cains Crossing: Cains Crossing Road, Bohena Creek.

⁵² The loss of annual value on agricultural production is inclusive of the direct loss of agricultural land, indirect impact via impeded access, interrupted land and farm management, and labour and other costs. The impacts are calculated by multiplying the area of agricultural land impacted by the weighted averaged adopted gross income of \$739.24 (refer Agriculture and Land Use Assessment). It is noted that these calculations are dependent on the maintenance of current agricultural capability within the proposal site. If the capability is compromised by the proposal, the calculation of the costs of the impacts on agricultural land would need to be recalculated. In addition, economic impacts will be offset via compensation payments to directly affected landholders.

⁵³ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Agriculture and Land Use Assessment*

- Yarrie Lake Road, Narrabri West.
- Between Saleyards Lane and Killarney Gap Road, Narrabri.

Disruption to these stock routes may require landholders to make alternative travel arrangements for their stock or to take alternative routes, potentially increasing travel time and associated costs. The disruption to stock routes is discussed further in sections 7.5-7.9 of the Agriculture and Land Use Assessment.

Local Land Services would be consulted during detailed design to understand how impacts on travelling stock reserves can be avoided during construction and operation. Alternative access arrangements would be made as required, subject to maintaining rail safety.

Improvements in supply chain efficiency

Efficient supply chains support the regional and national capacity to enhance economic opportunities within local communities. As a greenfield development, the proposal is a critical section in the broader Inland Rail program to create a more direct rail freight corridor, offering a more efficient solution for intra and interstate freight operators who will be able to avoid inland and coastal road and rail networks. The proposal will increase competition between road and rail freight modes, driving savings in freight costs which will benefit producers, consumers and the regional community.

As part of the Inland Rail program, the proposal has the potential to promote local industry development. By providing efficient transport access to intrastate and interstate markets, the proposal may act as a catalyst for further private sector investment in the study area, particularly for freight and logistics operations. In September 2019, the Narrabri Shire Council released the *Northern NSW Inland Port Prospectus* which outlined a business case for a freight and logistics terminal with access to Inland Rail, and an industrial park. An intermodal terminal is also proposed for Parkes, which is approximately 100 kilometres south of Narromine.

4.3.2 Tourism industry

The proposal has the potential to change local amenity and service capacity within the study area, during both construction (temporary) and operation (permanent).

During construction, there is potential for construction works, the visual impact of laydown areas, and the accommodation of non-residential workers to affect tourists' experience and travel times. This impact is anticipated to be small and will be temporary whilst construction activities are undertaken in particular areas.

Accommodation camps will service the non-residential workforce for the duration of the proposal's construction. Accordingly, the construction workforce will not impact on the availability of local tourism accommodation in the rural areas surrounding these camps.

During operation, there is potential for reduced scenic amenity due to the proposal location within the rural and regional landscape. It is likely that some visitors will see the proposal as diminishing rural character while others will find interest in the proposal structure. Accordingly, the proposal is not expected to have a significant impact on the tourism industry.

4.3.3 Mineral resources

As reported in the Agriculture and Land Use Assessment, the size of the mineral resource exploration area in the study area is very large relative to the operational footprint of the proposal, making the likelihood of high value resources being discovered under the footprint being reasonably low. The proposal is generally aligned close to other major infrastructure and property boundaries, minimising the potential for the proposal to sterilise land from mining.

Given the nature of coal seam gas extraction processes, it is unlikely that the proposal will impact on the capacity to extract coal seam gas.

4.3.4 Fish habitats

The proposal crosses numerous watercourses and floodplains via bridges and culverts which interface with waterfront land and the riparian corridor. As reported in the Agriculture and Land Use Assessment, the design of the bridges and culverts has primarily been undertaken to meet the required flooding and hydrology design standards (e.g. flood levels) for Inland Rail. However, where possible the design has also taken into consideration impacts on bed and bank stability, water quality and maintenance of habitat diversity and connectivity.

An assessment of potential impacts to key fish habitats identified that all relevant watercourse crossings have been designed to provide for the maintenance of fish passage in accordance with NSW Fisheries' guidelines and policy.

4.3.5 Local businesses

Proposal construction

Consultation undertaken for the Social Assessment⁵⁴ indicated that there are a number of local businesses within the study area that would have capacity to support the proposal during construction. Overall, stakeholders indicated that the types of businesses available in the region with capacity and resources for procurement opportunities include:

- Bus operators;
- Traffic controllers;
- Steel suppliers;
- Concrete works (i.e. mixing and casting);
- Bulk haulage;
- Machinery hire;
- Catering; and
- Special food retailers.

During consultation, the local chambers of commerce indicated that they would be willing to work with Inland Rail and the primary contractor to identify specific local businesses that could be involved in the construction activities. They also indicated that they would be available to assist local businesses prepare for available opportunities.

ARTC has established a partnership with the Australasian Railway Association. One of the key focus areas of the partnership is business participation and capability building. Through this partnership, small and medium-sized enterprises in regions along the alignment will receive advice on integrating into major project supply chains. They will also be provided with opportunities to build capability and supply chain readiness to meet requirements of major projects.

Indigenous businesses

During the development of the Social Assessment⁵⁵, eight Local Aboriginal Land Councils (LALC) were consulted - Narrabri, Pilliga, Baradine, Weilwan, Gilgandra, Narromine, Dubbo and Coonamble. These LALCs indicated that there are a small number of Indigenous businesses in the region that would have the relevant skills or capacity for procurement opportunities provided by Inland Rail. However, as advised during consultation, these businesses face barriers such as a lack of administration resources, inability to meet procurement requirements, and costs associated with upskilling or upscaling. As a result, some Indigenous businesses may require support to increase their readiness and capacity for procurement requirements. Some LALCs indicated that they or other organisations could auspice individuals with a desire to establish a business, as well as provide support to businesses to increase their readiness and capacity for the procurement requirements.

ARTC and its procurement entities will actively promote supplier capability development programs and initiatives provided by government agencies and industry associations. These include, but are not limited to the following:

- Business Connect (NSW) – www.business-connect-register.industry.nsw.gov.au

⁵⁴ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Social Assessment*

⁵⁵ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Social Assessment*

- Business Queensland (Qld) – www.business.qld.gov.au
- Business Victoria (Vic) – www.business.vic.gov.au
- Entrepreneurs Programme (Aust.) – www.business.gov.au/Grants-and-Programs/Entrepreneurs-Programme
- Indigenous Business Australia (Aust.) – www.iba.gov.au
- New South Wales Indigenous Chamber of Commerce (NSW) – www.nswicc.com.au/Programs-events
- Regional Development Australia (Aust.) – www.rda.gov.au
- SafeWork NSW (NSW) – www.safework.nsw.gov.au
- WorkSafe Queensland (Qld) – www.worksafe.qld.gov.au/injury-prevention-safety/small-business
- WorkSafe Victoria (Vic) – www.worksafe.vic.gov.au
- Yarpa (NSW) – www.yarpa.com.au

ARTC and its procurement entities will ensure that details for these programs are published on the ARTC Inland Rail website and in supplier information guides and/or fact sheets and are provided to proponents who are unsuccessful in their bids to supply to the program during the feedback process.

ARTC and its procurement entities will ensure that government agencies and industry associations are invited to attend and participate in program supplier briefing sessions/workshops.

The Inland Rail program Indigenous Procurement Policy, which refers to the Commonwealth Indigenous Procurement Policy, states that a minimum of three (3) percent of contracts must be awarded to Indigenous businesses across the program. Inland Rail provides Indigenous capability development workshops, pre-construction, to educate, equip and facilitate Indigenous businesses with the skills needed to enter into the supply chain. Inland Rail also partners with state based organisations to supplement existing Inland Rail programs.

Further, ARTC requires measures to be taken during the construction of the proposal to maximise social performance outcomes in accordance with the Inland Rail Social Performance Program and the Inland Rail program's Australian Industry Participation Plan. This will include strategies such as preparing an Industry Participation sub-plan which identifies how opportunities during construction will be communicated to local and Indigenous businesses.

Given the current capacity of local Indigenous businesses in the study area, it is expected that Indigenous businesses located within the broader regional economic catchment would also benefit from procurement opportunities.

Local service and supply businesses

The proposal is likely to offer opportunities in secondary service and supply industries (such as retail, hospitality and other support services) for businesses in close proximity to the construction footprint and accommodation camps. The expansion in construction activity has the potential to support additional temporary flow-on demand and additional spending by the construction workforce in the local community, which may lead to increased trading levels for small businesses, such as food and beverage businesses in the study area.

Retail businesses in the towns of Narromine, Gilgandra, Baradine and Narrabri have the potential to benefit from opportunities to supply materials and services to the proposal's accommodation camps. Some local retail businesses may also benefit from increased trade from workers residing in these camps.

4.4 Economic benefits assessment

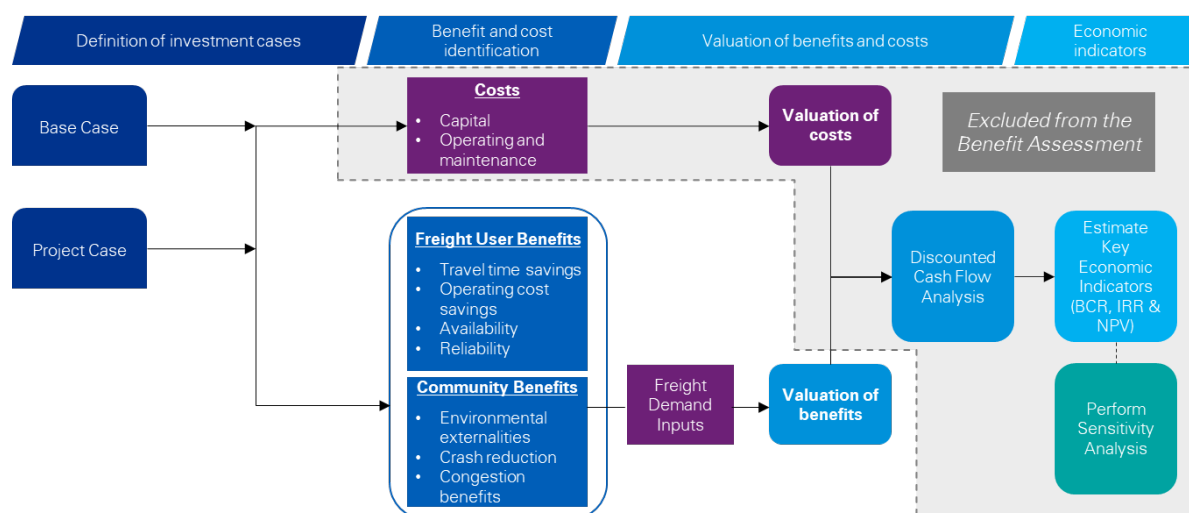
4.4.1 Methodology

The approach set out below reflects the three-step benefit assessment modelling process adopted for the purposes of the EIS:

1. **Define base and investment cases:** a clear articulation of the problem, investigation and definition of Base Case and Project Case options, and future demand drivers.
2. **Identify benefits:** identification of relevant economic, social and environmental benefits associated impact groups which can be measured for the proposal.
3. **Monetise benefits:** quantification, monetisation and assessment of benefits over the project appraisal period.

The figure below outlines a typical CBA approach and its application to the assessment of the proposal.

Figure 7: CBA approach and the economic benefits assessment



Critically, the key difference between the complete CBA approach and the economic benefits assessment approach adopted in this analysis is the exclusion of costs. As a consequence, the estimation of economic indicators is not applicable to this analysis; rather, the discounted present values of the benefits is the focus of the assessment.

4.4.2 Base Case and Project Case

The benefits assessment measures the incremental benefits derived by the proposal, by defining two network performance scenarios:

- The **Base Case** adopted for this benefit assessment is a 'do nothing' scenario, where it is assumed that no other sections of the Inland Rail program are progressed, and freight continues to be moved via either coastal rail or the road network.
- The **Project Case** adopted for this benefit assessment is the proposal. The economic benefits estimated as part of the analysis assess only those impacts that would be likely if freight operators were to respond to the completion of this individual proposal.

Key assumptions and parameters adopted for use in the benefit assessment are presented in Table 10.

Table 10: Economic benefits assessment assumptions

Parameter	Value	Source
Discount rate	A 7% real discount rate is used for the Project Case with sensitivity tests conducted at 4% and 10%.	Infrastructure Australia Business Case Assessment Template 2016
Price year	2019	
Discount reference year	2019	
Appraisal period	50 years from the year of opening. First year of measured benefits is 2024 (first full year of benefits) ⁵⁶ .	Australian Transport Assessment and Planning (ATAP) Guidelines (Category 4, Section 2.4)
Temporal treatment of benefits and costs	Demand model outputs for 2024, 2054 and 2074 were used as the basis for analysis. Linear interpolation has been undertaken to estimate benefits between these years.	Inland Rail program Business Case (2015) and KPMG analysis
Indexation	Unit costs and parameter values indexed to the price year by the appropriate price indices.	Australian Bureau of Statistics
Annualisation	Demand projections are presented in annual terms.	Inland Rail program Business Case (2015)

4.4.3 Freight demand

At the request of ARTC, demand inputs to the benefit assessment have been sourced from the freight demand projections developed by ACIL Allen for the Inland Rail program Business Case (2015). The assumptions underpinning these demand projections are documented in Chapter 7 of the Inland Rail program Business Case (2015). This section outlines how these demand projections have been adopted for the proposal EIS.

The demand projections developed by ACIL Allen are presented in terms of 66 different origin-destination (OD) pairs for both the Base Case and Project Case. These OD pairs span the entire Program length, and as discussed above, many represent freight movements that would not be impacted if the proposal were to be constructed independently of the overarching Inland Rail program.

To enable an incremental economic benefits assessment to be undertaken for the proposal, selected OD pairs were chosen which represent freight movements that would benefit from the improved rail connectivity associated specifically with the proposal. The selected OD pairs, which are considered likely to traverse the proposal section, consist of:

- Narrabri Cotton to Brisbane
- Moree-Cootamundra
- Albury - Brisbane
- Shepparton-Brisbane
- Albury Region - Moree Region
- Coonamble - Manildra
- Coonamble - Port Kembla
- Maldon - Narromine Region
- Manildra - Moree Region
- Manildra - Narrabri Region
- Manildra - Narromine Region
- Moree Region - Parkes Region

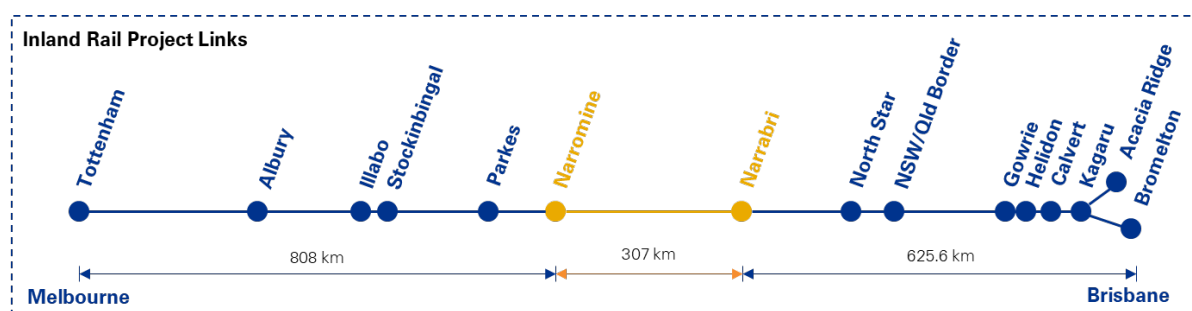
⁵⁶ First full year of benefits as per Inland Rail Business Case (2015). While noting the operational life of the project is 100 years, the benefits assessment has been conducted for a 50 year appraisal period in line with best practice methodologies, as specified in the ATAP guidelines.

- Narromine Region - Dubbo
- Narromine Region - Riverina Region
- Parkes Region - Coonamble
- Riverina Region - Moree Region.

The transport network and surrounding areas impacted by these freight movements represent the project area for the purposes of the economic benefits assessment.

As the projected travel time (both in terms of net tonne hours and hours travelled) for these OD pairs are dependent on downstream upgrades, the benefits associated with these freight movements have been apportioned. Given that the proposal is a new link that connects the North-South rail corridor, the factor used to scale these benefits is the ratio of the length of track upgrades that forms the proposal, and the total length of track upgrades as part of Inland Rail (e.g. 307 kilometres / 1,740.6 kilometres).⁵⁷

Figure 8: Inland Rail program - proposal extents



Source: ARTC Note: figure is not to scale, used for illustrative purposes only.

For the purposes of the economic benefit assessments contained within the Inland Rail EIS, freight movements from coal demand have been excluded. This is on this basis of the CBA results for the scenarios "No Western Line Upgrade" (refer Inland Rail program Business Case (2015) Chapter 9. Economic Analysis), where coal benefits are equal to zero (0). Subsequently, in the absence of the Western Line upgrade to the existing Queensland Rail network, no benefits are expected to accrue to coal movements as a result of the delivery of Inland Rail. These results imply that, under this scenario, there is no net benefit to coal trips traversing any of the new sections to be delivered as part of the Inland Rail program.

Further, the results of the Inland Rail program Business Case (2015) CBA highlight that the identified benefits accruing to coal trips are a direct result of the Inland Rail program with complementary investment in Western Line Upgrades, which do not form part of the scope of the Inland Rail program as it stands currently, and are not funded. For a more detailed note on the treatment of coal in the EIS, please refer to Appendix B.

4.4.4 Benefit categories

The economic benefits assessment considers a range of benefit types, which have been categorised into two broad benefit streams:

- **Freight benefits:** these benefits include the changes in cost to freight operators by switching mode from road to rail; and
- **Community benefits:** these benefits include the changes in costs to the community resulting from a reduction in delays on the road network, and other externalities such as crash reductions and reduced environmental impacts.

A description of each of the benefits included in the assessment are provided in the following table (Table 11).

⁵⁷The track length used in the economic benefits assessment is based off the Inland Rail alignment published in February 2017.

Table 11: Benefit category descriptions

Benefit Category	Description
Freight Benefits	
Travel time savings	<p>Freight travel time cost savings represent the value to the economy associated with freight arriving at its destination more efficiently as a result of improvements to the rail network that enable shorter distances, faster travel, and subsequently, increased capacity.</p> <p>Where freight demand is induced (either diverted from road to rail, or new generated freight travel) as a result of improvements to the rail network, the rule of half⁵⁸ has been used to estimate the benefits to the new rail freight. Notably, there is no induced freight demand assumed for the proposal.</p>
Operating cost savings	<p>Operating cost savings represent the reduction in costs associated with fuel, crew, maintenance and depreciation to both road and rail freight operators as a result of operators making use of the proposal. Many of the benefits in this category are derived from the savings associated with shifting freight from road onto rail which has lower operating costs per net tonne kilometre.</p>
Improved service availability	<p>Improved service availability represents the increased flexibility in arrival and departure times afforded to the rail freight network as a result of the proposal. This is due to fewer restrictions on freight service times provided by the increased network capacity.</p> <p>Freight service availability benefits have been estimated based on the values presented in the Inland Rail program Business Case (2015). These benefits were derived by ARTC in 2015, and have been apportioned to individual projects for the purposes of this incremental benefit assessment. The values calculated by ARTC have been escalated to a 2019 price year using Producer Price Index (PPI) Rail Freight Transport (A2314067L).</p>
Improved service reliability	<p>Improved service reliability represents the certainty in transit time and subsequent economic efficiency gains to freight operators. This provides reduced wait times at points of loading/unloading along the network, allowing goods to reach their destinations in a more timely manner.</p> <p>As with availability benefits, reliability benefits have been estimated based on the values presented in the Inland Rail program Business Case (2015). These benefits were derived by ARTC in 2015, and have been apportioned to individual projects for the purposes of this incremental benefit assessment. The values calculated by ARTC have been escalated to a 2019 price year using PPI Rail Freight Transport.</p>
Community Benefits	
Crash reduction	<p>Crash cost savings represent the reduced costs associated with fatal and serious injuries resulting from both road and rail incidents.</p>

⁵⁸ Economic theory suggests that when consumers change their travel mode in response to a financial incentive, the net consumer surplus averages half of their price change.

Benefit Category	Description
Environmental externalities	Reduced environmental externality costs represent reductions in air pollution and greenhouse gas emissions due to the proposal. The majority of these benefits can be attributed to the mode shift from road freight to rail freight.
Road decongestion benefits	As the proposal encourages greater movement of freight by rail, the reduced truck movements that are projected upon completion of the proposal result in reduced congestion in urban areas.

Freight Benefits

The freight benefits have been quantified and monetised using demand assumptions from the Inland Rail program Business Case (2015) and the parameters set out in Table 12.

Value of freight per tonne hourly unit rates have been derived from previous analyses completed for the Inland Rail program Business Case (2015) and escalated to current year prices using appropriate producer price indices.

The analysis estimated a range of rail operating costs for both the Base Case and Project Case. The rates provided in the table demonstrate the efficiency improvements gained in rail operations through the completion of the proposal, with higher capacity trains and improved transit times resulting in lower rail operating parameters (unit rates drop from \$0.028 – \$0.035 per NTK in the Base Case down to \$0.028 – \$0.026 NTK in the Project Case for agricultural freight). These parameters have been estimated based on the outputs from the Inland Rail program Business Case (2015) and Transport for NSW's (TfNSW) Principles and Guidelines for Economic Appraisal of Transport Investment and Initiatives (2018).

The freight service improvements utilise the previous analysis completed for the Inland Rail program Business Case (2015) and have been escalated to current year prices and apportioned to the proposal.

Table 12: Freight benefit parameter values (\$2019)

Parameter Value		Variable/s	Source/s
Freight Travel Time			
Value of Freight (Rail)		\$1.69 tonne hour	ATAP, Inland Rail program Business Case (2015), PPI Rail Freight Transport (A2314067L)
Value of Freight (Road)		\$1.45 tonne hour	ATAP, Inland Rail program Business Case (2015), PPI Road Freight Transport (A2314058K)
Operating Cost			
Agricultural	Rail Operating Cost – Base Case	2024: 0.028 \$/ntk 2054: 0.035 \$/ntk 2074: 0.032 \$/ntk	TfNSW (2018), Inland Rail program Business Case (2015), PPI Rail Freight Transport (A2314067L)
	Rail Operating Cost – Project Case	2024: 0.028 \$/ntk 2054: 0.023 \$/ntk 2074: 0.026 \$/ntk	TfNSW (2018), Inland Rail program Business Case (2015), PPI Rail Freight Transport (A2314067L)
Road Operating Costs		0.063 \$/ntk	ATAP, Inland Rail program Business Case (2015), PPI Road Freight Transport (A2314058K)
Road Driver Costs		29.95 \$/h	Austrroads, Inland Rail program Business Case (2015), CPI

Parameter Value	Variable/s	Source/s
Freight Service⁵⁹		
Freight Service Availability	2024: \$16.75 m 2054: \$182.69 m 2074: \$299.23 m	Inland Rail program Business Case (2015), PPI Rail Freight Transport (A2314067L)
Freight Service Reliability	2024: \$11.17 m 2054: \$45.35 m 2074: \$81.07 m	Inland Rail program Business Case (2015), PPI Rail Freight Transport (A2314067L)

The total freight demand for the proposal consists of agricultural freight traversing the proposal section, with the majority of freight movements either originating and / or terminating within the Narromine and Narrabri regions. As within the Inland Rail program Business Case (2015), induced freight demand has only been modelled for the entire extents of Inland Rail (e.g. Melbourne to Brisbane and Brisbane to Melbourne) and, as such, no induced demand has been included in the analysis for the proposal.⁶⁰

Consistent with the assumption contained within the Inland Rail program Business Case (2015), the resulting freight demand from the proposal is expected to see all future contestable freight carried by rail. Under these demand projections, freight users will benefit from a significant reduction in average travel times by rail in the Project Case (from 4.57 hours in the Base Case to 3.86 hours in the Project Case in 2054). This results in the shift of the total freight task from road freight to rail - the total tonnes carried is the same between the Base Case and the Project Case. Notably, as a result of the shift to rail freight and longer average trip distances, the total net tonne kilometres (NTK) travelled increases in the Project Case (in 2054 the Base Case 552 mNTK increases to 555 mNTK in the Project Case).

Table 13: Freight demand assumptions for the proposal

	Base Case			Project Case		
	2024	2054	2074	2024	2054	2074
Trips						
Rail	944	1,325	1,649	1,263	1,767	2,199
Road	12,923	17,943	22,331	-	-	-
Total Tonnes ('000s)						
Rail	992	1,392	1,733	1,327	1,857	2,311
Road	335	465	578	-	-	-
Average Trip Time (hours per tonne)						
Rail	3.73	4.57	5.13	3.70	3.86	4.34
Road	9.49	10.08	10.49	-	-	-
Million Net Tonne Km (mNTK)						
Rail	192	275	343	394	555	691
Road	199	277	344	-	-	-
TOTAL mNTK	391	552	687	394	555	691

Source: Inland Rail program Business Case 2015

⁵⁹ For the freight service benefits, interpolation has been applied using years 2024, 2054, and 2074. These values are then apportioned based on the approach described in the section 6.3.4 freight demand.

⁶⁰ It is noted that no new independent demand modelling has been undertaken to validate the assumptions contained within the Inland Rail Program Business Case (2015).

Freight benefits have been estimated using the appropriate change in freight demand (such as mNTK) by mode type by the relevant parameter unit. The estimated freight benefits for the proposal are provided over a 50 year analysis period set out in the table below. Overall, the proposal's freight benefits represent an incremental \$243.72 million in present value terms (7%) over the Base Case.

Table 14: Estimated freight benefits (\$2019)

Benefit	Undiscounted - \$m	Present Value (7%) - \$m
Freight Time Savings	43.66	6.97
Operating Cost Savings	157.88	26.79
Freight Service Availability	1,405.51	161.48
Freight Service Reliability	380.65	48.48
TOTAL	1,987.70	243.72

Operating cost savings represent 11 percent the of freight benefits with \$26.79 million in present value terms (7%) as freight shifts from road to rail. This is representative of the efficiency benefits gained from lower transit times (the average rail freight journey time in 2054 drops 4.57 hours in the Base Case to 3.86 hours in the Project Case) and higher capacity freight trains. In addition, each rail trip in the Project Case is expected to remove the equivalent of 10 road freight trips from the project area in 2054.

Freight service availability and reliability represent a combined \$209.96 million in present value terms (7%) to freight benefits (~86 percent). This is apportioned to the proposal on the basis of the combined service improvements from the broader Inland Rail program and represent the expected benefit from improved freight service within the project area.

Freight time savings provide the remaining \$6.97 million in present value terms (7%) to freight benefits (~3 percent). As with operating cost savings, this is largely representative of the combined efficiency improvements and the resulting mode shift of road freight trips to rail.

Community Benefits

The community benefits have been quantified and monetised using demand assumptions from the Inland Rail program Business Case (2015) and the parameters set out in Table 15.

The avoided crash cost saving per net tonne kilometre has been adapted from the Bureau of Transport Economics (BTE) estimates. The parameters are consistent with typical transport appraisal methodologies used in business cases throughout Australia. The values presented in the table below have been escalated by CPI.

The environmental externalities cost saving per kilometre travelled parameters have been adapted from Austroads Guide to Project Evaluation Part 4 Section 5 (2012) and are consistent with the parameters applied within the Inland Rail program Business Case (2015). The values presented in the table below have been escalated by CPI.

The marginal cost of congestion per vehicle kilometre travelled parameters have been adapted from TfNSW's Principles and Guidelines for Economic Appraisal of Transport Investment and Initiatives. This is consistent with the approach applied within the Inland Rail program Business Case (2015). The value presented in the table below has been escalated using PPI for Road Freight Transport.

Table 15: Community benefit parameter values (\$2019)

Parameter Value	Variable/s	Source/s
Crash Cost Savings		
Road	0.0053 \$/ntk	BTE (1999), CPI
Rail	0.0005 \$/ntk	BTE (1999), CPI
Environmental Externalities		
Road (Urban)	37.87 \$/1000 km	Part 4 Section 5 Guide to Project Evaluation Austroads (2012), Inland Rail program Business Case (2015), CPI
Road (Rural)	12.53 \$/1000 km	Part 4 Section 5 Guide to Project Evaluation Austroads (2012), Inland Rail program Business Case (2015), CPI
Rail (Urban)	6.15 \$/1000 km	Part 4 Section 5 Guide to Project Evaluation Austroads (2012), Inland Rail program Business Case (2015), CPI
Rail (Rural)	1.64 \$/1000 km	Part 4 Section 5 Guide to Project Evaluation Austroads (2012), Inland Rail program Business Case (2015), CPI
Road Decongestion Benefits		
Marginal congestion cost	2.81 \$/vkt	TfNSW, Inland Rail program Business Case (2015), CPI

The shift of road freight to rail provides significant reduction in freight demand by kilometres travelled. This frees up capacity on the road network, and reduces the level of interaction between heavy vehicles and cars. Subsequently, businesses and community members are able to move more freely through the local network. Table 16 provides the assumed freight demand by kilometres travelled as per the modelling completed for the Inland Rail program Business Case (2015).

Table 16: Freight demand by kilometres travelled ('000s) for the proposal

Mode	2024	2054	2074
Base Case			
Rail	183	262	326
Road	7,696	10,686	13,300
Project Case			
Rail	375	529	658
Road	-	-	-

Source: Inland Rail program Business Case 2015

Community benefits have been estimated using the appropriate change in freight demand (such as kilometres travelled) by mode type by the relevant parameter unit. The estimated community benefits for the proposal are provided over a 50 year analysis period set out in the table below. Overall, the proposal's community benefits represent an incremental \$15.18 million in present value terms over the Base Case.

Table 17: Estimated community benefits (\$2019)

Benefit	Undiscounted - \$m	Present Value (7%) - \$m
Crash Cost Savings	11.56	2.08
Environmental Externalities	33.61	6.05
Road Decongestion Benefits	39.10	7.04
TOTAL	84.27	15.17

Crash cost savings represent ~14 percent the of community benefits (\$2.08 million in present value terms, 7%) as freight traffic is removed from the road network.

The reduction in heavy freight traffic within the proposal area will provide further cost savings from environmental externalities, such as air pollution, greenhouse gas emissions, noise and other environmental disruptions. The avoided environmental externality costs resulting from the proposal have been estimated to provide \$6.05 million in benefits (present value, 7%) to the community (~40 percent of community benefits).

Road decongestion benefits provided the greatest share of community benefits (~46 percent), with an estimated \$7.04 million in present value terms (7%). Relative to the Base Case, the Project Case is expected to remove all road freight traffic from the area allowing other commuters to travel more freely across the road network.

4.4.5 Economic benefits assessment results

The results of the economic benefits assessment estimate that the proposal is expected to provide a total of \$258.9 million (\$2019 present value terms) in incremental benefits to the proposal area (at a 7 percent discount rate). This consists of \$243.72 million in freight benefits and \$15.18 million in community benefits (\$2019 present value terms).

Observing the composition of benefits, the largest share of benefits for the proposal is improved availability of freight, representing ~62 percent of the total benefits (at a 7 percent discount rate). Freight benefits more broadly (including freight time travel savings, operating cost savings, as well as improved reliability and availability) represent ~94 percent of the total projected benefits for the proposal.

Reductions in environmental externalities (i.e. air pollution and greenhouse gas emissions) from reduced heavy vehicle kilometres travelled represents ~2 percent of the total benefits (at the 7 percent discount rate).

The full results of the economic benefits assessment are presented in the table below.

Table 18: Results of the economic benefits assessment, present value terms (\$2019)

Benefits	Discount Rate		
	4%	7%	10%
Freight Benefits	\$530.57 m	\$243.72 m	\$130.65 m
Travel Time Savings	\$13.51 m	\$6.97 m	\$4.14 m
Operating Cost Savings	\$50.75 m	\$26.79 m	\$16.19 m
Improved Availability	\$363.08 m	\$161.48 m	\$83.63 m
Improved Reliability	\$103.22 m	\$48.48 m	\$26.69 m
Community Benefits	\$27.96 m	\$15.18 m	\$9.41 m
Crash Reduction	\$3.84 m	\$2.08 m	\$1.29 m

Benefits	Discount Rate		
	4%	7%	10%
Environmental Externalities	\$11.15 m	\$6.05 m	\$3.75 m
Road Decongestion Benefits	\$12.97 m	\$7.04 m	\$4.36 m
TOTAL BENEFITS	\$558.53 m	\$258.90 m	\$140.06 m

4.4.6 Cost Benefit Analysis: Inland Rail program Business Case

As detailed above, due to the nature of the incremental assessment approach adopted for this EIS, a proposal-specific CBA has not been undertaken as the results will not capture the full impact that is expected to be delivered upon completion of the Inland Rail program. Instead, the results of the economic analysis undertaken for the Inland Rail program Business Case (2015) are provided to illustrate the anticipated net economic impact of Inland Rail to the community as a whole.

The results of this analysis, as presented in the Business Case, are provided in the table below.

Table 19: Economic appraisal results for Inland Rail (\$2015)

	Net Present Value	Benefit Cost Ratio
PV at 4% Discount Rate	\$13,928 m	2.62
PV at 7% Discount Rate	\$116.1 m	1.02

Source: Inland Rail program Business Case 2015

The CBA results indicate that Inland Rail is estimated to be economically viable, with a benefit cost ratio of 1.02 at a 7 percent discount rate (2.62 at a 4 percent discount rate). By beneficiary, intercapital freight users account for 68 percent of total benefits, followed by regional freight (16 percent). A further 13 percent of benefits accrue to the broader community.

4.5 Regional impact assessment

A regional impact analysis has been undertaken to highlight the impacts of the proposal segment of the Inland Rail program on the regional, state and national economies using a CGE modelling framework. For the purposes of this analysis, a CGE model (KPMG-SD) has been applied to examine the flow-on effects arising from the proposal on the broader economy.

As described throughout this report, the regional economy is represented by the Far West and Orana and New England and North West labour market regions.

4.5.1 Key considerations

The direct and indirect economic impacts of the proposal during its construction phase are modelled using a comparative-static version of KPMG-SD. In comparative-static mode, KPMG-SD does not trace out the dynamics of how the economy adjusts through time to accommodate the construction of the proposal. Rather, in comparative-static mode, KPMG-SD provides estimates of how the economy is impacted over the construction phase period, during which the proposal's capital expenditure (CAPEX) program is completed.

Under this configuration, KPMG-SD provides two snapshots of the structure and size of the economy for the proposal:

- The first snapshot is the **baseline** representation of the economy. For the construction phase, the baseline is a representation of the size and structure of the economy before the capital expenditure program associated with the proposal's rail development commences.
- The second snapshot is a **revised** representation of the economy that includes the impacts of the proposal. For the construction phase, this revised snapshot is a representation of the economy during the expenditure of the capital expenditure program associated with the development of the proposal.

The key modelling assumptions and inputs that underpin the regional economic assessment results are provided in Appendix A. We note that the analysis in this report was largely completed before the COVID-19 crisis impacted the economy. In particular, the baseline representation of the economy does not account for the COVID-19 impacts.

4.5.2 Limitations

It is important to note that the results of the CGE modelling are subject to the following limitations:

Construction phase

The capital expenditure program associated with the development and construction of the proposal is modelled as a transitory expenditure shock to the economy. Accordingly, modelling each of the construction phases of the 13 projects of the Inland Rail program in isolation is reasonable. If there is significant overlap in the timing of the construction phases of the 13 projects, modelling each link in isolation may result in an under-estimation of the pressures on resource availability, particularly labour. This could also be exacerbated by other construction projects in the surrounding region. In recognition of this possibility, the construction phase of each link is modelled under two labour market scenarios:

- In the first scenario, it is assumed that labour markets are characterised by the availability of unemployed and under-employed workers with relevant skills ('slack labour market') so that any increases in the demand for labour can be accommodated without increasing real wages.
- In the second scenario, it is assumed that real wages are sensitive to additional labour market demand ('tight labour market').

Operational phase

Due to the nature of the proposal, the operational economic effects of the proposal will only be fully realised once all components of Inland Rail are completed. As detailed above, assessing each link of the Inland Rail program individually and in isolation of the whole program will not capture all of the benefits expected to be generated upon completion of the entire Melbourne to Brisbane rail connection.

In the context of the regional impact analysis, when modelling each link of Inland Rail in isolation, the CAPEX is disproportionate to the benefits directly attributable to that particular link.⁶¹ If the proposal component was built but no other link was completed, the benefits would be insufficient to justify the investment. From a modelling perspective, it would appear as if there had been a significant over-investment in rail infrastructure. That is, the supply of rail services is greater than the demand for these services. This excess supply of rail services can be eliminated by a combination of reducing the price of rail service (to stimulate demand), writing off the investment and subsidising the rail operations. Each of these mechanisms has a distortionary impact on the economy. These distortions are an artefact of the requirement to consider the benefits of the proposal in isolation rather than a reflection of what will actually happen in the economy. For this reason, the operational phase modelling results are not included in this EA.

⁶¹ The benefits directly attributable to N2N, or its operational phase shock, was calibrated from the benefits quantified in the Benefits Assessment.

4.5.3 Regional economic impact analysis results

The headline impacts of the proposal on the Far West and Orana and New England and North West regions during the construction phase are summarised in the table below.

Table 20: Summary of the direct and indirect economic impacts of the proposal.

	Far West and Orana		New England and North West	
Measure	Slack Labour Markets	Tight Labour Markets	Slack Labour Markets	Tight Labour Markets
Additional Real Gross Regional Product (\$2018-19)	\$564 m	\$236 m	\$206 m	\$82 m
Average annual additional direct and indirect jobs (persons)	1,103	192	432	69

At the end of the construction phase, real Gross Regional Product (GRP) for the Far West and Orana and New England and North West regions is projected to be \$564 million and \$206 million, respectively, higher than the baseline level under the assumption of slack labour markets. This increase is more than halved if labour markets are assumed to be tight (\$236 million for Far West and Orana and \$82 million for New England and North West).

The importance of the labour market assumption is reflected in the employment results. In the slack labour market scenario, it is estimated that an additional 1,103 direct and indirect jobs are generated in Far West and Orana, and 432 in New England and North West.⁶² Note that this is the average number of jobs per annum during the five year construction period. With tight labour markets, the increase in jobs is significantly less at 192 jobs in Far West and Orana and 69 jobs in New England and North West. Under tight labour markets, wages are bid up to attract currently employed workers to the construction businesses contracted to construct the proposal. That is, the labour market response is dominated by workers moving from their current job to a higher paying job. With slack labour markets, there are sufficient unemployed and under-employed workers to accommodate the increase in demand for labour without increasing real wages.

Figure 11 and Figure 12 summarise the macroeconomic results for the Far West and Orana and New England and North West regions in the context of the rest of the New South Wales (NSW) and Australian economies. Employment results at the industry level are presented in Figure 13.

⁶² To put this in context, the planned direct workforce requirements of the proposal during the construction phase is expected to be up to 2,000 people. About 70 percent of the N2N CAPEX is expended in 2022 and 2023. We estimate that the average number of jobs in those two years for Far West and Orana and New England and North West is about 4,000 and 1,550 under slack labour markets and 820 and 300 under tight labour markets.

Figure 9: Macroeconomic results: construction phase, slack labour markets⁶³

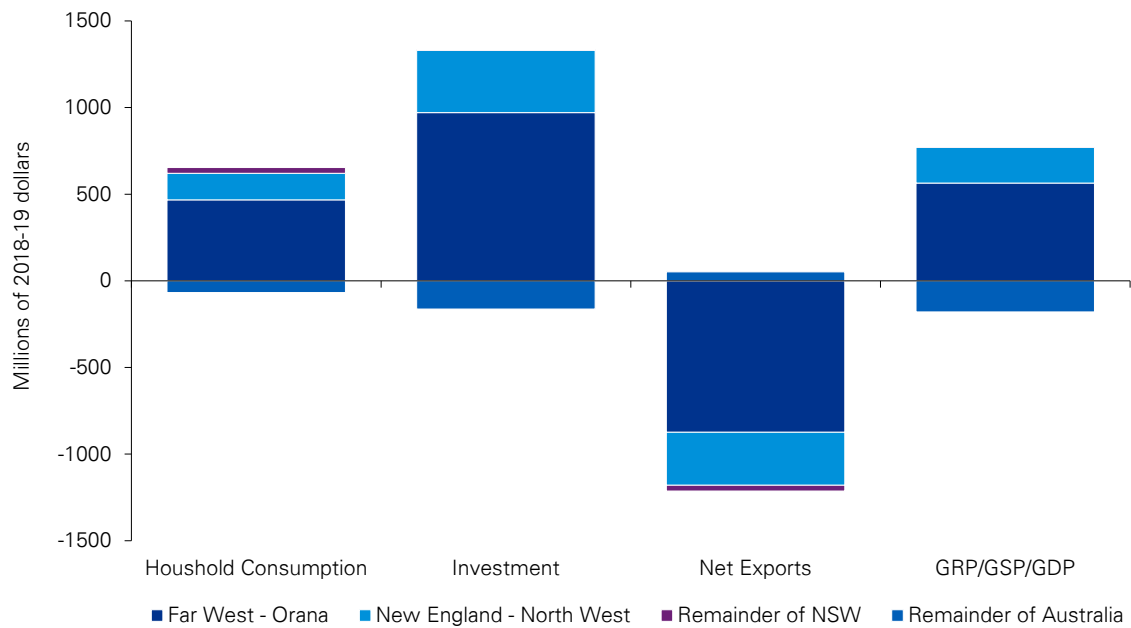
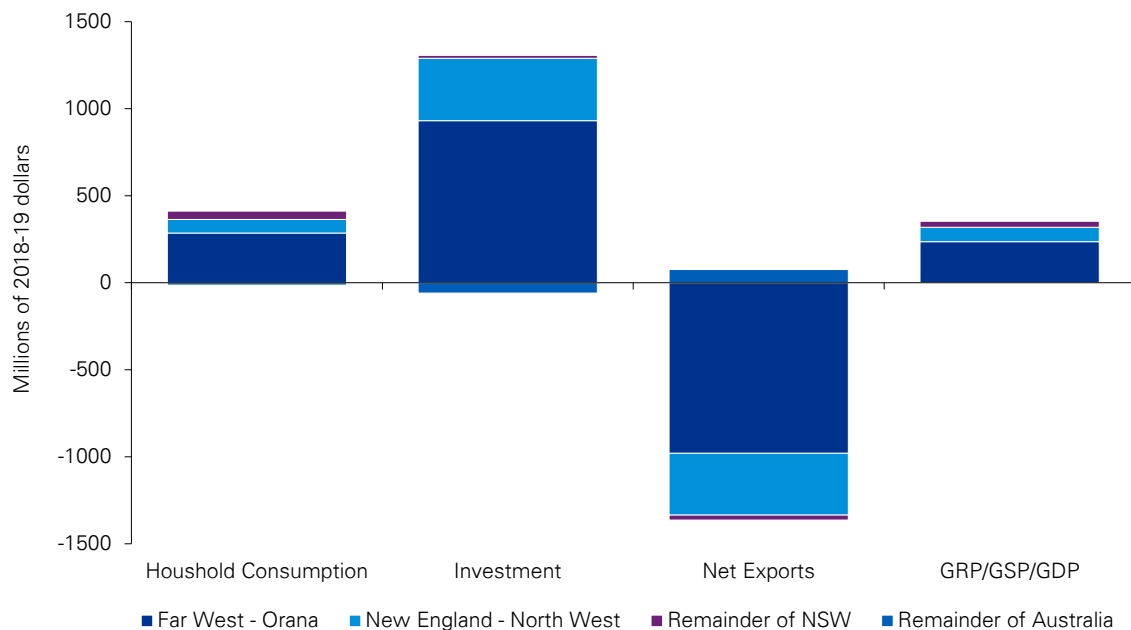


Figure 10: Macroeconomic results: construction phase, tight labour markets



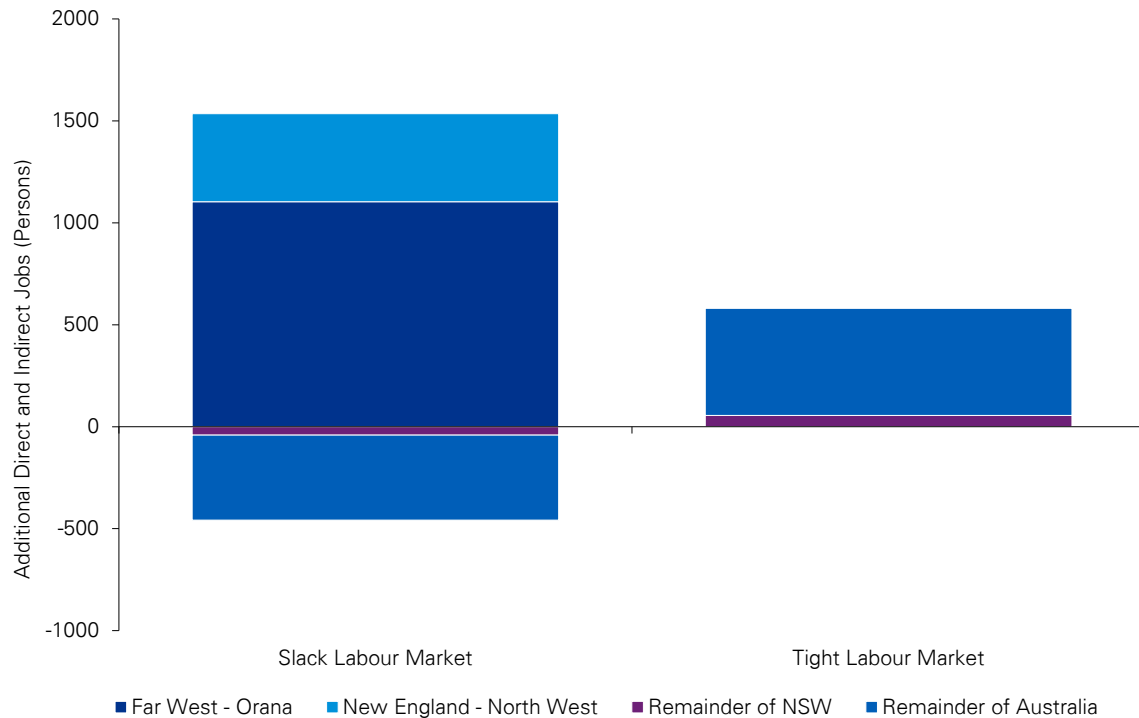
The simulation results indicate that the economic impacts of the proposal during the construction phase are concentrated in the Far West and Orana and New England and North West regions. Net exports, which include inter-regional and international exports and imports, are negatively impacted. The resources required to complete the construction of the proposal are sourced locally and from interstate and overseas suppliers. At the local level,

⁶³ GRP/GSP/GDP stand for Gross Regional Product / Gross State Product / Gross Domestic Product.

higher costs induce the cost-sensitive trade-exposed sectors to release resources to accommodate the investment demands of the proposal.⁶⁴

The modelled direct and indirect impacts of the proposal on employment are presented in Figure 13.

Figure 11: Direct and indirect employment results



The labour market conditions that are likely to prevail during the construction phase of the proposal will be most consistent with the “slack” labour market scenario.

Recent labour market trends can be used to inform workforce capacity and capability within the local region. In Far West and Orana, the unemployment rate has been about 3 percent over the course of 2019.⁶⁵ However, the number of employed persons as at December 2019 was 9.9 percent lower than in the corresponding period last year.⁶⁶ The average participation rate rose to 77.0 percent in 2019, up from 74.6 percent in 2018.⁶⁷ In New England and North West, the unemployment rate averaged 5.2 percent in 2019, down from 6.5 percent in 2018.⁶⁸ The participation rate averaged 78.1 percent in 2019, up from 72.4 percent in 2018.⁶⁹ The upward trend in the participation rates indicates that there may be a growing pool of people that could be drawn back into the labour force in the future. It is noted that the official labour force data at this level of regional granularity is quite

⁶⁴ The CAPEX program associated with N2N constitutes a temporary expenditure shock to the economy. Some of the goods and services purchased by customers in the Far West and Orana and New England and North West economies are imported from interstate and overseas. CAPEX, particularly at the regional level, is more import intensive than other types of expenditure. This means that a CAPEX shock will, other things being equal, result in net exports contracting. In addition, it has been assumed that businesses do not respond to the temporary shock by increasing their productive capacity through investment in fixed capital. Instead, businesses use more labour with their existing fixed assets (e.g., plant and equipment), which increases costs and reduces competitiveness. Where it is profitable to do so, businesses switch some of their productive capacity towards accommodating the demands associated with the proposal and away from sales to other customers (e.g., to interstate and overseas customers). The results reported in the figures above are roughly linear for small deviations in the assumed CAPEX. For example, if N2N CAPEX was increased by 5 percent (from \$1.28 billion to \$1.34 billion) then net exports for Far West and Orana and New England and North West would fall by a further 5 percent.

⁶⁵ Based on Australian Government’s Small Area Labour Markets (SALM) publication.

⁶⁶ Based on ABS, Labour Force Survey 2020, cat. no. 6291.0. Released 27 February 2020.

⁶⁷ Based on population of working age: 15 – 64 years; ABS, Labour Force Survey 2020, cat. no. 6291.0. Released 27 February 2020.

⁶⁸ Based on Australian Government’s Small Area Labour Markets (SALM) publication.

⁶⁹ Based on population of working age: 15 – 64 years; ABS, Labour Force Survey 2020, cat. no. 6291.0. Released 27 February 2020.

volatile and it is important to consider these statistics in a broader context, including with regards to labour market conditions at the state and national levels.

At the time of writing, the latest available regional labour market statistics in the Small Area Labour Markets (SALM) publication contained data to December 2019. More recent macro-economic data suggest that labour market conditions may have deteriorated further and that the economic shock associated with the COVID-19 virus has added considerable downside risks to the broader economy in the short to medium term. The National Accounts data for Quarter 4, 2019 show domestic demand has remained soft, even before recent natural disaster events (i.e., bushfires and floods) and the global coronavirus outbreak. Economic conditions are anticipated to deteriorate markedly in the short to medium term, increasing the likelihood that the national and regional labour markets will be consistent with the “slack” labour market scenario during the construction phase.

Looking specifically at skilled labour capacity, recent Labour Force Survey results indicate that a relatively high proportion of unemployed workers were last employed in the Construction sector.⁷⁰ In NSW, during the reference week in the quarter ended November 2019, 20,300 unemployed persons (approximately 11 percent) reported that their last job was in Construction, representing a 28.3 percent increase from the corresponding quarter in the previous year. Nationally, over the same period, 15.1 percent of unemployed persons who reported losing their job last worked in the Construction industry. The ABS estimates that job vacancies in the Construction sector have fallen sharply as at November 2019 (around 14.0 percent) from their peak in the quarter ended February 2019.⁷¹ These indicators suggest a degree of softness in the Construction sector. The industry and occupational profile of the Far West and Orana and New England and North West workforce, together with evidence that the Construction sector is not currently stretched, means that it is reasonable to assume that the regional labour market has the capacity to supply a significant portion of the workforce requirements of the proposal without major disruption.⁷²

Prior to the COVID-19 shock, the known major infrastructure projects in the adjacent and surrounding areas, including those associated with Inland Rail, had the potential to put some pressure on labour markets if inopportune scheduling resulted in cumulative and competing demand for trades and construction labour. KPMG’s assessment is that the overall labour demands of the various infrastructure projects expected to be constructed are modest and that scheduling could be optimised to minimise market impact. The prevailing trends in the Far West and Orana and New England and North West labour market and the ability of workers to mobilise to project locations suggested that the risks of labour market disruption were limited.

The COVID-19 shock has impacted these existing labour markets, by opening up labour markets which has increased the labour market for the proposal. The potential labour market risk has now been further reduced as a result of COVID-19 economic shock.

However, the possibility of some tightness in the labour market cannot be completely dismissed. The Government’s health and economic policy responses to the COVID-19 may result in some projects being brought forward. If these health and economic stimulus projects are highly effective, the economy may grow much faster than is expected, resulting in significantly more activity in the construction sector. This increased construction activity may put some pressure on labour market

It is noted that there may be benefits from having additional infrastructure projects in the adjacent and surrounding areas around the same time as the proposal. These benefits come in the form of lowered mobilisation costs and transfer of labour experience and skills to projects, particularly those constructed in the period leading up to and the period following the proposal’s construction phase.

Due to the dynamic nature of local and regional labour markets, ARTC has identified that an analysis of the likely availability of construction labour from the region will be undertaken prior to construction, to enable the refinement of local and regional recruitment and training strategies to maximise employment opportunities within local economies.

⁷⁰ Based on ABS, Labour Force Survey, Quarterly, November 2019, cat no. 6291.0.55.003. Released 23 December 2019.

⁷¹ Based on ABS, Job Vacancies, November 2019, cat no. 6354.0. Released 8 January 2020.

⁷² Workers with specialist skills may be sourced from outside of the local region.

Employment results at the industry level are presented in Figure 14 and Figure 15. Although the patterns are the same under the two labour market scenarios, it is evident that, under the tight labour market assumption, there is greater displacement of workers.

Figure 12: Industry employment results: construction phase, slack labour markets

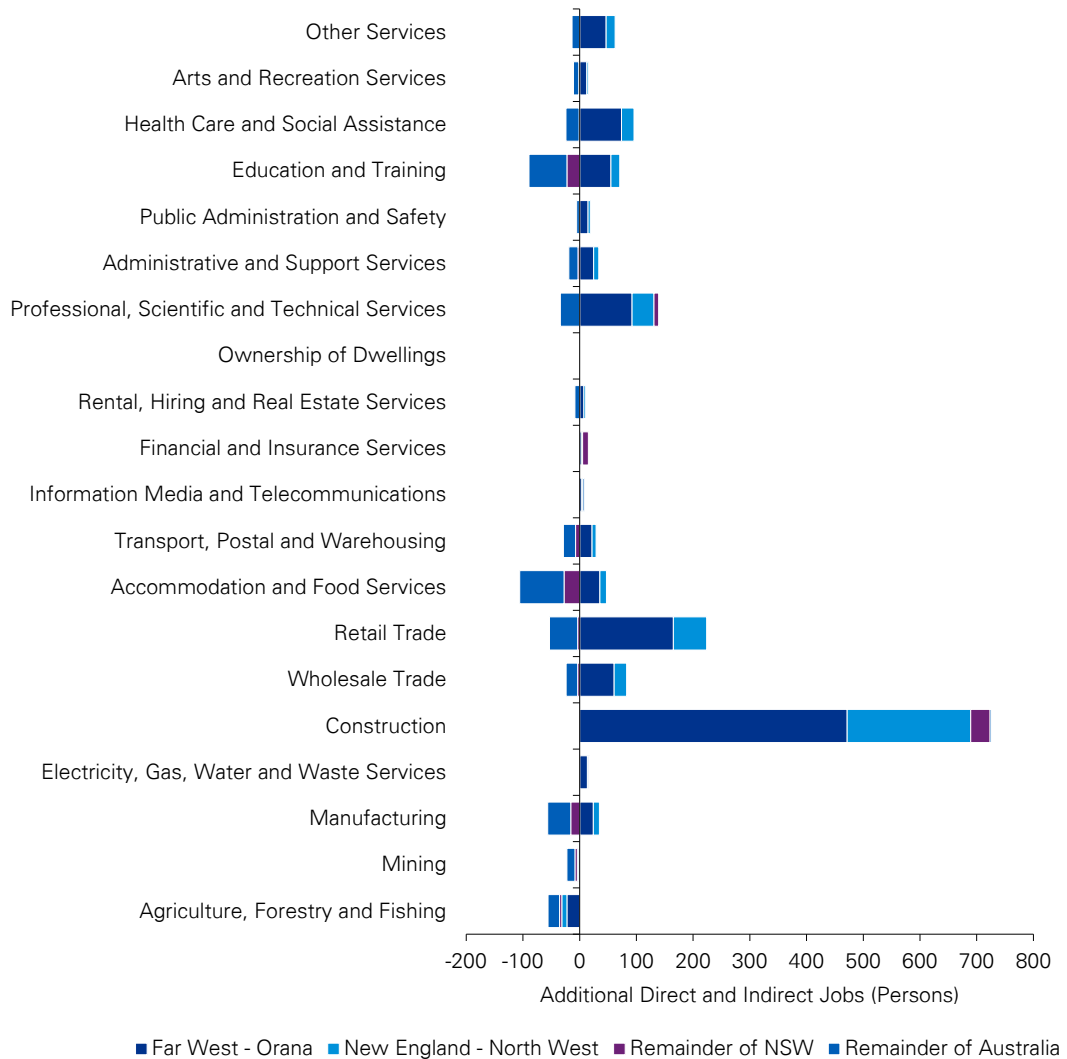
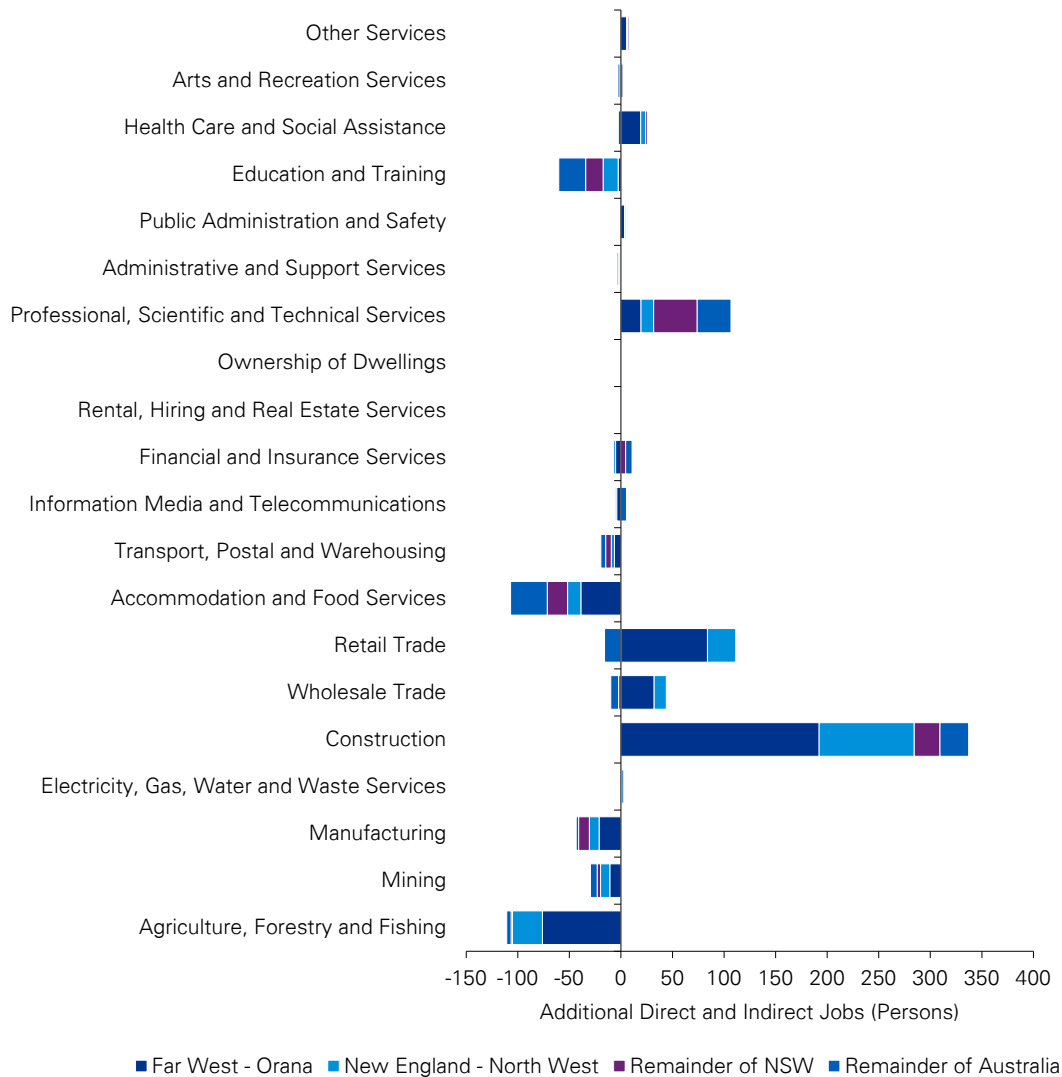


Figure 13: Industry employment results: construction phase, tight labour markets



The Construction sector, which benefits directly from the construction of the proposal, is anticipated to expand employment most. The results also indicate the expansion of employment in the Professional, Scientific and Technical Services and Wholesale Trade sectors. This reflects the importance of these two sectors in the Construction industry’s supply chain. The increase in demand for resources to complete the construction of the proposal tends to increase resource costs. This has negative impacts on traditional cost-sensitive trade-exposed sectors, such as Agriculture, Forestry and Fishing, Mining, and Manufacturing, and on non-traditional trade-exposed sectors, such as Accommodation and Food Services and Education and Training. As a result, these sectors contract and release resources to the construction-related sectors.

Under slack labour market conditions, the increase in the demand for workers can be partially accommodated by drawing from the ranks of the unemployed (or under-employed) and, accordingly, the displacement of workers from existing jobs is less pronounced. With slack labour markets, the benefits from increased labour demand are primarily in the form of additional jobs. Under tight labour markets, as businesses compete for workers who are already employed, the benefits from increased labour demand are primarily in the form of higher real wages resulting in the displacement of workers.

4.6 Cumulative impacts

4.6.1 Interacting projects

In considering the cumulative impacts of the proposal, it is necessary to identify the range of existing, planned and potential projects, within or adjacent to the study area, that may contribute to local and regional economic impacts. Cumulative impacts may result from the spatial and / or temporal interaction between these projects.

Specifically, the EA considers the potential impacts of Inland Rail's adjacent Narrabri to North Star (N2NS) and Parkes to Narromine (P2N), and other significant projects which may have material cumulative impacts on the proposal (refer Figure 14).

The details provided below reflect known information as at the time of drafting this report (Table 20). Due to the availability and completeness of relevant economic data, the potential cumulative impacts resulting from interacting projects are assessed qualitatively in this EIS.

The Commonwealth Government has identified Inland Rail as an economic stimulus project in response to the COVID-19 economic shock.⁷³ The identification of priority projects seeks to bring forward employment through increased spending on infrastructure and major projects. As such, the delivery timeframes for some of the Inland Rail program or other major projects may be bought forward.

Table 21: Cumulative projects and nature of potential impacts

Project and status	Nature of potential cumulative impacts
APA - Western Slopes Pipeline (Currently at 'Prepare EIS' stage)	<ul style="list-style-type: none"> The Scoping Report indicates construction would take approximately 8 to 10 months, with the start date for construction in mid-2022. Potential labour drawn from the regional economic catchment.
Inland Rail - Narrabri to North Star (Currently at 'More Information Require')	<ul style="list-style-type: none"> Planned to commence in October 2020, and construction completion is scheduled for September 2024. Potential labour drawn from the regional economic catchment (peak. 300 FTE during construction period). Potential draw on construction materials from the regional economic catchment.
Inland Rail - Parkes to Narromine (Construction underway)	<ul style="list-style-type: none"> Construction is underway and scheduled for completion 30 June 2020. It is likely that this project will be completed prior to the start of construction for the proposal.
Narrabri Gas Project (Santos) (Assessment State with Response to Submission (RtS) and a Supplementary RtS prepared)	<ul style="list-style-type: none"> Planning approval likely during Q2 2020, with drilling to commence mid-2020 through to 2021 inclusive. Potential labour drawn from the regional economic catchment during 2021.
Silverleaf Solar Farm (RtS stage)	<ul style="list-style-type: none"> Construction is expected to take 12 months and is planned to commence in early to mid-2020.

⁷³ ABC News, 2020, *Scott Morrison outlines details of Government's JobMaker plan, including fast-tracking infrastructure projects*. Accessed from <https://www.abc.net.au/news/2020-06-14/scott-morrison-jobmaker-fast-track-major-projects-coronavirus/12354094> on the 15 June 2020.

Project and status	Nature of potential cumulative impacts
	<ul style="list-style-type: none"> Potential labour drawn from the regional economic catchment during 2021.
Narromine Solar Farm (Approved)	<ul style="list-style-type: none"> Construction is expected commence mid-2020 to take approximately three months. It is unknown when this will commence. It is likely that this project will be completed prior to the start of construction for the proposal.
Gilgandra Solar Farm (Approved)	<ul style="list-style-type: none"> Construction to commence early to mid-2020, expected to take nine months to complete. It is likely that this project will be completed prior to the start of construction for the proposal.

4.6.2 Cumulative labour market impacts

The concurrent construction of interacting projects has the potential to increase the demand for labour in the local and regional economy, particularly for workers with trade and construction skills / knowledge. The demand for construction workers within a similar timeframe will lead to cumulative demands on construction labour, not only within the local and regional economy, but also across NSW, and potentially nationally.

The subsequent labour market impact of this cumulative demand to the local and regional economy will be dependent on the workforce profile and construction schedule of the interacting projects and the state of the labour market at any point in time.

The results of the regional economic assessment indicate that it is reasonable to assume that the regional labour market will have the capacity to supply a portion of the workforce requirements of the proposal. However, the possibility of some tightness in the labour market cannot be completely dismissed.

As detailed in Section 4.5.3, if the government's health and economic policy responses to COVID-19 are highly effective, the economy may grow much faster than is expected resulting in significantly more activity in the construction sector than anticipated. For example, the government may seek to bring forward projects to stimulate the economy. This increased construction activity may put some pressure on labour markets.

Prior to the COVID-19 shock, the known major infrastructure projects in the adjacent and surrounding areas, including those associated with Inland Rail, had the potential to put some pressure on labour markets if inopportune scheduling resulted in cumulative and competing demand for trades and construction labour. KPMG's assessment is that the overall labour demands of the various infrastructure projects expected to be constructed are modest and that scheduling could be optimised to minimise market impact. The prevailing trends in the Far West and Orana and New England and North West labour market and the ability of workers to mobilise to project locations suggested that the risks of labour market disruption were limited.

The COVID-19 shock has impacted these existing labour markets, by opening up labour markets which has increased the labour market for the proposal. The potential labour market risk has now been further reduced as a result of COVID-19 economic shock.

It is noted that there may also be benefits from having additional infrastructure projects in the adjacent and surrounding areas around the same time as the proposal. These benefits come in the form of lowered mobilisation costs and transfer of labour experience and skills to projects, particularly those constructed in the period leading up to and the period following the proposal's construction phase.

Due to the dynamic nature of local and regional labour markets, ARTC has identified that an analysis of the likely availability of construction labour from the region will be undertaken prior to construction, to enable the refinement of local and regional recruitment and training strategies to maximise employment opportunities within local economies.

4.6.3 Cumulative impacts on local businesses

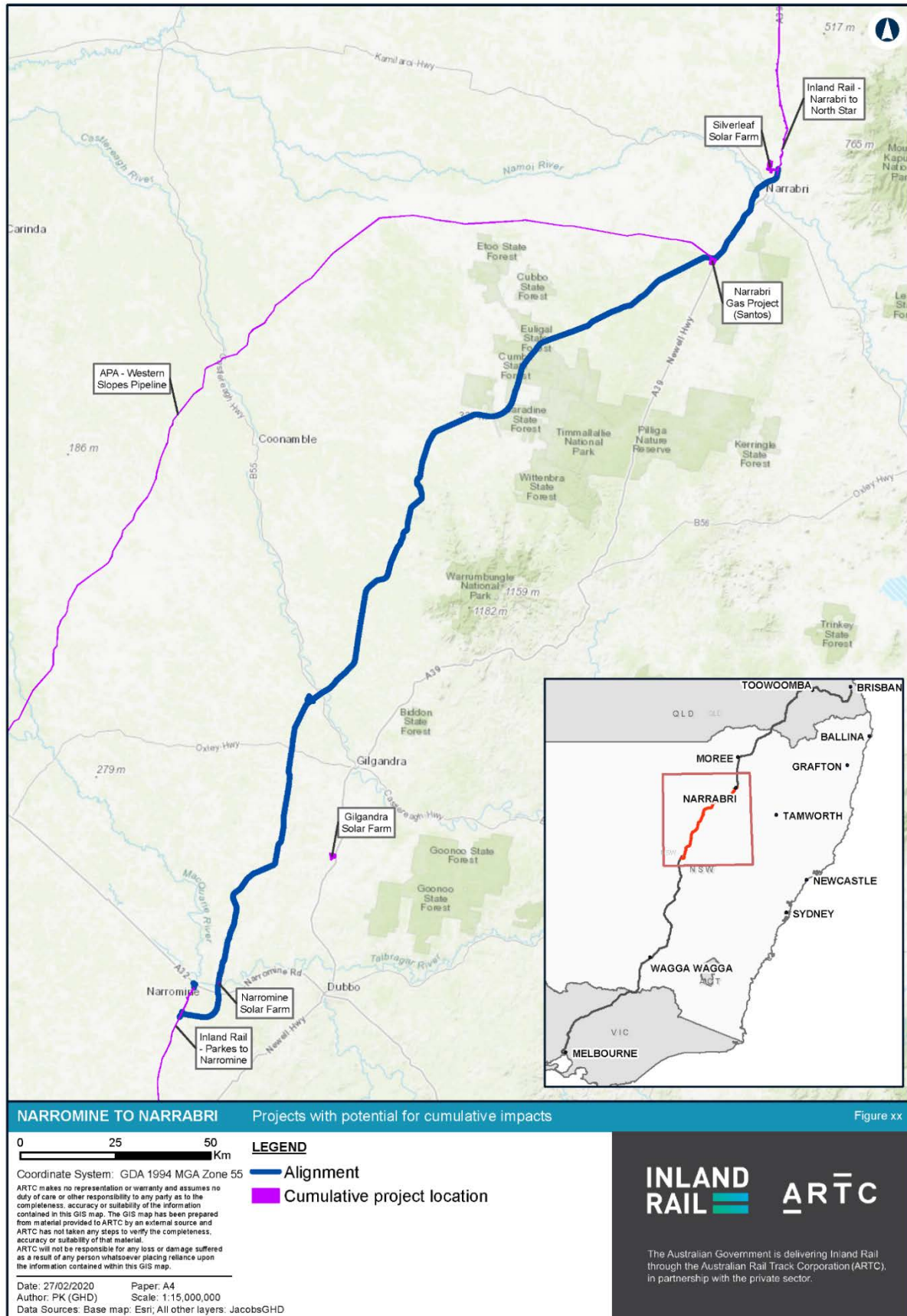
The expansion in construction activity and regional employment (with a subsequent increase in the temporary and non-resident population) has the potential to increase demand for a range of local infrastructure and services, including housing, health care, child care, and education. Further, spending on consumer orientated products by the construction workforce has the potential to benefit local businesses by increasing their trading levels. Importantly, some businesses may need to scale up their current capacity to support cumulative demand, while also understanding the temporary nature of the construction period for the relevant projects and adjust capacity accordingly.

4.6.4 Cumulative supply chain impacts

Cumulative supply chain impacts are likely to be realised where construction timeframes occur concurrently and comparable material is required. Opportunities to supply these projects may include supply of fuels, equipment, steel, borrow and quarried material. Where materials are sourced within the surrounding regions, increased local expenditure is likely to increase local and regional economic activity.

However, should the demand for material surpass supply, resulting in a shortage of available material, input costs to the proposal may increase (due to increased prices of materials) driving up the total construction cost, negatively impacting on the economic return of the proposal.

Figure 14: Projects with potential for cumulative impacts



Source: JacobsGHD

5 Impact management

The proposal will result in a number of economic impacts, with potential economic benefits realised at a local and regional level. In order to maximise the positive outcomes of the proposal, a number of strategies to avoid, reduce or mitigate the negative economic impacts, and enhance and facilitate the capture of positive impacts have been identified (Table 21). These measures are consistent with the Social Assessment⁷⁴ and Agriculture and Land Use Assessment⁷⁵.

Table 22: Proposed mitigation, management and enhancement measures

Impact	Management / Mitigation / Enhancement
Workforce impacts	
Local, youth and Indigenous employment	<p>A project-specific industry participation plan would be developed and implemented to manage the potential employment and regional economic benefits of the proposal. The plan would address the requirements of the <i>Australian Jobs Act 2013</i>, the Australian Industry Participation National Framework, and the <i>Inland Rail Program Indigenous Participation Plan</i> (ARTC, 2019). It would identify an achievable list of goods and services that could be subcontracted, as well as targets for local and Indigenous business participation.</p> <p>A project-specific workforce management plan would be developed and implemented to manage:</p> <ul style="list-style-type: none"> • local and Indigenous employment opportunities • potential impacts of the non-resident construction workforce on host communities including community services • workforce wellbeing and integration with host communities. <p>The plan would include, but not be limited to:</p> <ul style="list-style-type: none"> • recruitment, education and training measures to identify the skills and qualifications required • how the contractor would work with regional stakeholders to upskill local residents.
Workforce management	<p>The workforce management plan would include measures to manage potential impacts of the non-resident construction workforce on local and regional communities.</p> <p>The plan would include, but not be limited to:</p> <ul style="list-style-type: none"> • a code of conduct for workers, including a zero tolerance policy relating to anti-social behaviour • strategies to promote wellbeing of the workforce

⁷⁴ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Social Assessment*

⁷⁵ JGHD, 2020, *ARTC Inland Rail Narromine to Narrabri Agriculture and Land Use Assessment*

Impact	Management / Mitigation / Enhancement
	<ul style="list-style-type: none"> a monitoring mechanism for use of local tourist accommodation and rental housing by workers consultation with local health and emergency services to establish processes for managing potential increased demand due to non-resident workforce.
Agriculture industry	
Loss or severance of agricultural land	<p>Detailed design and construction planning would continue to be refined to minimise temporary land requirements, and potential impacts on existing land uses and properties, as far as reasonably practicable.</p> <p>Consultation with landholders would be ongoing to identify opportunities to minimise impacts on operations where practicable.</p> <p>Property owners and occupants would be consulted in accordance with the communication management plan for the project, to ensure that owners/occupants are informed about:</p> <ul style="list-style-type: none"> the timing and scope of activities in their area any potential property impacts/changes, particularly in relation to potential impacts on access, services, or farm operational arrangements activities that have the potential to impact on livestock. <p>Feasible and reasonable property-specific measures would be identified in consultation with landholders, and implemented during construction, where construction is located on or immediately adjacent to private properties and has the potential to affect farm operational arrangements.</p>
Disruption to access and infrastructure	<p>Where any legal access to a property is permanently affected and a property has no other legal means of access, alternative access to and from a public road would be provided to an equivalent standard, where feasible and reasonable.</p> <p>Where an alternative access is not feasible or reasonable, and a property or part of a property is left with no access to a public road, consideration would be given to acquisition of the property or part of the property in accordance with the provisions of the <i>Land Acquisition (Just Terms Compensation) Act 1991</i>. In accordance with the Land Acquisition Act, ARTC's preference is for acquisition by agreement where practicable.</p> <p>Where the proposal affects property access arrangements, input would be sought from relevant landholders as part of the property acquisition process.</p> <p>Where changes to access arrangements are required for individual properties, ARTC would advise relevant property owners/occupants and consult with them in advance regarding alternative access arrangements.</p> <p>Maintenance agreements would be established for fencing along the rail corridor located within private properties. The agreements would include protocols for reporting damage and arranging repairs of shared boundary fencing.</p>

Impact	Management / Mitigation / Enhancement
	<p>The location of all utilities, services and other infrastructure, and requirements for access to, diversion, protection and/or support, would be confirmed prior to construction. This would include (as required), undertaking utilities investigations, including intrusive investigations, and consultation and agreement with service providers.</p> <p>Access to individual residences, services and businesses, and for livestock across the rail corridor, would be maintained during construction. The construction traffic and transport plan included in the CEMP would include measures to ensure that access to properties would be maintained at all times during construction.</p> <p>Where alternative access arrangements need to be made, these would be developed in consultation with affected property owners/occupants, and Local Land Services for travelling stock reserves.</p> <p>Farm water pipelines, dams and drainage channels would be replaced or reinstated to ensure continuity of stock and domestic water supplies prior to removal of existing impacted infrastructure.</p>
Disruption to stock movement	<p>The need for additional stock management infrastructure on either side of level crossings, such as forcing yards and holding pens, would be identified in consultation with the relevant landholders.</p> <p>Local Land Services would continue to be consulted during detailed design to confirm how impacts on travelling stock reserves would be avoided during construction and operation. Alternative access arrangements would be made as required, subject to maintaining rail safety.</p> <p>Opportunities to refine the design to avoid construction footprint impacts on travelling stock reserve R9489 "Narrabri West" would be investigated.</p>
Acquisition and property impacts	<p>During the property acquisition process, ARTC would seek to secure agreement with affected landholders, to guide property-level design requirements and the management of construction on or immediately adjacent to private properties.</p> <p>The agreements may include:</p> <ul style="list-style-type: none"> • measures to minimise property impacts, including on agricultural operations • specific requirements to ensure that operations, including the movement of livestock and farm machinery are able to be maintained as efficiently as possible • measures to manage severance impacts where practicable, including appropriate access solutions • required adjustments to affected structures. <p>Where land is acquired both on permanent and/or temporary basis, compensation would be assessed in accordance with the Land Acquisition (Just Terms Compensation) Act 1991. Compensation seeks to address the value of the land acquired and the financial impacts upon any remaining land, including the disturbance to business operations where applicable. Depending on the individual circumstances of each land/business owner</p>

Impact	Management / Mitigation / Enhancement
	and the proposed impacts upon the land and to operations, compensation may take the form of money or land/works – as agreed by the parties.
Local businesses	
Local and Indigenous businesses	<p>A project-specific industry participation plan would be developed and implemented to manage the potential employment and regional economic benefits of the proposal. The plan would address the requirements of the <i>Australian Jobs Act 2013</i>, the Australian Industry Participation National Framework, and the <i>Inland Rail Program Indigenous Participation Plan</i> (ARTC, 2019). It would identify an achievable list of goods and services that could be subcontracted, as well as targets for local and Indigenous business participation.</p> <p>A project-specific workforce management plan would be developed and implemented to manage:</p> <ul style="list-style-type: none"> • local and Indigenous employment opportunities • potential impacts of the non-resident construction workforce on host communities including community services • workforce wellbeing and integration with host communities. <p>The plan would include, but not be limited to:</p> <ul style="list-style-type: none"> • recruitment, education and training measures to identify the skills and qualifications required • how the contractor would work with regional stakeholders to upskill local residents.
Local employment and training opportunities	ARTC, through its contractor's terms and conditions, would require the primary contractor to maximise social performance outcomes in accordance with the Australian Jobs Act 2013 and the Australian Industry Participation National Framework (Australian Government, 2001), and Sustainable Procurement Policy (ARTC, 2018a). This would include strategies such as negotiating targets for local business participation, and prioritising local procurement through the supplier registration portal.
Economic benefits and impacts on regional industries and businesses	ARTC would continue to support local employment in accordance with the Australian Jobs Act 2013 and Australian Industry Participation National Framework, and through the Inland Rail Academy to connect businesses with Inland Rail opportunities and key regional industries.

Source: EIS Appendix U - Social Impact Assessment

6 Conclusions

A detailed EA has been undertaken for the N2N section of the Inland Rail program, in accordance with the requirements under Section 5 of the SEARs (Socio-economic, Land Use and Property).

Inland Rail program impacts

As per the requirements of the SEARs, this EA has focussed on the specific economic impacts resulting from the construction and operation of the proposal. Importantly, the assessment acknowledges the role of the proposal, and the remaining Inland Rail program sections, in collectively delivering the benefits of the Inland Rail program. In its entirety, Inland Rail will enhance Australia's existing national rail network and serve the interstate freight market. As per the Inland Rail program Business Case (2015), key economic impacts of the Inland Rail program include:

- Lower prices for consumers as a result of lower intercapital freight transport costs, which reduces the cost of living for households.
- Positive direct net economic benefits, driven by improvements in freight productivity, reliability and availability, and benefits to the community from reduced environmental externalities, reduced road congestion and improved safety benefits. The program is stated to be economically viable with a benefit cost ratio of 1.02 at a 7 percent discount rate (2.62 at a 4 percent discount rate).
- Economic growth as increased profits (for industries and producers where intercapital freight is an input or output) and incomes are multiplied through the economy. The program is anticipated to deliver a net positive impact of \$16 billion on Gross Domestic Product (\$2015) over its 10 year construction period and 50 years of operation.
- Nationally, the program is also expected to deliver an additional 16,000 jobs at the peak of construction, and an average of 700 additional jobs per annum during operation.
- Potential to promote the expansion and development of freight precincts around Inland Rail terminals as a result of the benefits from co-location and clustering of industries (as a result of reduced transport costs to warehousing, economies of scale and knowledge-sharing opportunities).

Local and regional employment, business and industry impacts

At a local level, the proposal will support regional economic development through opportunities for local and regional employment, businesses and industries. Specifically, the proposal offers:

- Opportunities to promote Indigenous, local, and youth employment through jobs offered by the construction of the proposal. This includes leveraging initiatives that facilitate the upskilling of the local and Indigenous workforce to ensure they are 'work ready';
- Opportunities to engage Indigenous, local, and regional businesses in proposal construction through the supply of resources and materials. This includes leveraging programs that increase the readiness and capacity of local businesses (particularly Indigenous businesses) to meet the proposal's procurement requirements;
- Opportunities for businesses in secondary service and supply industries (such as retail, hospitality and other support services) in close proximity to the construction footprint and proposed accommodation camps. The expansion in construction activity is also likely to support additional temporary flow-on demand and additional spending by the construction workforce in the local community;

- The potential to act as a catalyst for further private sector investment in the study area, particularly for freight and logistics operations (by providing efficient transport access to intrastate and interstate markets); and
- Increased competition between road and rail freight modes which will encourage a mode shift to rail freight. This mode shift will improve freight efficiency, reduce freight costs and increase productivity, ultimately benefiting producers (particularly in export industries), consumers and the regional community. This mode shift is likely to reduce the number of heavy vehicles travelling on the road network, with the potential to impact on levels of trade for local transportation businesses. These impacts may be partially offset by the aforementioned opportunities to increase investment and activity in freight and logistics operations adjacent to Inland Rail.

The proposal alignment has been designed to minimise impacts to local business and industry as far as practicable, however the proposal may result in the disruption of the agriculture and tourism industries through:

- The loss of agricultural land (through disturbance, acquisition, or sterilisation), disruption to farm management, or changes in accessibility or connectivity to market. According to an assessment undertaken by JacobsGHD, it is estimated that the loss of agricultural land from the proposal could result in a loss of approximately \$1.39 million in agricultural production per annum (once the proposal is operational).⁷⁶ ARTC will work with individual land owners to develop suitable management solutions based on individual farm management practices to mitigate and manage these impacts; and
- A potential change to local amenity and tourism service capacity within the study area. During construction, there is potential for construction works, the visual impact of laydown areas, and the accommodation of non-residential workers to affect tourists' experience and travel times. During operation, there is potential for reduced scenic amenity due to the proposal location within the rural and regional landscape. It is likely that some visitors will see the proposal as diminishing rural character while others will find interest in the proposal structure. Accordingly, the proposal is not expected to have a significant impact on the tourism industry.

Economic benefits assessment

The economic benefits assessment estimates that the proposal is expected to provide a total of \$258.90 million (\$2019 present value terms) in incremental benefits (at a 7 percent discount rate).

These benefits result from improvements in freight productivity, reliability and availability, and benefits to the community from crash reductions, reduced environmental externalities and road decongestion benefits. Observing the composition of benefits, the largest share of benefits for the proposal is improved availability of freight, representing ~62 percent of the total benefits (at a 7 percent discount rate).

Regional economic assessment

The prevailing trends in the Far West and Orana and New England and North West labour market, and the ability of workers to mobilise to project locations, suggested that the risks of labour market disruption are likely to be limited. At the end of the construction phase, real GRP for the Far West and Orana and New England and North West regions is projected to be \$564 million and \$206 million, respectively, higher than the baseline level under the assumption of slack labour markets.

Under this labour market scenario, the proposal is also expected to deliver an additional 1,103 direct and indirect jobs generated in Far West and Orana, and 432 in New England and North West per year over the construction period.

⁷⁶ The loss of annual value on agricultural production is inclusive of the direct loss of agricultural land, indirect impact via impeded access, interrupted land and farm management, and labour and other costs. The impacts are calculated by multiplying the area of agricultural land impacted by the weighted averaged adopted gross income of \$739.24 (refer Agriculture and Land Use Assessment).

Impact management

ARTC are committed to enhancing the economic benefits of the proposal while avoiding, mitigating or managing any adverse economic impacts. Accordingly, there are a range of actions that ARTC will undertake and / or require its contractor to undertake to manage the social and socio-economic impacts of the proposal, and to enhance proposal benefits and opportunities. At the highest level, these actions include ensuring that the proposal adheres to the guidance of the NSW Government Inland Rail Infrastructure Skills Legacy Program, Inland Rail's Sustainable Procurement Policy and Inland Rail program Australian Industry Participation Plan, the *Land Acquisition (Just Terms Compensation) Act 1991* and that potential impacts would be managed through the appropriate measures identified in consultation with individual landholders and defined in the individual property agreements.

TECHNICAL REPORT

14

Economic assessment

Appendix A Regional economic assessment – assumptions

NARROMINE TO NARRABRI ENVIRONMENTAL IMPACT STATEMENT



Appendix A: Regional economic assessment - assumptions

The choice of exogenous variables determines the economic environment in which the construction of the proposal will be assessed. The construction phase CAPEX required to construct the proposal can be thought of as a temporary shock to the economy. That is, it is a one-off increase in investment expenditure.

The economic impacts of the construction phase of the proposal are directly related to the stimulus that is provided to the economy through the boost to expenditure required to construct the proposal. Analysis of the construction phase of the proposal is best done in the context of a short run economic environment to recognise the temporary nature of the stimulus that this phase of the proposal provides.

The choice of exogenous variables for the construction phase simulation is designed to configure KPMG-SD so that it represents the behaviour of the economy in the shorter term. The key settings include:

- i. tax rates and government policy settings are held fixed at their baseline values with budget balances free to vary;
- ii. sector-specific capital stocks are held fixed at their baseline values;
- iii. a value for investment in the *Far West and Orana* and *New England and North West* Rail Transport sector is imposed to reflect the proposal CAPEX assumptions whilst investment in the remaining sectors responds to sector-specific rates of return;
- iv. the labour market is assumed to have sufficient slackness in the short term that increases in demand do not impact real wages;
- v. the number of working-age people in the nation is held fixed at the number in the baseline;
- vi. the average propensity to consume out of household disposable income is held fixed at its baseline value; and
- vii. consumer preferences and technical change parameters are held fixed at their baseline values.

The default setting for the labour market listed under (iv) warrants further explanation. In comparative-static mode, the labour market in KPMG-SD can be configured in one of two conventional ways. The first approach, consistent with (iv) above, is to assume that real wages are fixed at their baseline values and that labour demand is accommodated by supply responses that do not induce changes in real wages. This assumption is reasonable in environments where there is slack in labour markets (where unemployed, under-employed workers, and working-age people currently not in the labour force can be drafted into jobs). The second approach is to assume that labour markets are extremely tight and that increases in labour demand are accommodated by increases in real wages as businesses compete for workers who are already employed.

In this report, the sensitivity of the labour market assumption is calculated by simulating the construction phase of the proposal under the two approaches described above (i.e. slack or tight labour markets).

Model inputs

The numerical inputs (or shocks) that are imposed on KPMG-SD are designed to capture the direct impacts of the construction phase of the proposal on the economy. KPMG-SD then estimates the flow-on effects of these shocks on the economy.

The table below reports the projected CAPEX for the proposal. Over the construction phase⁷⁷, total CAPEX is projected to be \$1,276 million (\$2019), with the majority of this expenditure occurring in the two years 2022 and 2023.

Modelling inputs - Construction Phase

Year	\$2015 ^a	\$2019 ^b
2021	\$111,841,156	\$119,622,312
2022	\$416,986,843	\$445,997,987
2023	\$438,579,464	\$469,092,878
2024	\$187,876,940	\$200,948,156
2025	\$37,591,532	\$40,206,899
Total	\$1,192,875,936	\$1,275,868,232

Notes:

a) Derived from capital cost plan and construction programming provided to KPMG by ARTC.

b) Conversion to 2019 dollars based on the Producer Price Index growth from Dec 2015 to Mar 2019. The Producer Price Indices used covers output of the Heavy and Civil Engineering Construction industry specifically.

The proposal segment of the Inland Rail program traverses two regional economies: Far West and Orana and New England and North West. In the absence of details regarding how the CAPEX will be allocated between the two regions, we have assumed an allocation that is proportional to the length of track in the two regions. On this basis, 71 percent of the projected CAPEX is assumed to occur in Far West and Orana and 29 percent in New England and North West.

⁷⁷ The assessment assumes a capital expenditure profile consistent with the Inland Rail Program Business Case, using parameters and inputs based on the state of the economy projected for those years. Pre-construction costs prior to 2021 are not included because they are spent outside of the indicative construction period. Total spending in the construction phase (including pre-construction costs) is \$1,246,699,551 (\$2015) and \$1,333,436,532 (\$2019).

TECHNICAL REPORT

14

Economic assessment

Appendix B Treatment of coal demand for the Inland Rail EIS

NARROMINE TO NARRABRI ENVIRONMENTAL IMPACT STATEMENT



Appendix B: Treatment of coal demand for the Inland Rail EIS'

This note has been developed to document KPMG's assumption relating to the treatment of coal demand within the benefits assessment developed for the Inland Rail EIS.

For the purposes of the economic benefit assessments contained within the Inland Rail EIS, freight movements from coal demand have been excluded. This approach is consistent with the CBA completed for the Inland Rail program Business Case (2015), with specific reference to the CBA results for the scenarios **"No Western Line Upgrade"** (see table below, extracted from the Inland Rail Business Case Chapter 9. Economic Analysis), where coal benefits are equal to zero (0).

Cost benefit analysis results for Inland Rail by beneficiary (incremental to the base case, discounted 2014-15 dollars)

BENEFICIARY (PV \$ MILLIONS)	INCLUDING WESTERN LINE UPGRADE*		NO WESTERN LINE UPGRADE	
	PV AT 4% DISCOUNT RATE (\$M)	PV AT 7% DISCOUNT RATE (\$M)	PV AT 4% DISCOUNT RATE (\$M)	PV AT 7% DISCOUNT RATE (\$M)
COSTS				
Capital costs	7650	6590	7607	6553.8
Operating costs	133	66	133	65.6
Maintenance costs	793	380	775	371.4
Total costs	8575	7036	8515	6991
BENEFITS				
1) Intercapital/intermodal freight	15 361	4666	15 862	4716
Melbourne to Brisbane	12 222	3697	12 621	3737
Brisbane to Adelaide	1278	389	1320	393
Brisbane to Perth	1860	579	1921	585
2) Regional freight	3524	1271	1995	693
Coal	1592	585	0	0
Agricultural products	1850	658	1910	665
Others (including steel, minerals, general freight, and other extra-corridor)	82	28	84	28
3) Community	2821	879	3126	962
4) Passengers	50	16	52	16
5) Rail network owners (ARTC & QR)	747	321	772	324
Total benefits	22 503	7152	21 806	6711
Net present value of costs and benefits	13 928	116	13 291	(280)
Benefit cost ratio	2.62	1.02	2.56	0.96

Source: Inland Rail program Business Case 2015

On this basis, it is the understanding of KPMG that, in the absence of the Western Line upgrade to the existing Queensland Rail network⁷⁸, no benefits are expected to accrue to coal movements as a result of the delivery of Inland Rail. These results imply that, under this scenario, there is no net benefit to coal trips traversing any of the new sections to be delivered as part of the Inland Rail program. For example, as a stand-alone project, the Calvert to Kagaru project section is not expected to generate net benefits to coal freight.

Further, the above table highlights that the identified benefits accruing to coal trips are a direct result of the Inland Rail program with complementary investment in Western Line Upgrades, which do not form part of the scope of the Inland Rail program as it stands currently, and are not funded.

On this basis, KPMG has ensured consistency with the assumptions contained within the ARTC Inland Rail Business Case (2015) which indicates there are no net benefits to coal freight movements under the “No Western Line Upgrade” scenario.

Any further consideration of potential benefits that may be expected to accrue to coal movements as a result of the proposal would require additional validation of the demand assessment undertaken as part of the business case.

⁷⁸ Referred to as “complementary investment on the QR network (Western Line and Brisbane metropolitan network) to enable coal train lengths to increase from 650 metres to 1010 metres”.