

**TECHNICAL
PAPER**

09

**Economic impact
assessment**

NARRABRI TO NORTH STAR—PHASE 2 ENVIRONMENTAL IMPACT STATEMENT





Inland Rail

Narrabri to North Star Phase 2
Moree to Camurra North

Environmental Impact Statement

Economic Impact Assessment

Technical Report

January 2022

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1 Summary

Introduction

The following economic impact assessment (EIA) report has been prepared to identify potential economic impacts of the proposed Narrabri to North Star Phase 2 Moree to Camurra North (the proposal or N2NS Phase 2), a project in the Inland Rail Programme (Inland Rail). 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 EIA forms part of an Environment Impact Statement (EIS) being prepared by ARTC to seek approval from the NSW Minister for Planning under Part 5.2 of the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act). The Commonwealth Minister for the Environment and Energy determined that the proposal is a 'controlled action' under the EPBC Act on 17 March 2017.

ARTC lodged its N2NS Phase 2 State Significant Application with the NSW Government on 31 May 2020, and the Secretary's Environmental Assessment Requirements (SEARs) were issued on 14 October 2020. The following assessment addresses the economic specific requirements of Key Issue SEARs Section 7.

The following methodology was endorsed by the NSW Department of Planning and Environment on 29 October 2018.

Specifically, this assessment:

- Establishes the **existing economic environment and local context**, for the defined economic catchment, to understand the local economic context and form the basis to measure the economic impacts;
- Identifies potential **economic benefits and impacts** on affected local and regional communities and businesses. This will be drawn from local community consultation and industry engagement undertaken by ARTC, evaluation of publicly available information, and the outputs from the Social Impact Assessment, economic benefits assessment and regional impact analysis;
- Establishes the projected economic benefits of the proposal, including the basis for their estimation through a detailed economic benefits assessment. The outcomes of the proposed N2NS Phase 2 link-specific analysis will be contextualised against the results of the **cost benefit analysis** (CBA) undertaken for the entire Inland Rail project, as per the Inland Rail Programme Business Case (2015);
- Estimates 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 projects, including adjacent Inland Rail project links; and
- Outlines ARTC's commitments to **enhance** economic benefits and to **avoid, mitigate or manage** adverse economic impacts.

Study area

The proposal is located entirely in the Moree Plains LGA which has been used to establish and analyse the existing economic environment of the N2NS Phase 2 link of Inland Rail. This LGA boundary forms 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 integrated regional economy within which the proposal is located. The proposal is located within the New England and North West Statistical Area which is defined as the regional economic catchment area for this EIA.

Baseline and impact assessment

Existing labour market conditions

According to the Australian Government's quarterly regional estimates of unemployment, there were a total of 437 unemployed persons in Moree Plains, and 6,291 in New England and North West in March 2019. The unemployment rate in Moree Plains (6 per cent) was higher than the NSW state average of 5.1 per cent.

As at March 2020, the regional economic catchment had an unemployment rate of 7.0 per cent¹ (New England and North West) higher than NSW (5.1 per cent)². The 12 month average unemployment rate was 4.9 per cent for the regional economic catchment and 4.6 per cent for NSW. The recent increase in the unemployment rate is likely to be a result of the economic impacts associated with the COVID-19 crisis.

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 4, this volatility is particularly noted in Far New England and North West where the unemployment rate can reach zero per cent during the region's harvest period (between October and November).

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 during harvest periods.

Employment by industry

The sectoral distribution of employment for Moree Plains LGA residents compared to the NSW state average is shown in Figure 2. The Agriculture, Forestry and Fishing industry employs a significant proportion of the local workforce (25.0 per cent) which reflects the study area's primary land uses of agricultural and grazing.

Within the Agriculture, Forestry and Fishing industry, the primary source of employment is in Sheep, Beef Cattle and Grain Farming (14.1 per cent).

Service based industries are also a significant employer. Following Agriculture, Forestry and Fishing; Health Care and Social Assistance (9.2 per cent), Education and Training (9.1 per cent) and Retail Trade (8.3 per cent) are the largest employing sectors within the study area. This is similar to NSW state trends, where Health Care and Social Assistance employs 12.5 per cent of the workforce, Retail Trade employs 9.7 per cent and Education and Training employs 8.4 per cent.

¹ Australian Government's Small Area Labour Markets publication, March 2020;

² ABS, Labour Force Survey RM1, Australia, published 24 September 2020

In 2016, there were a small number of residents within Moree Plains employed in sectors and occupations directly relevant to the construction of the proposal. The construction sector employed 6.3 per cent of the study area's population as at June 2016, with 54 workers employed in Heavy and Civil Engineering. In the broader New England and North West region, 3,140 workers were employed in Construction Services and 457 workers in Heavy and Civil Engineering Construction.

Occupation

Moree Plains' 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 (12.5 per cent) and Farm, Forestry and Garden Workers (5.4 per cent).

The study area has a larger proportion of workers employed as Managers (20.7 per cent) compared to the NSW state average (13.5 per cent). Professionals within the study area represent a significantly lower proportion of the workforce (13.9 per cent) compared to the NSW state average, where professionals represent the largest occupation within the workforce (23.6 per cent). Labourers (12.7 per cent) and Technicians and Trades Workers (11.7 per cent) represent approximately one-quarter of the local workforce within the study area (24.4 per cent), a marginally higher representation compared to the NSW state average of 21.5 per cent (Labourers (8.8 per cent) and Technicians and Trades Workers (12.7 per cent)).

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. The proposal is anticipated to require a workforce of up to 150 personnel during construction.

Further, 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).

Overall, based on current labour market trends, there may be some latent capacity within the regional economic catchment to support the construction and operation of the proposal.

Local businesses and industry

Agriculture industry

The construction and operation of the proposal has the potential to impact high value farming operations and general agricultural uses across the study area. The gross value of agricultural production in the study area includes cotton (\$282 million), fruit, nuts and vegetables (\$25 million), livestock (\$22million) and general agricultural uses across the study area.³ 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.

³ ABS, 7503.0 – Value of Agricultural Commodities Produced, Australia, 2018-19.

Loss of agricultural land

As detailed in the Land Use and Property Assessment⁴, the proposal will result in the temporary or longer term loss of agricultural land and infrastructure from agricultural production. If the temporary footprint is leased, it would generally be rehabilitated and returned to its former land use after construction has been completed. Agricultural production will only be lost in this area during construction and for a limited time afterwards. Any reduction in agricultural productivity would have a negligible effect on the overall value of agriculture within the region.

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.

Further details relating to the severance of holdings can be found in the Land Use and Property Assessment Assessment.⁵

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.

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. 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 Chapter 9 Land Use and Property.

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. The proposal is a critical section in the broader Inland Rail to create a more direct rail freight corridor, offering a more efficient solution for intrastate 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 Inland Rail, 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.

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).

⁴ Chapter 8 Landuse and Property, 2020, *ARTC Inland Rail Narramine to Narrabri EIS*

⁵ *ibid.*

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.

The Community Engagement Team has engaged extensively with Moree Plains Shire Council (MPSC) on a range of project matters. MPSC has not identified negative impacts on the tourism industry as a result of the proposal.

The Community Engagement Team has attended the Moree Agricultural Show regularly since 2015 and through that show has engaged with a wide range of visitors to the Moree Plains Shire. Through those conversations and visitor surveys, it has been identified that visitors to the Shire are generally interested in the proposal and supportive of the potential benefits to regional economies. Only a small number of visitors expressed a negative opinion on the proposal.

Mineral resources

There are no mining leases, mineral exploration leases or petroleum licenses within the study area.

Supply opportunities

There are a number of construction businesses located within Moree Plains. As at June 2020, there were a total of 80 employing businesses and a further 99 non-employing businesses.⁶ These businesses are likely to be a source of services and equipment during the proposal's construction.

It is likely that the proposal will offer opportunities for local businesses supplying goods and services to the non-resident workforce. The non-resident workforce would create some demand for local food and beverages, accommodation, retail trade, bus and coach drivers, finance, education and training, health care, and recreation services.

Quarry materials

The Moree Plains Shire Council advised ARTC during consultation that there were approved quarry developments in their LGA, with anticipation that the applicants could supply Inland Rail projects.

Inland Rail Program impacts

As per the requirements of the SEARs, this EIA 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 links, 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 per cent discount rate (2.62 at a 4 per cent discount rate).

⁶ ABS, 2021, *Counts of Australian Businesses, including Entries and Exits, June 2016 to June 2020*.

- 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 EIA, there are two components to the CBA:

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 project (in isolation of the whole Inland Rail Program). A project-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 (2020 dollars present value terms) of \$14.73 million in incremental benefits to the study area (at a 7 per cent discount rate). This consists of \$13.33 million in freight benefits and \$1.40 million in community benefits.

Observing the composition of benefits, the largest share of benefits for the proposal is improved availability of freight, representing ~56 per cent of the total benefits (at a 7 per cent discount rate). Freight benefits more broadly (including freight time travel savings, operating cost savings, as well as improved reliability and availability) represent ~90 per cent 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 ~4 per cent of the total benefits (at the 7 per cent discount rate).

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

Table ES - 1: Results of the economic benefits assessment (\$2020)

BENEFITS	Discount Rate		
	4%	7%	10%
Freight Benefits	\$27.85 M	\$13.33 M	\$7.44 M
Travel Time Savings	<i>\$0.73 M</i>	<i>\$0.39 M</i>	<i>\$0.24 M</i>
Operating Cost Savings	<i>\$4.18 M</i>	<i>\$2.31 M</i>	<i>\$1.46 M</i>

BENEFITS	Discount Rate		
	4%	7%	10%
Improved Availability	\$17.87 M	\$8.18 M	\$4.35 M
Improved Reliability	\$5.08 M	\$2.46 M	\$1.39 M
Community Benefits	\$2.51 M	\$1.40 M	\$0.89 M
Crash Reduction	\$0.34 M	\$0.19 M	\$0.12 M
Environmental Externalities	\$1.00 M	\$0.56 M	\$0.36 M
Road Decongestion Benefits	\$1.16 M	\$0.65 M	\$0.41 M
TOTAL BENEFITS	\$30.36 M	\$14.73 M	\$8.33 M

Source: KPMG

Cost Benefit Analysis: Inland Rail Program Business Case

Due to the nature of the incremental assessment approach adopted for this EIA, a project-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 entire Program is anticipated to deliver benefits above the sum of the individual benefits of each individual link.

The results of the economic analysis undertaken for the entire 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.

Table ES - 2: 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 economic impact assessment for the proposal has been undertaken by identifying and quantifying the impacts of the proposal on the regional, State and national economy using an equilibrium modelling framework. The regional economy is represented by the New England and North West region labour market region.

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.⁷

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

⁷ As compared to the direct jobs determined through the indicative construction schedule and component activities as described in the workforce profile.

Table ES - 3: Summary of the direct and indirect economic impacts of the proposal on the New England and North West region over the construction phase

Measure	New England and North West region	
	Slack Labour Markets	Tight Labour Markets
Additional real Gross Regional Product (\$2019-20)	\$24 M	\$10 M
Average annual additional direct and indirect employment (persons)	97	24

During the construction phase, real Gross Regional Product (GRP) for the New England and North West region is projected to be \$24 million 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 (\$10 million).

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 97 direct and indirect jobs are generated.⁸ Note that this is the average number of jobs per annum during the construction period. With tight labour markets, the increase in jobs is significantly less at 24 jobs. Under these assumptions, wages are bid up to attract currently employed workers to the 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.

Recent labour market trends can be used to inform workforce capacity and capability within the local region. It is likely that the labour market conditions that are expected during the construction phase of the proposal will be most consistent with the slack labour market scenario. During the construction phase, real GRP for the New England and North West region is projected to be \$24 million higher than the baseline level under the assumption of slack labour markets.

At the time of construction, among other factors, this will be determined by cumulative and competing demand for trades and construction labour resulting from concurrent construction periods for infrastructure projects occurring in the adjacent or surrounding areas. 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.

Cumulative economic impacts

Several concurrent and overlapping construction projects have the potential to contribute to cumulative economic impacts alongside those of the proposal. As selected by ARTC, these projects include Inland Rail's adjacent project Narramine to North Star, the Newel Highway Heavy Duty Pavement Upgrade and the Hunter Gas Pipeline.

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.

⁸ To put this in context, the planned workforce requirements (direct employment) of the proposal during the construction phase peak at approximately x personnel. Almost 80 per cent of the proposal CAPEX (see Appendix A for how CAPEX was derived) is expended in 2022 based on the cost profile provided by ARTC. We estimate that the number of jobs in this year for New England and North West is about 152 in slack labour market conditions and 37 in tight labour market conditions.

The results of the regional economic impact 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 without major disruption.

In the context of cumulative labour market demand, the possibility of some tightness in the labour market cannot be completely dismissed. The interacting projects in the adjacent and surrounding areas, including those associated with Inland Rail, have the potential to put some pressure on labour markets if inopportune scheduling results in cumulative and competing demand for trades and construction labour. If the economy grows much faster than expected, and there is significantly more activity in the construction sector than is anticipated, then labour market conditions may tend towards somewhere between the slack and tight scenarios.

As reported by the Australian Industry Group Construction Outlook (November 2018), the concurrent delivery of rail projects across Australia may lead to difficulties in sourcing appropriately skilled labour (such as workers in specific trades requiring specialist skills).

Further benefits may be generated by the concurrent and sequential construction of infrastructure projects within or adjacent to the impact assessment area. These benefits come in the form of lowered mobilisation costs and transfer of labour experience and skills to projects that continue to occur after the end of the proposal's construction phase.

Mitigation and management strategies

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 proposed by ARTC. These measures are detailed in the table below.

Table ES - 4: Summary of proposed management and mitigation measures

Impact	Management / Mitigation / Enhancement
Workforce impacts	
<p>Project Employment</p> <p>The Project has the potential to be a significant opportunity to support local employment, including Indigenous and youth employment opportunities.</p>	<ul style="list-style-type: none"> ● ARTC and the principal contractor will engage with local schools and training providers to build knowledge of training opportunities and employment pathways associated with the proposal ● The principal contractor will engage with Aboriginal Employment Strategy and the Local Aboriginal Land Council (LALC) to build awareness of Indigenous employment and business opportunities ● The principal contractor will prepare a proposal specific workforce management plan that sets out: <ul style="list-style-type: none"> ● Participation goals and targets, including Indigenous, women and youth participation, with consideration of the proportion of the Indigenous population and workforce participation rates ● Local skills gaps and potential workforce skills requirements with apprenticeship and training participation targets ● Workforce management protocols and strategies including induction framework, code of conduct, drugs and alcohol policy, and worker support pathways

Impact	Management / Mitigation / Enhancement
	<ul style="list-style-type: none"> • The principal contractor will liaise with the N2NS Phase 1 contractor to understand gaps, constraints and opportunities for improvement in the workforce recruitment process • The principal contractor will liaise with the N2NS Phase 1 contractor to identify potential opportunities to provide, where possible, the continuation of employment to maximise worker retention • The principal contractor will leverage local resources such as Moree Plain Shire Council (MPSC), Aboriginal Employment Strategy and local community support services to promote employment opportunities and pathways • ARTC and the principal contractor will monitor regional infrastructure projects to pre-emptively identify potential constraints in labour markets • ARTC and the principal contractor will develop a localised communication and engagement strategy to help all interested community members understand opportunities to gain employment and training through the Inland Rail Skills Academy. • The principal contractor will engage with the Moree LALC, MPSC and local Indigenous employment agencies to determine opportunities and strategies for maximising local training and employment opportunities for Indigenous residents • The principal contractor will engage with Moree Secondary College, Moree TAFE, and the Northern Skills Academy to promote current students' training and apprenticeship opportunities • ARTC will continue to facilitate the implementation of Inland Rail Skills Academy training programs for regional residents • ARTC will promote training opportunities to support rail operation and track maintenance
<p>Local Business and Industry Participation</p> <p>The Project will have significant construction materials and services requirements which may provide local businesses with the opportunity to supply the Project.</p>	<ul style="list-style-type: none"> • ARTC and the principal contractor will consult with MPSC, the Moree Chamber of Commerce and local agricultural bodies to identify any potential labour force constraints in the region • The principal contractor will liaise with the Moree Chamber of Commerce and the LALC to understand the capacity of local and Indigenous business to supply the proposal • The principal contractor will seek an information-sharing agreement with the N2NS Phase 1 contractor to investigate opportunities to provide continuity of service for suppliers • The principal contractor will prepare a local and Indigenous participation plan which identifies: <ul style="list-style-type: none"> • The capacity of local and Indigenous businesses suitable to supply the proposal methods for preparing suppliers to be ready for potential demand local and Indigenous procurement targets • ARTC and the principal contractor will promote the Inland Rail information hub and ICN portal to businesses in the region

Impact	Management / Mitigation / Enhancement
	<ul style="list-style-type: none"> • ARTC and the principal contractor will support training and business capacity building programs available as part of Inland Rail Skills Academy • The principal contractor will leverage the Moree Chamber of Commerce and MPSC to promote supply opportunities ahead of the construction phase • The principal contractor will develop property specific construction management plans to manage potential access and amenity impacts • ARTC will maintain a register of local businesses able to supply the project during the operational phase • The principal contractor will monitor the implementation of CMPs and maintain regular communication with affected landowners
Agriculture industry	
<p>Agriculture industry</p> <p>Impacts on agricultural properties including loss of productive land, impacts on property infrastructure, and interruptions to stock and product movements.</p>	<ul style="list-style-type: none"> • Where required, ARTC will develop individual property agreements in consultation with landowners/occupants, with respect to the management of construction on or immediately adjacent to private properties. These will detail any required adjustments to fencing, access, farm infrastructure, irrigation assets and relocation of any impacted structures, as required • ARTC will consult property owners and occupants in accordance with the Communication Plan, to ensure that owners/occupants are informed about the timing and scope of activities in their area; and any potential property impacts/changes, particularly in relation to potential impacts to access, services, or farm operational arrangements • ARTC will consult with adjoining landowners regarding temporary construction impacts on viability and productivity. This may include consideration of: <ul style="list-style-type: none"> ○ temporary farm infrastructure to maintain farm management practices ○ modification of construction activities and footprint ○ compensation in accordance with NSW legislation. • ARTC will ensure stock fencing will be provided in accordance with the Inland Rail fencing standards and be constructed prior to the removal of existing fencing or any works being carried out on the subject land, unless otherwise agreed with the landowner • ARTC will restrict access for stock, as well as non-construction related vehicles and people, to the construction area through fencing and other measures • ARTC will consult with adjoining landowners prior to and during construction regarding how biosecurity risks are to be managed • ARTC will ensure temporarily affected land for construction purposes will be restored to an agreed condition and returned to affected landowners as soon as practically possible

Conclusions

A detailed economic assessment has been undertaken for the Narrabri to North Star Phase 2 Moree to Camurra North of Inland Rail, in accordance with the requirements under Key Issue SEARs Section 7 of the SEARs (Economic, Land Use and Agriculture). The findings of this EIA suggest:

- The proposal will present opportunities to encourage, develop and grow local (including Indigenous) businesses through the supply of resources and materials for the construction and operation of the proposal. ARTC has developed a Sustainable Procurement Policy which will ensure that local, regional and Indigenous businesses will have opportunities to supply the proposal.
- The proposal will unlock opportunities in secondary service and supply industries (such as retail, hospitality and other support services) for businesses in close proximity to the construction footprint. 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 proposal alignment has been designed to minimise impacts to local business and industry, however the proposal may result in disruption to agricultural businesses through the loss of agricultural land (through disturbance, acquisition, or sterilisation), disruption to farm management, or changes in accessibility or connectivity to market.
- This may negatively impact on the productive capacity and total economic value add from the local agricultural industry, however the total scale of this impact is not anticipated to be material. ARTC will work with individual landowners to develop suitable management solutions based on individual farm management practices to mitigate and manage these impacts.
- The results of the economic benefits assessment estimate that the proposal is expected to provide a total (2020 dollars present value terms) of \$14.73 million in incremental benefits to the study area (at a 7 per cent discount rate).
- The proposal will promote regional economic growth across the New England and North West region. Using recent labour market trends and projected construction sector activity to inform workforce capacity and capability within the local region. It is likely that the labour market conditions that are expected during the construction phase of the proposal will be most consistent with the slack labour market scenario. During the construction phase, real Gross Regional Product (GRP) for the New England and North West region is projected to be \$24 million 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 (\$10 million).
- In the slack labour market scenario, it is estimated that an additional 97 direct and indirect jobs are generated.

2 Introduction

The following economic impact assessment (EIA) report has been prepared to identify potential economic impacts of the proposed Narrabri to North Star Phase 2 Moree to Camurra North (the proposal or N2NS Phase 2), a project in the Inland Rail Programme (Inland Rail). 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).

While the following EIA is focussed on the specific impacts resulting from the proposal, the assessment acknowledges the role of the proposal, and the remaining project links, in collectively delivering the benefits of Inland Rail. In its entirety, Inland Rail will enhance Australia's existing national rail network and serve the interstate freight market. The primary economic objective of Inland Rail is to promote economic growth by improving the efficiency of transport for Australia's exports, and increasing the productivity of domestic supply chains.

Since the completion of the economic modelling detailed in this report, there have been a series of changes to the proposal environment. This includes the economic shock associated with the COVID-19 crisis which, at the request of ARTC, are not reflected in the economic analysis or economic impact assessment contained within this report. However, the economic shock associated with the COVID-19 crisis is discussed qualitatively in relation to the economic modelling outputs.

2.1 Legislation

The EIA forms part of an Environment Impact Statement (EIS) being prepared by ARTC to seek approval from the NSW Minister for Planning under Part 5.2 of the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act). The Commonwealth Minister for the Environment and Energy determined that the proposal is a 'controlled action' under the EPBC Act on 17 March 2017.

The Secretary's Environmental Assessment Requirements (SEARs) for N2NS Phase 2 were issued on 14 October 2020. The following assessment addresses the economic specific requirements of Key Issue SEARs Section 7.

Table 1: SEARs requirements - Economic, Land Use and Agriculture

Desired Performance Outcome
<p>The project minimises adverse economic impacts and capitalises on opportunities potentially available to affected communities.</p> <p>The project minimises impacts to property and business including agricultural enterprises and accommodation 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)

- New England North West Regional Plan 2036 (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)
- NSW Infrastructure Skills Legacy Program
- NSW Aboriginal Participation in Construction Policy 2018

EIS Requirement outlined in Key Issue SEARs Section 7.	EIS Section
Economic impacts in accordance with the current guidelines.	Addressed throughout the following technical report
Economic impacts from construction and operation on potentially affected properties, businesses, recreational users and land and water users, including property acquisitions/adjustments, access, amenity and relevant statutory rights.	Addressed throughout the following technical report and in TP8 Social Impact Assessment Technical Report
Opportunities and processes to prioritise local industry participation practices to source construction goods and services, including training and employment targets within communities along or near the rail alignment.	Addressed throughout the following technical report and in TP8 Social Impact Assessment Technical Report
<p>Agricultural land use impacts in accordance with the current guidelines including:</p> <ul style="list-style-type: none"> • current and potential Biophysical Strategic Agricultural Land and Class 1, 2 and 3 Agricultural Land Classes that will be impacted at Camurra hairpin curve development site, including land capability and agricultural productivity; • division or fragmentation of property and changes to property management which could lead to the loss of viability; • property access and the efficient and safe crossing of the rail corridor by machinery and livestock; • impacts to changes in water regimes; • connectivity of property infrastructure severed by the rail corridor; and • livestock exclusion/management to minimise harm and losses. 	Addressed in the EIS Chapter 9 Landuse and Property
Biosecurity risks and management measures relating to the potential for spread of pests, diseases or weeds along the length of the project alignment, in accordance with the 'general biosecurity duty' under the Biosecurity Act 2015.	EIS Chapter 10 Biosecurity
Economic impact of temporary accommodation for construction workers on communities near the study area.	Addressed throughout the following technical report and in TP8 Social Impact Assessment Technical Report
The temporary and permanent interface with road reserves, Crown Land and Travelling Stock Routes and the use and management of these landholdings affected by the proposal.	Addressed in the EIS Chapter 9 Landuse and Property

2.2 Guidelines

As identified in the SEARs, the following EIA has been undertaken with reference to the guidance provided by the Roads and Maritime Services' (RMS) Environmental Planning and Impact Assessment Practice Note: Socio-economic Assessment (Roads and Maritime, 2013).

RMS' socio-economic practice note provides a framework for assessing socio-economic impacts and defines the process as: 'analysing, monitoring and managing the social and economic consequences of development. It involves identifying and evaluating changes to or impacts on, communities, business and industry that are likely to occur as a result of the proposed development, in order to mitigate or manage impacts and maximise benefits.'

2.3 Local and regional policy and planning

There are several 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 Federal Government

Australian Infrastructure Plan 2021

The Australian Infrastructure Plan 2021 (the Plan) was developed by Infrastructure Australia as a long-term plan for infrastructure reform and investment in Australia. The Plan is guided by key areas for reform which include:

1. Place-based outcomes for communities
2. Sustainability and resilience
3. Industry productivity and innovation
4. Transport
5. Energy
6. Water
7. Telecommunications and digital
8. Social infrastructure
9. Waste

Within the 'Transport' reform area, the Plan recognises that, to improve the liveability and economic sustainability of regional, rural and remote areas there is a need to develop, maintain and operate integrated freight and passenger transport networks that meet end-to-end access needs. The Plan outlines that governments must strengthen supply chains for smaller cities and regional centres to enable these locations to reach their potential. Specifically, the Plan outlines how local safety, environmental and economic benefits for regional, rural and remote communities could be delivered by identifying and prioritising freight intermodal projects that promote shifting from road to Inland Rail and other freight rail services for targeted commodities.

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 is identified as a central project to improve the efficiency, effectiveness and safety of freight movements travelling along this corridor and enabling further investment in regional areas.

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, Inland Rail 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 Inland Rail 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 per cent 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, Inland Rail is identified as investment in the rail freight network to rail capacity and improvement to east-west freight movements. The proposal forms a critical part of 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.

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 manner.

Inland Rail 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.

The proposal is a critical component of Inland Rail 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 Inland Rail as critical infrastructure for enabling access to new markets, and for expanding emerging industries through improved freight and logistics connectivity. Specifically, the proposal (within Inland Rail) 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.

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 local government area (LGA). Table 4 provides an overview of the REDS within the study area.

Upper North West Regional Economic Development Strategy

The Upper North West Regional Economic Development Strategy (REDS) was developed through collaboration between the Moree Plains Shire, Narrabri Shire, Gwydir Shire and Inverell Shire Councils, key stakeholders, the broad regional community and the NSW Government's Centre for Economic and Regional Development.

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:

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.

Inland Rail 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 promotes the effective use of Inland Rail as critical to improving productivity and promoting employment and economic growth.

2.4 Study area

The proposal is located entirely in the Moree Plains LGA which has been used to establish and analyse the existing economic environment of the N2NS Phase 2 link of Inland Rail. This LGA boundary forms 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 integrated regional economy within which the proposal is located. The proposal is located within the New England and North West Statistical Area which is defined as the regional economic catchment area for this EIA.

Area Definitions:

- **Study area:** Moree Plains Local Government Area
- **Regional economic catchment area:** New England and North West Statistical Area

This EIA acknowledges the potential impacts of the proposal on stakeholders within the study area and regional economic catchment, in addition to the surrounding areas, particularly at the proposal extents.

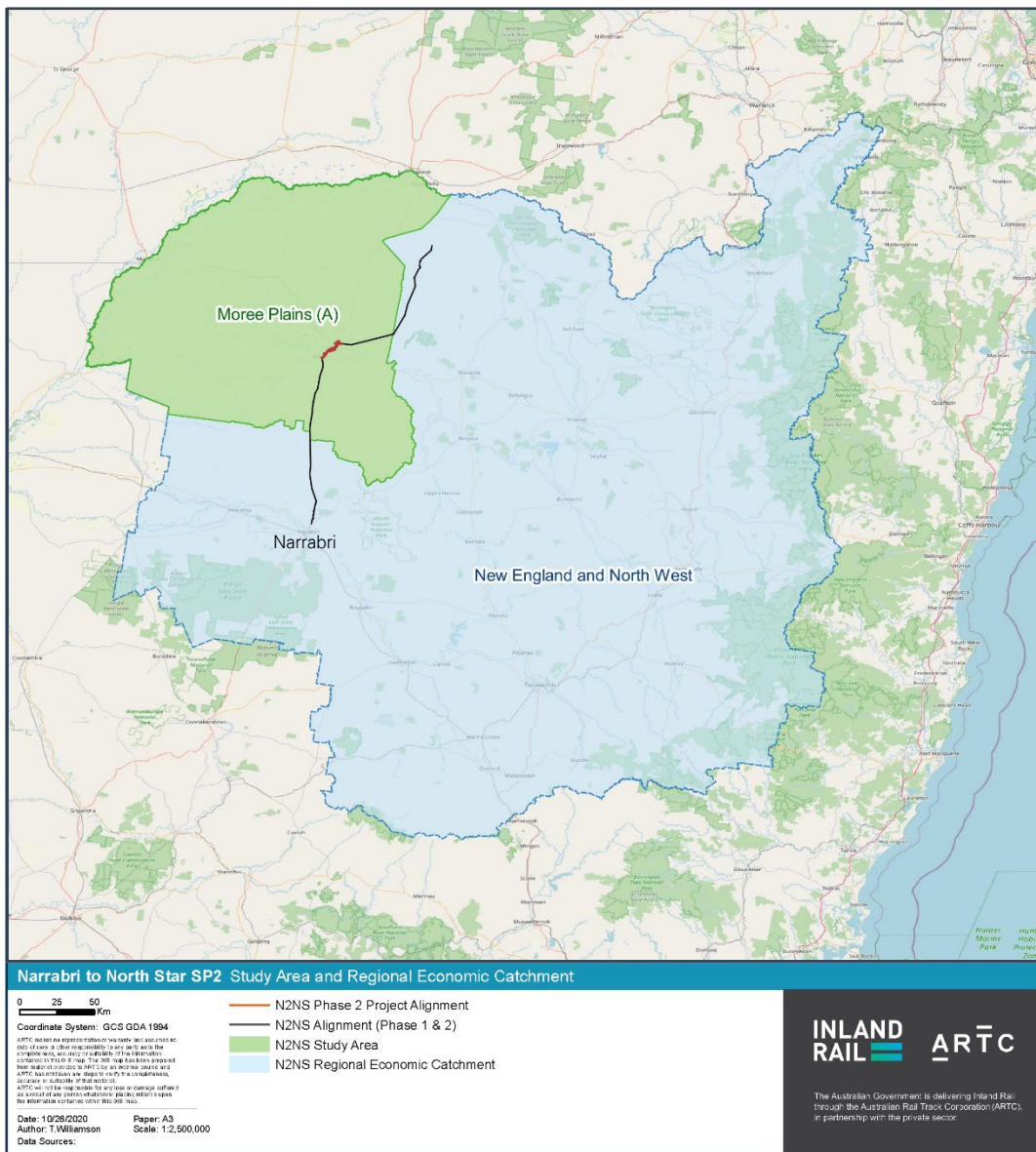
There is only one population centre that is located within close proximity to the proposal which is Moree. As a result of its proximity to the proposal, this community may be impacted during the construction and/or operation of the proposal.

Moree is the municipal centre of the Moree Plains Shire. It is located on the banks of the Mehi River, 129 km south from Goondiwindi which is located on the Queensland / New South Wales border. Moree is at the junction of the Newell Highway and Gwydir Highway, and approximately 80 km south-west of the proposal alignment. The town is a rural community with a population of 9,346 people.⁹

The majority of land in the study area outside of the existing rail corridor consists of agricultural and rural properties between the residential township of Moree and rural suburb of Camurra. Properties include open grazing land, land used for cropping, scattered vegetation, residences and other farm buildings. The study area also comprises areas identified as Crown land, including travelling stock reserves, public roads and waterways.

⁹ Moree Plain Shire Council, 2020. Towns and Villages. <https://www.mpsc.nsw.gov.au/about-us/towns-and-villages>

Figure 1: N2NS Phase 2 study area and regional economic catchment



Source: ARTC

2.5 Assessment methodology

This EIA has been developed according to the SEARs and with reference to the Environmental Planning and Impact Assessment Practice Note: Socio-economic Assessment (Roads and Maritime, 2013). Accordingly, the approach adopted for this report reflects the recognised industry approach to undertaking an EIA. It represents a whole of life approach, comprising an evaluation of the economic impacts and benefits generated by the proposal across both the construction and operational phases. Further, the report considers the cumulative impacts and benefits that will be realised due to the development and operation of adjacent and complementary projects.

The following methodology was endorsed by the NSW Department of Planning and Environment on 29 October 2018.

Specifically, this assessment:

- Establishes the **existing economic environment and local context**, for the defined economic catchment, to understand the local economic context and form the basis to measure the economic impacts;
- Identifies potential **economic benefits and impacts** on affected local and regional communities and businesses. This will be drawn from local community consultation and industry engagement undertaken by ARTC, evaluation of publicly available information, and the outputs from the Social Impact Assessment, 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 N2NS Phase 2 link-specific analysis will be contextualised against the results of the **cost benefit analysis (CBA)** undertaken for the entire Inland Rail project, as per the Inland Rail Programme 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 projects, including adjacent Inland Rail project links; and
- Outlines ARTC's commitments to **enhance** economic benefits and to **avoid, mitigate or manage** adverse economic impacts.

2.5.1 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 N2NS Phase 2. 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;
- ABS 2016 Census of Population and Housing;
- ABS Regional Population Growth, 2017-18;
- ABS, Labour Force Survey, Australia, September 2020;
- Australian Government's Small Area Labour Markets publication, March 2020; and
- Consultation with local businesses and the community undertaken by ARTC.

2.5.2 Economic impact assessment

The economic impact 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 Impact Assessment (TP8) process to identify local and regional business capacity, aspirations and initiatives.

2.5.3 Economic benefits assessment

A large proportion of the benefits of Inland Rail stem from improving the connection between regional producers and markets; through both domestic markets in cities and international markets through ports. As such, an incremental CBA approach assessing each link of Inland Rail 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. Put simply, the benefits of Inland Rail will outweigh the sum of the individual projects.

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

1. Evaluation of the likely benefits of the discrete N2NS Phase 2 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.
2. Description of the CBA economic performance measures calculated for Inland Rail as a whole (as per the Inland Rail Programme Business Case (2015)).

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.

2.5.4 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 New England and North West Statistical Area labour market region.

2.5.5 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 economic assessment considers the potential impacts of Inland Rail's adjacent Narromine to Narrabri (N2N) and North Star to NSW/Qld Border (NS2B) 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 a 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.

2.5.6 Limitations of the assessment methodology

The findings of this EIA 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 Programme 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 Programme Business Case (2015).

A large proportion of the benefits of Inland Rail stem from improving the connection between producers and markets; through both domestic markets in cities and international markets through ports. As such, an incremental EIA approach assessing each link of Inland Rail 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 Programme Business Case endorsed by the Australian Government is currently the most detailed assessment for Inland Rail. For this reason, and in the interests of maintaining consistency, cost and demand profiles for Inland Rail economic impact assessments have been based on the 2015 Inland Rail Programme Business Case.

3 Proposal description

The N2NS Phase 2 proposal is an upgrade of approximately 13 kilometres of existing rail corridor between Moree and Camurra North, in addition to the construction of about 1.6 kilometres of realigned rail corridor within a greenfield area and the replacement of two rail bridges.

The new rail line would be a faster, more efficient route that bypasses the Sydney rail network and would enable the use of double stacked trains along its entire length. Inland Rail trains would be a mix of grain, bulk freight, and other general transport trains. Total annual freight tonnages would be about 11.8 million tonnes in 2025, increasing to about 19 million tonnes in 2040 (from the existing two million tonnes of grain per year).

The proposal will initially accommodate double-stacked container freight trains of up to 1,800 meters in length, with potential for future accommodation of freight trains of 3,600 meters in length. ARTC estimates a gradual increase in the number of trains using Inland Rail from when the line becomes operational.

Demand forecasting for the Narrabri to North Star Phase 2 section is expected to have an annual average of about 11 trains per day travelling between Moree and Camurra North in 2025. This would increase to about 20 trains per day in 2040. Subject to approval, construction of the N2NS Phase 2 proposal is planned to start in 2022 and be completed in 2024.

The key components of the proposal are detailed in the table below.

Table 2: Key components of N2NS Phase 2

Key Component	
Start and finish point	Moree and Camurra North
Local government areas	Moree Plains Shire Council
Length of alignment	<ul style="list-style-type: none"> 14.6 kilometres total length Enhancement of about 13 kilometres of existing track through minor adjustments to the vertical and horizontal alignment Construction of about 1.6 kilometres of new rail corridor, including rail embankments
Key features	<ul style="list-style-type: none"> Demolition and reconstruction of the Mehi and Gwydir River underbridges Upgrades of nine existing level crossings (three public crossings and six private crossings) Eight new underbridges across Skinner’s Creek, Duffy’s Creek and two unnamed creeks Installation of approximately 1,550 new flood relief box culverts along the formation Decommissioning of the existing level crossing at Back Pally Road and replacement with a new signalled double rail level crossing Decommissioning and replacement of the Gwydirfield Road level crossing with an upgraded signalled level crossing Closure of one private level crossing Permanent and temporary acquisition of land Construction of a new rail spur for the Mungindi line Decommissioning and removal of the Camurra hairpin and associated formation

Key Component	
Train lengths	Up to 1,800 meters length, with potential for future accommodation of 3,600 meters length
Employment	<ul style="list-style-type: none">• Construction employment: Up to 150 construction personnel will be required during peak construction
Construction	Construction is anticipated to take approximately 26 months, commencing in 2022 and is expected to be completed by 2024

4 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 contained within this section has been drawn from the ABS 2016 Census of Population and Housing. This information may not reflect recent changes in demographic and employment outcomes resulting from the economic shock associated with the COVID-19 crisis.

4.1 Population summary

4.1.1 Population profile

As at June 2019, the study area had an estimated resident population of 13,261. Between 2009 and 2019, the population decreased at an average annual rate of 0.55 per cent. By comparison, the NSW population grew at an average annual rate of 1.4 per cent over the same period. The Moree Plains LGA population is projected to continue to decline by an average of 124 persons per year (-1.02 per cent) to 2036.

Table 3: Estimated resident population and projections, study area

	2009	2019	2036	% average annual growth 2009 – 2019	% average annual growth 2019 – 2036
Moree Plains LGA	14,019	13,261	11,021	-0.55%	-1.02%
NSW	7,053,755	8,089,817	10,077,964	1.38%	1.30%

Source: ABS Estimated Resident Population by LGA (ASGS 2019); NSW Government 2019 Population, Household and Implied Dwelling Projections by LGA (ASGS 2020).

The projected age profile for Moree Plains LGA reflects a broader ongoing outward-migration trend in rural NSW. Typically historical trends would suggest that young people in these locations, are tending to leave rural areas and relocate to larger, urbanised areas to access employment, education and social opportunities.¹⁰ However COVID -19 has driven a reversal in this trend evidenced by the increase in regional house values.¹¹ The duration of this trend however is uncertain due to employers embarking on 'return to office' programs and the price gap between the capitals and regional areas narrowing.¹²

If these recent observations are short lived, by 2026, the proportion of young people (0 to 24 years) residing in the study area is projected to decline to represent 31.3 per cent of the area's population (from 34.6 per cent in 2016).

In 2016, the study area had a marginally lower working age population (15 to 64 years) of 62.9 per cent, compared to the NSW state average of 65.5 per cent. Notably, this population segment is projected to decline to represent 57.9 per cent of the population by 2026, compared to 63.3 per cent across NSW. As the working age population declines, the aged population (65 years and older) in the study area is projected to increase to 21.2

¹⁰ ABS, Australian Social Trends, cat.no. 4102.0.

¹¹ CoreLogic Home Value Index, Released 1 December, 2020

¹² Ibid.

per cent of the population, above the NSW projection (18.2 per cent). A declining working population may reduce the local supply of skilled or non-skilled workers available to support the proposal.

4.1.2 Indigenous population

A high proportion (21.6 per cent) of the study area’s population identifies as Indigenous (Aboriginal, Torres Strait Islander, or both), compared to the NSW state average of 2.9 per cent. In absolute terms, as at June 2019, 2,774 people identify as Aboriginal, 21 people identify as Torres Strait Islander and 43 people identify as both Aboriginal and Torres Strait Islander.

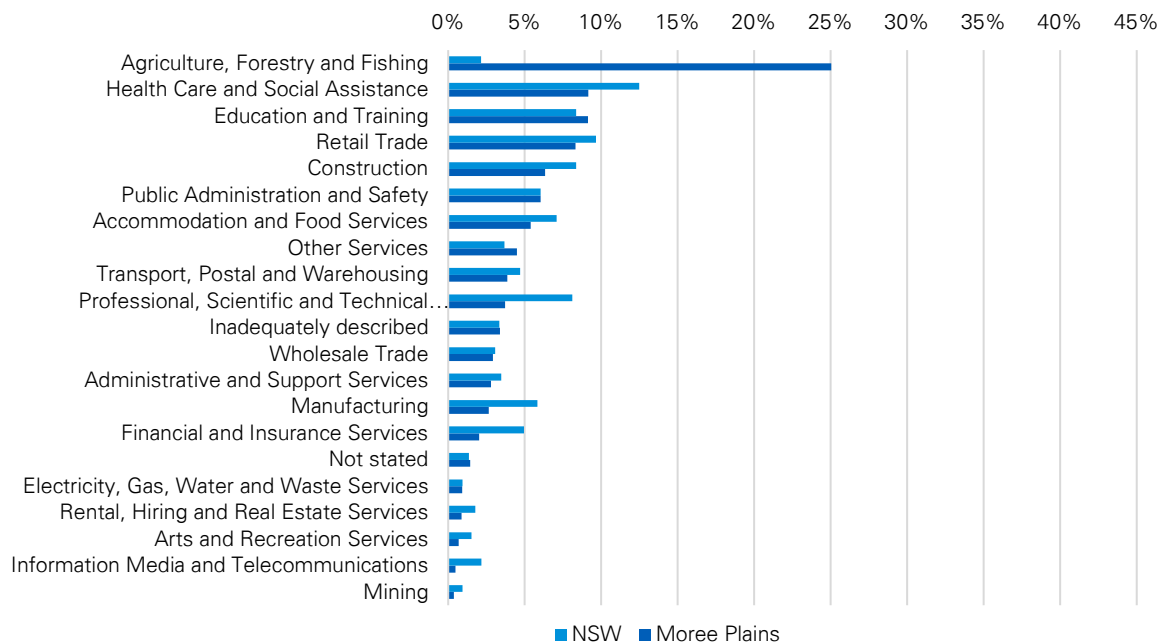
4.2 Description of the economy

4.2.1 Labour market and employment characteristics¹³

Employment by industry

The sectoral distribution of employment for Moree Plains LGA residents compared to the NSW state average is shown in Figure 2. The Agriculture, Forestry and Fishing industry employs a significant proportion of the local workforce (25.0 per cent) which reflects the study area’s primary land uses of agricultural and grazing.

Figure 2: Employment by industry, study area¹⁴



Source: ABS 2016 Census of Population and Housing

Within the Agriculture, Forestry and Fishing industry, the primary source of employment is in Sheep, Beef Cattle and Grain Farming (14.1 per cent).

¹³ This section uses data based on place of usual residence

¹⁴ 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.

Service based industries are also a significant employer. Following Agriculture, Forestry and Fishing; Health Care and Social Assistance (9.2 per cent), Education and Training (9.1 per cent) and Retail Trade (8.3 per cent) are the largest employing sectors within the study area. This is similar to NSW state trends, where Health Care and Social Assistance employs 12.5 per cent of the workforce, Retail Trade employs 9.7 per cent and Education and Training employs 8.4 per cent.

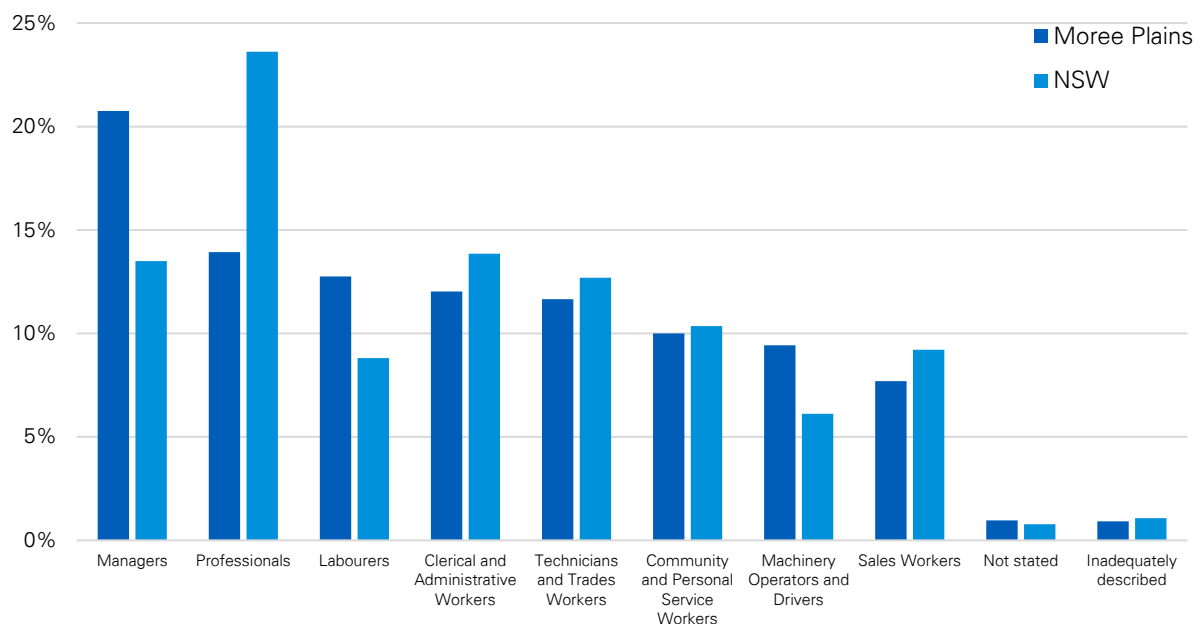
In 2016, there were a small number of residents within Moree Plains employed in sectors and occupations directly relevant to the construction of the proposal. The construction sector employed 6.3 per cent of the study area’s population as at June 2016, with 54 workers employed in Heavy and Civil Engineering. In the broader New England and North West region, 3,140 workers were employed in Construction Services and 457 workers in Heavy and Civil Engineering Construction.

Occupation

Moree Plains’ 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 (12.5 per cent) and Farm, Forestry and Garden Workers (5.4 per cent).

The study area has a larger proportion of workers employed as Managers (20.7 per cent) compared to the NSW state average (13.5 per cent). Professionals within the study area represent a significantly lower proportion of the workforce (13.9 per cent) compared to the NSW state average, where professionals represent the largest occupation within the workforce (23.6 per cent). Labourers (12.7 per cent) and Technicians and Trades Workers (11.7 per cent) represent approximately one-quarter of the local workforce within the study area (24.4 per cent), a marginally higher representation compared to the NSW state average of 21.5 per cent (Labourers (8.8 per cent) and Technicians and Trades Workers (12.7 per cent).

Figure 3: Local workers occupation, study area



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, to skilled trades and unskilled / semi-skilled workers. Currently, it is anticipated there is a 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.¹⁵

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. 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.¹⁶ These skills are similarly anticipated to be required by the project.

Qualifications

Across the study area, 33.4 per cent of the population have a non-school qualification, with the largest proportion holding a certificate level qualification (17.7 per cent). The study area has lower levels of completion for tertiary qualifications compared to NSW state averages, with 7.7 per cent of the study area population holding a Bachelor Degree, 1.0 per cent with a Graduate Diploma and Graduate Certificate and 1.2 per cent with a Postgraduate Degree compared to the NSW state averages of 16.0 per cent, 1.7 per cent and 5.7 per cent respectively.

Of the population within the study area, 33.9 per cent have attained a secondary education, including Year 10 and above. 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, there were a total of 437 unemployed persons in Moree Plains, and 6,291 in New England and North West in March 2019 (Table 2). The unemployment rate in Moree Plains (6 per cent) was higher than the NSW state average of 5.1 per cent.

As at March 2020, the regional economic catchment had an unemployment rate of 7.0 per cent¹⁷ (New England and North West) higher than NSW at 5.1 per cent¹⁸. The 12 month average unemployment rate was 4.9 per cent for the regional economic catchment and 4.6 per cent for NSW. The recent increase in the unemployment rate is likely to be a result of the economic impacts associated with the COVID-19 crisis.

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 4, this volatility is particularly noted in Far New England and North West where the unemployment rate can reach zero per cent during the region's harvest period (between October and November).

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 during harvest periods.

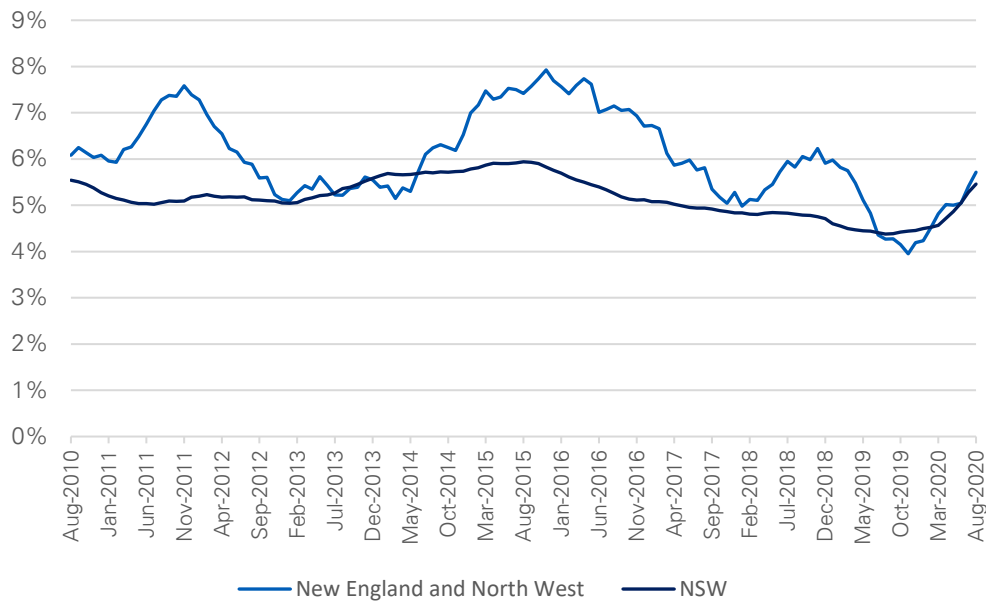
¹⁵ Australasian Railway Association, 2018, Skills Capability Study

¹⁶ Western Research Institute Ltd, 2018, *Industry Skills and Opportunities: Dubbo, Gilgandra and Narromine*.

¹⁷ Australian Government's Small Area Labour Markets publication, March 2020;

¹⁸ ABS, Labour Force Survey RM1, Australia, published 24 September 2020

Figure 4: Monthly unemployment rate August 2010 to August 2020 ¹⁹



Source: ABS, Labour Force Survey RM1, Australia, published 24 September 2020

Table 4: Summary of labour force characteristics at March 2020

	Labour force	Participation rate*	Unemployed persons	Unemployment rate	12 month unemployment rate Δ
Moree Plains LGA	7,292	41.4%	437	6.0%	-2.2
New England and North West	89,624	75.9%	6,291	7.0%	-0.4
NSW	4,351,278	65.6%	223,486	5.1%	0.5

Source: Australian Government's Small Area Labour Markets publication, March 2020; ABS, Labour Force Survey RM1, Australia, March 2020 (12-month moving average); ABS 2016 Census of Population and Housing. *Participation rate for working age population 15 to 64 years, June 2016.

As outlined in Table 2, the labour force participation rate across the study area and regional economic catchment was lower than the state average. Within Moree Plains, the rate of labour force participation was significantly lower than both the regional economic catchment and state average.

Indigenous labour force

Indigenous Australians are under-represented in the Moree Plains workforce, reflected in high unemployment rates and a low labour force participation rate. According to the 2016 Census, over one-quarter of the Indigenous population are unemployed (25.4 per cent).

Across the regional economic catchment area, approximately one-fifth of the Indigenous population is unemployed (19.7 per cent in New England and North West). The Indigenous labour force participation rate is 49.8 per cent, compared to the rate for the non-Indigenous population at 61.2 per cent.

¹⁹ Data has been smoothed using a two-year moving average

Within Moree Plains, the labour market participation rate of Indigenous people is reflective of the regional economic catchment area trend, with 69.9 per cent participation for non-Indigenous people and 43.7 per cent for Indigenous people. Moree Plains has a greater disparity in participation rates with Indigenous participation, equivalent to a 26.3 percentage point difference (compared to 11.5 per cent for New England and North West).

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. These are 8.9 and 7.9 percentage points higher than the total labour market unemployment rate within the regional economic catchment and study area respectively. Importantly, there were a high number of young persons who did not state their employment status in the Census, thereby potentially 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 5: Youth labour force

	Youth Labour Market		Total Labour Market	
	Unemployment rate	Participation rate	Unemployment rate	Participation rate
Moree Plains LGA	13.9%	53.4%	6.0%	41.4%
New England and North West	13.9%	56.3%	7.0%	75.9%

Source: Australian Government's Small Area Labour Markets publication, March 2020; 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

Household income

The distribution of the population by total weekly household income level in the study area and regional economic catchment is compared in Table 4 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. Households that earn less than \$500 per week in Moree Plains (17.8 per cent) and New England and North West (19.7 per cent) are marginally higher than in NSW (15.2 per cent).

There is a higher proportion of households in the lowest income bracket and a larger proportion of households earning \$500 - \$1,249 compared to NSW. This is reflected in the median weekly household income, which averages \$1,174 per week across the study area and regional economic catchment, compared to \$1,486 for NSW.

Table 6: Distribution of population by weekly household income, June 2016

	< \$500	\$500 - \$1,249	> \$1,250	Median Income
Moree Plains LGA	17.8%	33.0%	49.1%	\$1,240
New England and North West	19.7%	35.9%	49.1%	\$1,107
NSW	15.0%	27.8%	57.3%	\$1,486

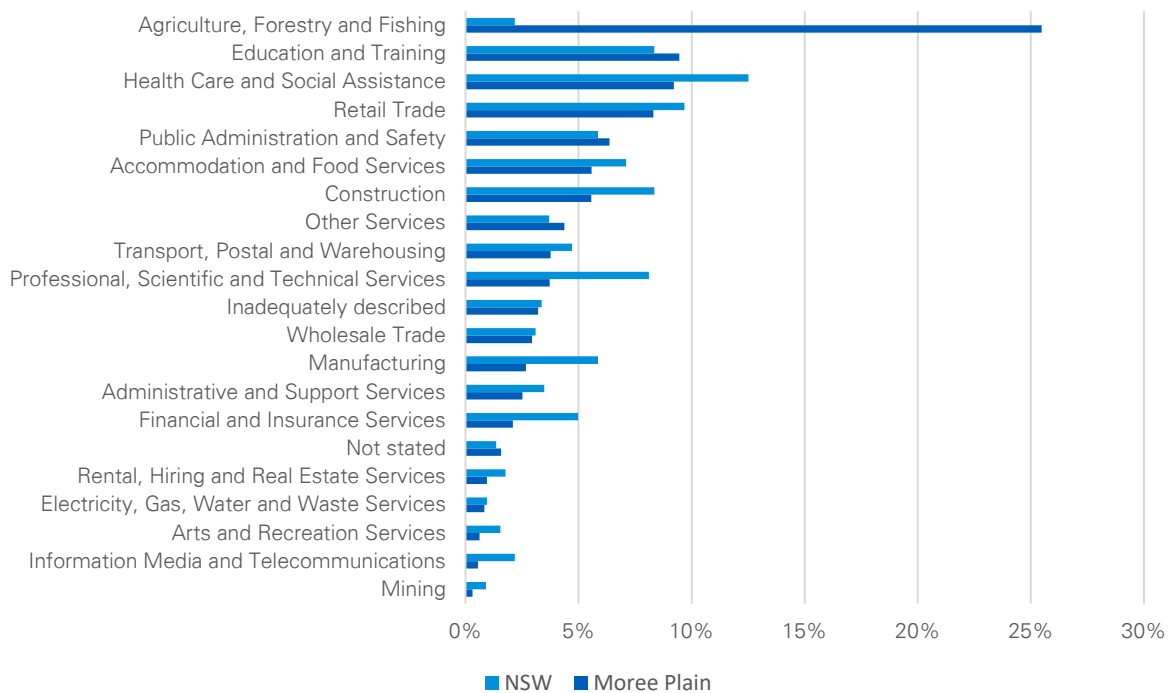
Source: ABS 2016 Census of Population and Housing. This excludes all the following responses: partial and incomplete income declaration. Negative income has not been included in calculations.

4.2.2 Business and industry

Industry by employment

The study area is a place of work for approximately 5,608 persons (who live both within and outside the catchment area).²⁰ Industry by employment in the study area is shown in the figure below.

Figure 5: Industry by employment, study area



Source: 2016 Census of Population and Housing

Agriculture, Forestry and Fishing was identified as the largest industry of employment in the study area, accounting for one-quarter of total jobs (25.5 per cent). The strength of the study area’s agricultural sector highlights the importance of supply chain efficiency in supporting the local and regional economy.

Excluding the Agriculture, Forestry and Fishing industry, the sectoral and distribution of jobs is diverse and focused on service-based industries such as Education and Training (9.5 per cent), Health Care and Social Assistance (9.2 per cent), and Retail Trade (8.3 per cent). The construction industry employs 5.6 per cent of the workforce within Moree Plains.

4.3 Local businesses and industry

4.3.1 Agriculture and agribusiness

According to the Australian Bureau of Agricultural and Resource Economics (ABARES), the New England and North West region covers approximately 12 per cent of the NSW land area, and agricultural land accounts for 80 per cent of the region’s land use. In 2018-19, the gross value of agriculture production within the region was

²⁰ 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.

\$1,753 million, representing approximately 15 per cent of the total agricultural production in NSW.²¹ Together, broadacre crops (38.9 per cent) and cattle livestock (34.9 per cent) represent approximately three-quarters of the total agriculture commodities produced within the region.

Moree Plains supports a diverse range of grazing and cropping activities, predominantly in production of wheat, cotton, chickpeas, barley, and sorghum. In addition to cropping activities, livestock grazing (sheep and cattle) and cattle feedlotting are major activities undertaken within the region. In Moree Plains, the largest proportion of all businesses are in the Agriculture, Forestry and Fishing industry, represented by 818 businesses (42.5 per cent of total businesses).²²

4.3.2 Tourism

The regional economic catchment is recognised as a popular tourist destination for visitors seeking to explore Australia’s rural landscape. During the year ending September 2020, the New England North West region received 3.0 million visitors with expenditure totalling approximately \$0.8 billion. Domestic daytrip visitors comprised the largest proportion of visitors, with 60 per cent of these visitors travelling for holiday and spending an average of \$131 per visitor.²³

At a local government level, Moree Plains received approximately 263,000 visitors in 2019, the majority of which were domestic overnight visitors (177,000)(Table 5). Tourism is a significant focus for Moree Plains, with key attractions including the Moree Artesian Aquatics Centre, the Big Rocket and the Moree Water Park. Expenditure for visitors to the area totalled \$68 million in 2018, through participation with the area’s 165 tourism businesses.²⁴

Table 7: Visitor Numbers and Tourism Expenditure, 2018/19

	Domestic Overnight Visitors		International Overnight Visitors		Domestic Daytrip Visitors	
	Total Visitors	Expenditure	Total Visitors	Expenditure	Total Visitors	Expenditure
Moree Plains LGA	177,000	\$64M	4,000	\$4M	np	np
New England and North West	1.2M	\$478.1M	20,300	\$39.8M	1.8M	\$233M

Source: Tourism Research Australia, 2020, Local Government Area Profile; Destination NSW, Regional Tourism Statistics, September 2020. Regional tourism data is recorded for the year ending December 2019.

²¹ ABS, 2020, *Value of Agricultural Commodities Produced, Australia*, viewed 23 September 2020,

<https://www.abs.gov.au/statistics/industry/agriculture/value-agricultural-commodities-produced-australia/latest-release#data-download>

²² ABS, 2020, *Counts of Australian Businesses, including Entries and Exits, June 2015 to June 2019*, viewed 23 September 2020,

<https://www.abs.gov.au/statistics/economy/business-indicators/counts-australian-businesses-including-entries-and-exits/latest-release>.

²³ Destination NSW, *Travel to New England North West*, Year ended March 2020.

²⁴ Tourism Research Australia, *Local Government Area Profiles 2019 – Moree Plains*.

4.3.3 Local businesses

Supply opportunities

There are a number of construction businesses located within Moree Plains. As at June 2020, there were a total of 80 employing businesses and a further 99 non-employing businesses.²⁵ These businesses are likely to be a source of services and equipment during the proposal's construction.

It is likely that the proposal will offer opportunities for local businesses supplying goods and services to the non-resident workforce. The non-resident workforce would create some demand for local food and beverages, accommodation, retail trade, bus and coach drivers, finance, education and training, health care, and recreation services.

Quarry materials

The Moree Plains Shire Council advised ARTC during consultation that there were approved quarry developments in their LGA, with anticipation that the applicants could supply Inland Rail projects.

Local resource interests

There are no mining, mineral exploration or petroleum exploration leases within the study area.

²⁵ ABS, 2021, *Counts of Australian Businesses, including Entries and Exits, June 2016 to June 2020*.

5 Economic impact assessment

5.1 Inland Rail impacts

As per the requirements of the SEARs, this EIA has focussed on the specific economic impacts resulting from the construction and operation of the N2NS Phase 2 proposal. However, the assessment acknowledges the role of the proposal, and the remaining project links, in collectively delivering the benefits of Inland Rail. In its entirety, Inland Rail will enhance Australia's existing national rail network and serve the interstate freight market. As per the Inland Rail Programme Business Case (2015), key economic impacts of Inland Rail 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. Inland Rail is stated to be economically viable with a benefit cost ratio of 1.02 at a 7 per cent discount rate (2.62 at a 4 per cent 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. Inland Rail is anticipated to deliver a net positive impact of \$16 billion (\$2015) on Gross Domestic Product over its 10 year construction period and operation.
- Nationally, Inland Rail is also expected to deliver an additional 16,000 jobs at the peak of construction, and an average of 700 additional jobs per annum over the operation period.
- 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).

5.2 Business and industry impacts

The following business and industry impacts have been identified through local consultation and analysis of local businesses undertaken by ARTC. It is expected these impacts will be minimal given the proposal consists of the enhancement of about 13 kilometres of existing track and only 1.6 kilometres of new rail corridor.

5.2.1 Agriculture industry

The construction and operation of the proposal has the potential to impact high value farming operations and general agricultural uses across the study area. The gross value of agricultural production in the study area includes cotton (\$282 million), fruit, nuts and vegetables (\$25 million), livestock (\$22million) and general agricultural uses across the study area.²⁶ These impacts include:

- Loss of agricultural land;

²⁶ ABS, 7503.0 – Value of Agricultural Commodities Produced, Australia, 2018-19.

- 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 Land Use and Property Assessment²⁷, the proposal will result in the temporary or longer term loss of agricultural land and infrastructure from agricultural production. If the temporary footprint is leased, it would generally be rehabilitated and returned to its former land use after construction has been completed. Agricultural production will only be lost in this area during construction and for a limited time afterwards. Any reduction in agricultural productivity would have a negligible effect on the overall value of agriculture within the region.

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.

Further details relating to the severance of holdings can be found in the Land Use and Property Assessment.²⁸

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.

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. 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 Chapter 9 Land Use and Property.

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. The proposal is a critical section in the broader Inland Rail to create a more direct rail freight corridor, offering a more efficient solution for intrastate and interstate freight operators who will be able to avoid

²⁷ Chapter 8 Landuse and Property, 2020, *ARTC Inland Rail Narramine to Narrabri EIS*

²⁸ *ibid.*

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 Inland Rail, 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.

5.2.2 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.

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.

The Community Engagement Team has engaged extensively with Moree Plains Shire Council (MPSC) on a range of project matters. MPSC has not identified negative impacts on the tourism industry as a result of the proposal.

The Community Engagement Team has attended the Moree Agricultural Show regularly since 2015 and through that show has engaged with a wide range of visitors to the Moree Plains Shire. Through those conversations and visitor surveys, it has been identified that visitors to the Shire are generally interested in the proposal and supportive of the potential benefits to regional economies. Only a small number of visitors expressed a negative opinion of the proposal.

5.3 Economic benefits assessment

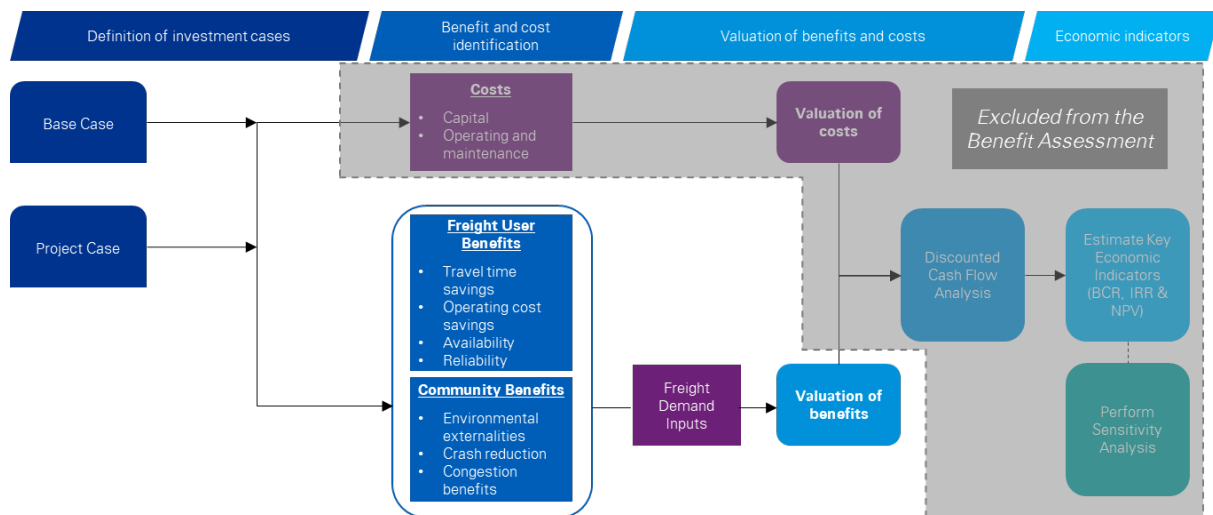
5.3.1 Methodology

The approach below reflects the three-step benefits 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 with impact groups which can be measured for the proposal; and
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 6: CBA approach and the economic benefits assessment



Source: KPMG

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 are the focus of the assessment.

5.3.2 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 benefits assessment is a 'do nothing' scenario, where it is assumed that no other sections of Inland Rail are progressed, and freight continues to be moved via either coastal rail or the road network.
- The **Project Case** adopted for this benefits 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 benefits assessment are presented in Table 8.

Table 8: 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	2020	
Discount reference year	2020	
Appraisal period	50 years from the year of opening. First year of measured benefits is 2024 (first full year of benefits) ²⁹	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 Programme 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 Programme Business Case (2015)

Source: KPMG

5.3.3 Freight demand

At the request of ARTC, demand inputs to the benefits assessment have been sourced from the freight demand projections developed by ACIL Allen for the Inland Rail Programme Business Case (2015). The assumptions underpinning these demand projections are documented in Chapter 7 of the Inland Rail Programme 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 Inland Rail 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 Programme.

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, consist of:

- North Star - Brisbane
- Moree-Cootamundra
- Shepparton-Brisbane
- Narrabri Cotton to Brisbane
- Albury - Brisbane
- Albury Region - Moree Region

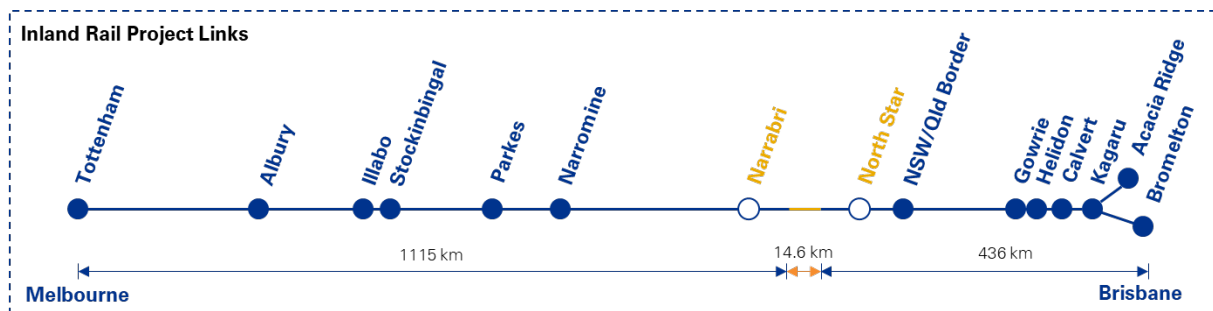
²⁹ While noting the operational life of the Project is 100 years, the benefits assessment has been conducted for a 50 year appraisal period in line with best practice methodologies, as specified in the ATAP guidelines.

- Manildra - Moree Region
- Moree Region - Werris Creek Region
- New England and North West region - Moree Region
- Manildra - Narrabri Region
- Newcastle - Moree Region
- North Moree - Brisbane.
- Moree Region - Gunnedah
- Newcastle - Narrabri Region
- Moree Region - Parkes Region
- Nowra - Moree Region
- Moree Region - Sydney

The transport network and surrounding areas impacted by these freight movements represent the proposal 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 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. 14.6 km / 1,740.6 km).³⁰

Figure 7: Inland Rail - Proposal extents



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

For the purposes of the economic benefits assessment 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 Programme 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 links to be delivered as part of Inland Rail.

Further, the results of the Inland Rail Programme Business Case (2015) CBA highlight that the identified benefits accruing to coal trips are a direct result of Inland Rail with complementary investment in Western Line Upgrades, which do not form part of the scope of Inland Rail 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.

5.3.4 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

³⁰ The track length used in the economic benefits assessment is based off the Inland Rail alignment published in February 2017.

- **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 Table 9.

Table 9: 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 half ³¹ 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 Programme Business Case (2015). These benefits were derived by ARTC in 2015, and have been apportioned to individual projects for the purposes of this incremental benefits assessment. The values calculated by ARTC have been escalated to a 2020 price year using 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 timelier manner.</p> <p>As with availability benefits, reliability benefits have been estimated based on the values presented in the Inland Rail Programme Business Case (2015). These benefits were derived by ARTC in 2015, and have been apportioned to individual projects for the purposes of this incremental benefits assessment. The values calculated by ARTC have been escalated to a 2020 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>

³¹ 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. Source: Australian Transport Assessment and Planning, 2021. Economic analysis framework, Accessed at: <https://www.atap.gov.au>

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 Programme Business Case (2015) and the parameters set out in Table 10.

Value of freight per tonne hour unit rates have been derived from previous analysis completed for the Inland Rail Programme 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 below 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 \$0.029 – \$0.037 per net tonne kilometres (NTK) in the Base Case down to \$0.027 – \$0.025 NTK in the Project Case for agricultural freight. These parameters have been estimated based on the outputs from the Inland Rail Programme Business Case (2015) and TfNSW's Principles and Guidelines for Economic Appraisal of Transport Investment and Initiatives (2020).

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

Table 10: Freight benefit parameter values (\$2020)

Parameter Value		Variable/s	Source/s
Freight Travel Time			
Value of Freight (Rail)		\$1.69 tonne hour	ATAP, Inland Rail Programme Business Case (2015), PPI Rail Freight Transport (A2314067L)
Value of Freight (Road)		\$1.47 tonne hour	ATAP, Inland Rail Programme Business Case (2015), PPI Road Freight Transport (A2314058K)
Operating Cost			
Agricultural	Rail Operating Cost – Base Case	2024: 0.029 \$/ntk 2054: 0.037 \$/ntk 2074: 0.034 \$/ntk	TfNSW (2020), Inland Rail Programme Business Case (2015), PPI Rail Freight Transport (A2314067L)
	Rail Operating Cost – Project Case	2024: 0.027 \$/ntk 2054: 0.028 \$/ntk 2074: 0.025 \$/ntk	TfNSW (2020), Inland Rail Programme Business Case (2015), PPI Rail Freight Transport (A2314067L)
Road Operating Costs		0.063 \$/ntk	ATAP, Inland Rail Programme Business Case (2015), PPI Road Freight Transport (A2314058K)
Road Driver Costs		30.02 \$/h	Austrroads, Inland Rail Programme Business Case (2015), CPI
Freight Service³²			

³² 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 6.3.4 freight demand.

Parameter Value	Variable/s	Source/s
Freight Service Availability	2024: \$16.67 M 2054: \$181.80 M 2074: \$297.78 M	Inland Rail Programme Business Case (2015), PPI Rail Freight Transport (A2314067L)
Freight Service Reliability	2024: \$11.11 M 2054: \$45.13 M 2074: \$80.68 M	Inland Rail Programme Business Case (2015), PPI Rail Freight Transport (A2314067L)

The total freight demand for the proposal consists of agricultural freight traversing the proposal area between Narrabri and North Star. This includes freight from regional Victoria (including Albury), regional NSW (including Riverina and Manildra) and Newcastle destined for areas north of the study area, as well as from Northern NSW (including Moree) destined for south of the study area. As within the Inland Rail Programme 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); as such, no induced demand has been included in the analysis for the proposal.³³

Consistent with the assumption contained within the Inland Rail Programme 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 reduction in average travel times by rail in the Project Case (from 5.13 hours in the Base Case to 4.58 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 NTK travelled increases in the Project Case (in 2054 the Base Case 758 million net tonne kilometres (mNTK) increases to 764 mNTK in the Project Case).

³³ 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).

Table 11: Freight demand assumptions for the proposal

	Base Case			Project Case		
	2024	2054	2074	2024	2054	2074
Trips						
Rail	795	1,104	1,374	1,477	2,051	2,553
Road	27,687	38,443	47,845	-	-	-
Total Tonnes ('000s)						
Rail	835	1,160	1,444	1,553	2,156	2,683
Road	717	996	1,239	-	-	-
Average Trip Time (hours)						
Rail	4.28	5.13	5.75	4.43	4.58	5.15
Road	8.02	8.51	8.86	-	-	-
Million Net Tonne Km (mNTK)						
Rail	185	257	320	551	764	951
Road	361	501	623	-	-	-
TOTAL mNTK	546	758	944	551	764	951

Source: Inland Rail Programme 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 in the table below. Overall, the proposal's freight benefits represent an incremental \$13.33 million in present value terms over the Base Case.

Table 12: Estimated freight benefits (\$2020)

Benefit	Undiscounted - \$M	Present Value (7%) - \$M
Freight Time Savings	2.22	0.39
Operating Cost Savings	12.34	2.31
Freight Service Availability	66.52	8.18
Freight Service Reliability	18.01	2.46
TOTAL	99.09	13.33

Source: KPMG

Operating cost savings represent 17 per cent of the freight benefits with \$2.31 million in present value terms 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 5.13 hours in the Base Case to 4.58 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 18 road freight trips from the study area in 2054.

Freight service availability and reliability represent a combined \$10.63 million in present value terms to freight benefits (~80 per cent). This is apportioned to the proposal on the basis of the combined service improvements from the broader Inland Rail and represent the expected benefit from improved freight service within the study area.

Freight time savings provide the remaining \$0.39 million in present value terms to freight benefits (~3 per cent). 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 Programme Business Case (2015) and the parameters set out in Table 13.

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 Programme 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 Programme Business Case (2015). The value presented in the table below has been escalated using PPI for Road Freight Transport.

Table 13: Community benefit parameter values (\$2020)

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)	37.97 \$/1000 km	Part 4 Section 5 Guide to Project Evaluation Austroads (2012), Inland Rail Programme Business Case (2015), CPI
Road (Rural)	12.57 \$/1000 km	Part 4 Section 5 Guide to Project Evaluation Austroads (2012), Inland Rail Programme Business Case (2015), CPI
Rail (Urban)	6.16 \$/1000 km	Part 4 Section 5 Guide to Project Evaluation Austroads (2012), Inland Rail Programme Business Case (2015), CPI
Rail (Rural)	1.64 \$/1000 km	Part 4 Section 5 Guide to Project Evaluation Austroads (2012), Inland Rail Programme Business Case (2015), CPI
Road Decongestion Benefits		
Marginal congestion cost	2.82 \$/vkt	TfNSW, Inland Rail Programme Business Case (2015), CPI

Source: KPMG

The shift of road freight to rail provides a 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 14 provides the assumed freight demand by kilometres travelled as per the modelling completed for the Inland Rail Programme Business Case (2015).

Table 14: Freight demand by kilometres travelled ('000s) for the proposal

Mode	2024	2054	2074
Base Case			
Rail	176	245	305
Road	13,930	19,341	24,072
Project Case			
Rail	524	727	905
Road	-	-	-

Source: Inland Rail Programme 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 in the table below. Overall, the proposal's community benefits represent an incremental \$1.40 million in present value terms over the Base Case.

Table 15: Estimated community benefits (\$2020)

Benefit	Undiscounted	Present Value (7%)
Crash Cost Savings	\$1.00 M	\$0.19 M
Environmental Externalities	\$2.90 M	\$0.56 M
Road Decongestion Benefits	\$3.37 M	\$0.65 M
TOTAL	\$7.27 M	\$1.40 M

Source: KPMG

Crash cost savings represent ~14 per cent the of community benefits (\$0.19 million in present value terms) as freight traffic is removed from the road network.

The reduction in heavy freight traffic within the study 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 \$0.56 million (present value terms) in benefits to the community (~40 per cent of community benefits).

Road decongestion benefits provided the greatest share of community benefits (~46 per cent), with an estimated \$0.65 million in present value terms. 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.

5.3.5 Economic benefits assessment results

The results of the economic benefits assessment estimate that the proposal is expected to provide a total (2020 dollars present value terms) of \$14.73 million in incremental benefits to the study area (at a 7 per cent discount rate). This consists of \$13.33 million in freight benefits and \$1.40 million in community benefits.

Observing the composition of benefits, the largest share of benefits for the proposal is improved availability of freight, representing ~56 per cent of the total benefits (at a 7 per cent discount rate). Freight benefits more broadly (including freight time travel savings, operating cost savings, as well as improved reliability and availability) represent ~90 per cent 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 ~4 per cent of the total benefits (at the 7 per cent discount rate).

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

Table 8: Results of the economic benefits assessment, present value terms (\$2020)

Benefits	Discount Rate		
	4%	7%	10%
Freight Benefits	\$27.85 M	\$13.33 M	\$7.44 M
Travel Time Savings	\$0.73 M	\$0.39 M	\$0.24 M
Operating Cost Savings	\$4.18 M	\$2.31 M	\$1.46 M
Improved Availability	\$17.87 M	\$8.18 M	\$4.35 M
Improved Reliability	\$5.08 M	\$2.46 M	\$1.39 M
Community Benefits	\$2.51 M	\$1.40 M	\$0.89 M
Crash Reduction	\$0.34 M	\$0.19 M	\$0.12 M
Environmental Externalities	\$1.00 M	\$0.56 M	\$0.36 M
Road Decongestion Benefits	\$1.16 M	\$0.65 M	\$0.41 M
TOTAL BENEFITS	\$30.36 M	\$14.73 M	\$8.33 M

Source: KPMG

5.3.6 Cost Benefit Analysis: Inland Rail Programme Business Case

As detailed above, due to the nature of the incremental assessment approach adopted for this EIS, a project-specific CBA has not been undertaken as the results will not capture the full impact that is expected to be delivered upon completion of Inland Rail. Instead, the results of the economic analysis undertaken for the Inland Rail Programme 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 16: 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 Programme Business Case 2015

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

5.4 Regional impact analysis

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

As described throughout this report, the regional economy is represented by the New England and North West statistical area.

5.4.1 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 (Table 21).

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 commencement of the CAPEX program associated with the proposal's rail development.
- 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 size and structure of the economy during the period where the CAPEX program associated with the development of the proposal is completed.

The key modelling assumptions and inputs that underpin the regional economic assessment are provided in Appendix B. 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 explicitly account for the COVID-19 impacts.

Table 17: Proposal CAPEX profile – Modelling inputs

Year	\$2015 ^{b, c}	\$2020 ^{a, b}
2022	\$35,493,902	\$38,555,992
2023	\$9,855,637	\$10,705,892
Total	\$45,349,539	\$49,261,883

Notes

a) Conversion to 2020 dollars based on the Producer Price Index growth from Dec 2015 to Jun 2020. The Producer Price Index used relates to output of the Heavy and Civil Engineering Construction industry specifically.

b) These figures reflect capital costs and do not include other provisions (insurances, construction camps, ARTC train control system', utilities and property & site remediation).

c) Given that the proposal construction timing is 2022-23, the proposal's capital cost schedule is based on the N2NS capital cost profile from 2022-23 with approximately 78 per cent of the proposal CAPEX estimated to fall in 2022, and the remainder in 2023.

5.4.2 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 in KPMG-SD as a transitory expenditure shock to the economy. Accordingly, modelling the construction phases of the 13 individual project links that comprise Inland Rail in isolation is reasonable. If there is significant overlap in the timing of the construction phases of the other links in Inland Rail, 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 assessment models the construction phase of each link 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 impacts of the proposal will only be fully realised once all components of Inland Rail are completed. Assessing each link of Inland Rail individually and in isolation of the whole program will not capture all the benefits expected to be generated upon completion of the entire Melbourne to Brisbane connection.
- In the context of the regional impact analysis, when modelling each link of Inland Rail in isolation, the capital expenditure (CAPEX) is disproportionate to the benefits directly attributable to that particular link. If the proposal link 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 link 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 EIA.

5.4.3 Regional economic impact analysis results

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

Table 18: Summary of the direct and indirect economic impacts of the proposal construction

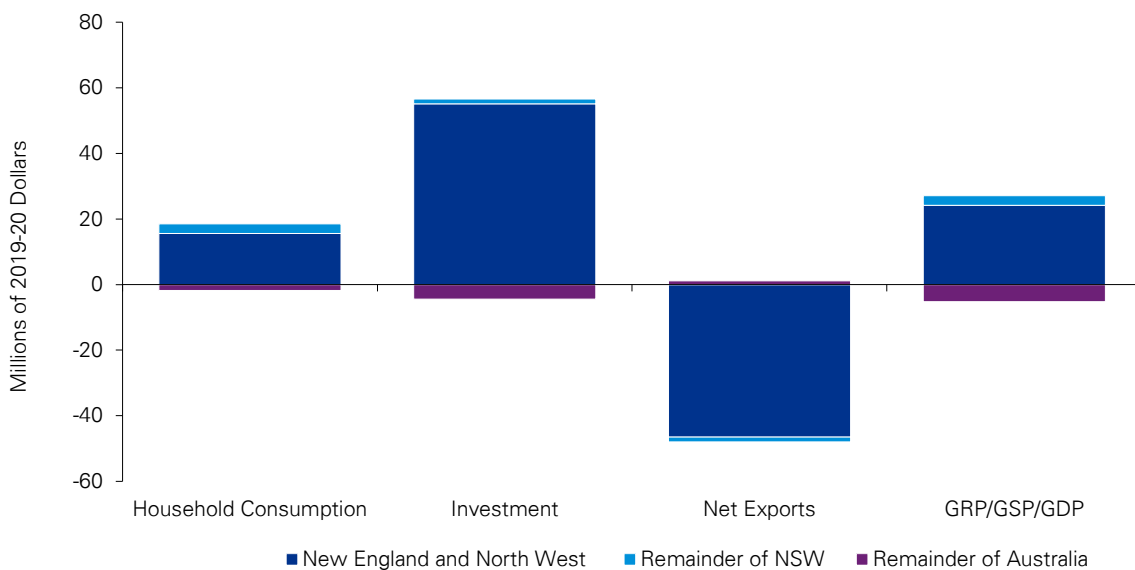
Measure	New England and North West	
	Slack Labour Markets	Tight Labour Markets
Additional real Gross Regional Product (\$2019-20)	\$24 M	\$10 M
Average annual additional direct and indirect employment (persons)	97	24

During the construction phase, real Gross Regional Product (GRP) for the New England and North West region is projected to be \$24 million 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 (\$10 million).

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 97 direct and indirect jobs are generated.³⁴ Note that this is the average number of jobs per annum during the construction period. With tight labour markets, the increase in jobs is significantly less at 24 jobs. Under these assumptions, wages are bid up to attract currently employed workers to the 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 8 and Figure 9 summarise the macroeconomic results for the New England and North West region in the context of the rest of the NSW and Australian economies. Employment results at the industry level are presented in Figure 9.

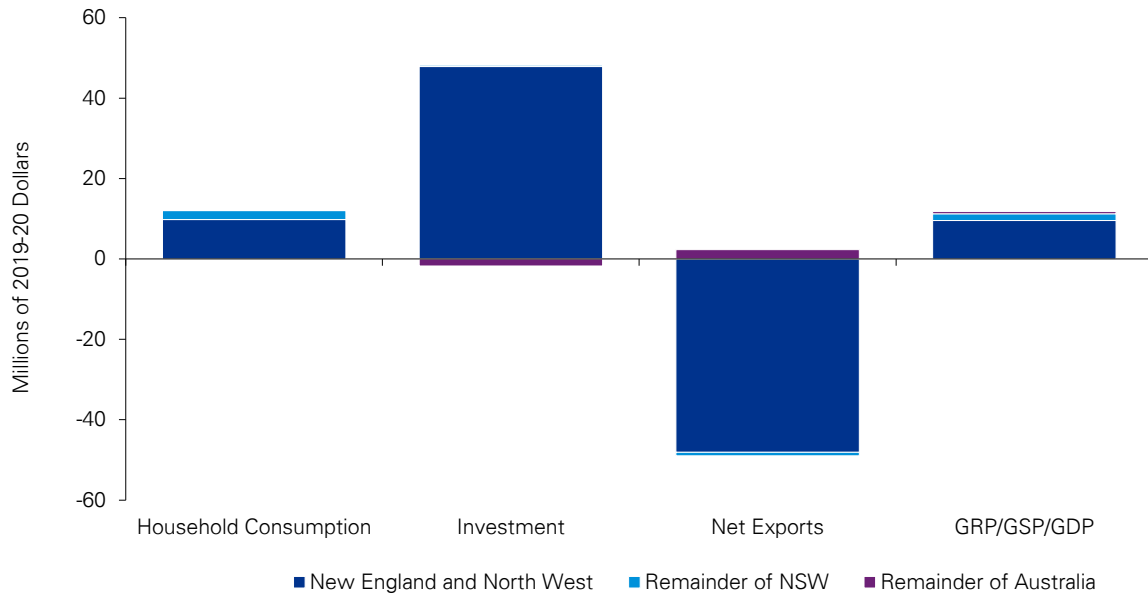
Figure 8: Macroeconomic results: construction phase, slack labour markets



Source: KPMG

³⁴ To put this in context, the planned workforce requirements (direct employment) of the proposal during the construction phase peak at approximately 150 personnel. Almost 80 per cent of the proposal CAPEX (see Appendix A for how CAPEX was derived) is expended in 2022 based on the cost profile provided by ARTC. We estimate that the number of jobs in this year for New England and North West is about 152 in slack labour market conditions and 37 in tight labour market conditions.

Figure 9: Macroeconomic results: construction phase, tight labour markets



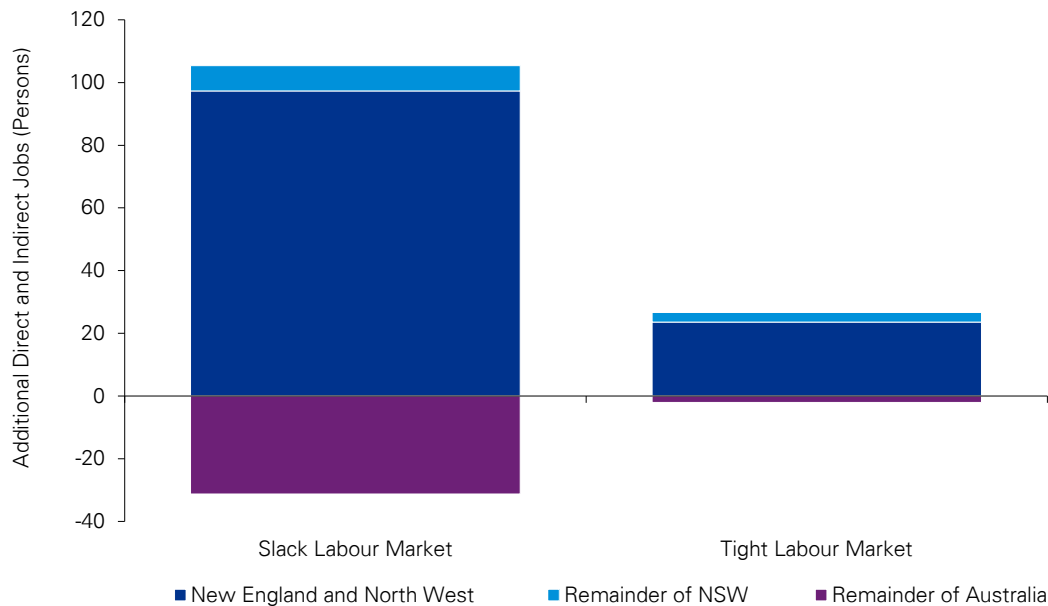
Source: KPMG

The simulation results indicate that the economic impacts of the proposal during the construction phase are concentrated in the New England and North West region. 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, higher costs induce the cost-sensitive trade-exposed sectors to release resources to accommodate the investment demands of the proposal.³⁵

The modelled direct and indirect impacts of the proposal on employment are presented in the figure below.

³⁵ The proposed CAPEX program associated with the proposal constitutes a temporary expenditure shock to the economy. Some of the goods and services purchased by customers in the New England and North West economy 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, we have 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 Figure 8 and Figure 9 are roughly linear for small deviations in the assumed CAPEX. For example, if the proposal CAPEX was increased by 5 per cent (from \$49 million to \$52 million) then net exports for New England and North West would fall by a further 5 per cent.

Figure 10: Direct and indirect employment results



Source: KPMG

The labour market conditions that are expected 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 New England and North West, over the four quarters ending in the March quarter 2020, the unemployment rate averaged 5 per cent³⁶, and the participation rate averaged 78.8 per cent over the 12 months ending in March 2020.³⁷ Labour market conditions in New England and North West appear to have deteriorated since the end of 2019 with the unemployment rate increasing from 4.3 per cent in the December quarter 2019 to 4.9 per cent in the March quarter 2020. Rising unemployment rates coupled with relatively strong participation rates suggests that the labour market in the New England and North West area is not stretched. However, it is important to consider these statistics in a broader context, including with regard 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 March 2020. More recent macro-economic data suggest that labour market conditions have deteriorated further with the economic shock associated with the COVID-19 pandemic adding considerable downside risks to the broader economy in the short to medium term. The National Accounts data for the June quarter 2020 show domestic demand has declined due to the impacts of the global COVID-19 outbreak. Economic conditions are anticipated to remain subdued 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. This characterisation of the labour market does not preclude pressure being placed on specific construction skills during the construction phase. This possibility is discussed below.

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.³⁸ In NSW, during the

³⁷ Participation rate of working-age population 15 – 64 years; ABS, Labour Force Survey 2020, cat. no. 6291.0.55.001. Released 24 September 2020.

³⁷ Participation rate of working-age population 15 – 64 years; ABS, Labour Force Survey 2020, cat. no. 6291.0.55.001. Released 24 September 2020.

³⁸ Based on ABS, Labour Force Survey, Quarterly, May 2020, cat no. 6291.0.55.003. Released 25 June 2020.

reference week in the quarter ended May 2020, 16,400 unemployed persons (approximately 6.3 per cent) reported that their last job was in Construction, representing a 5.7 per cent increase from the corresponding quarter in the previous year. Nationally, over the same period, 11 per cent 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 by 17.6 per cent as at August 2020 from their peak in the quarter ended February 2019.³⁹ These indicators suggest a degree of softness in the Construction sector. The industry and occupational profile of the 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.⁴⁰

The possibility of some tightness in the labour market cannot be completely dismissed. The economy is rebounding faster than expected from the impacts of the COVID-19 pandemic which may result in significantly more activity in the construction sector than anticipated. If this transpires then labour market conditions may tend towards somewhere between the “slack” and “tight” scenarios.

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 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 limited. This risk has now been further reduced by the COVID-19 shock.

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 project’s construction phase.

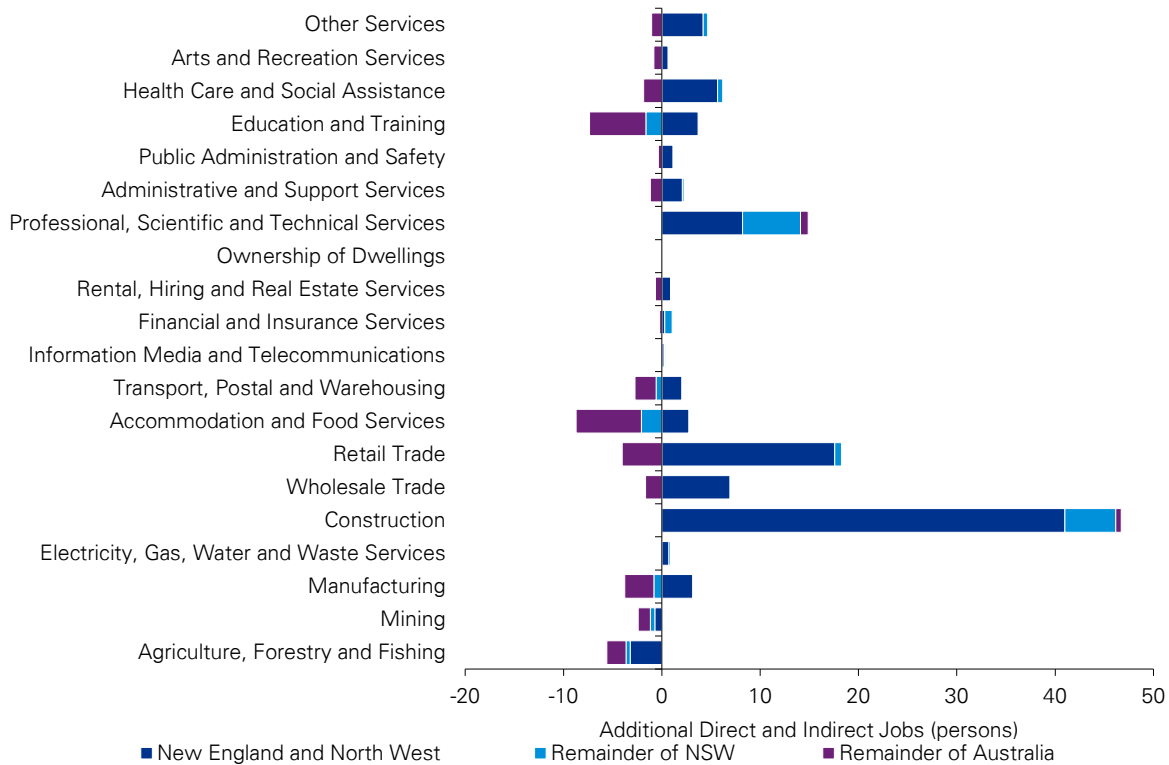
Due to the dynamic nature of local and regional labour markets, ARTC has identified that an analysis of the likely availability of construction labour from the region will be undertaken prior to construction, to enable the refinement of local and regional recruitment and training strategies to maximise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

Employment results at the industry level are presented in Figure 11 and Figure 12. 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.

³⁹ Falling from 19,300 in February 2019 to 15,900 in August 2020. Based on ABS, Job Vacancies, August 2020, cat no. 6354.0. Released 1 October 2020.

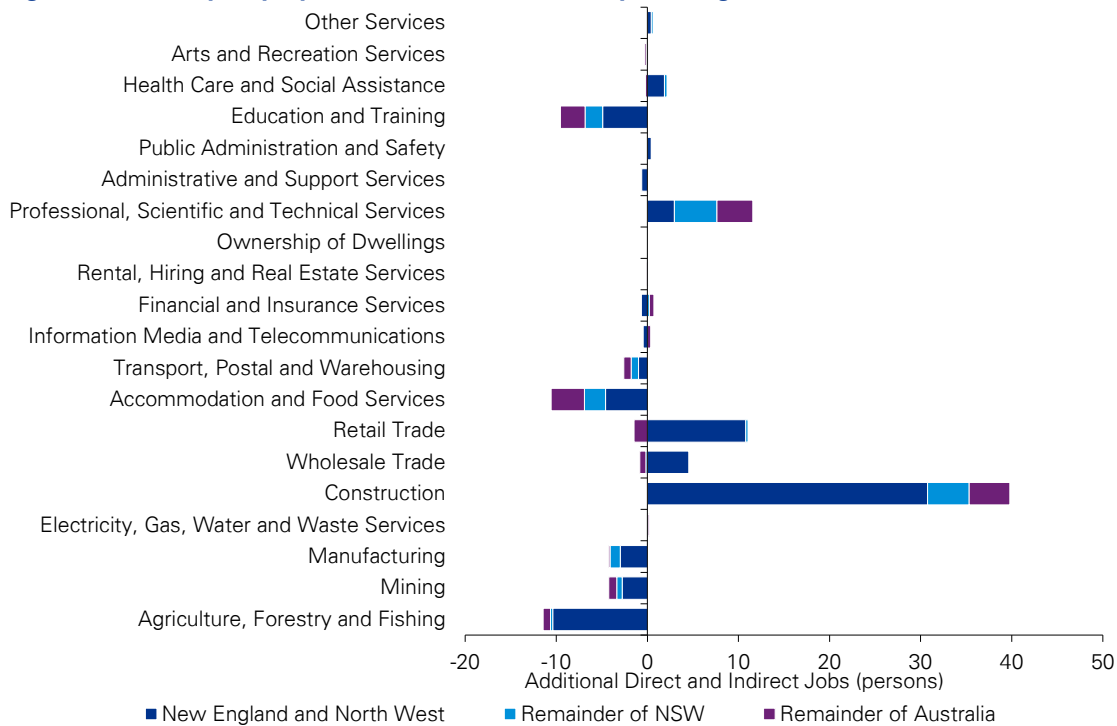
⁴⁰ Workers with specialist skills may be sourced from outside of the local region.

Figure 11: Industry employment results: construction phase, slack labour markets



Source: KPMG

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



Source: KPMG

The Construction sector, which benefits directly from the proposal CAPEX program, is anticipated to expand employment by the greatest number of jobs. 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 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 from lower paying jobs to higher paying jobs.

5.5 Cumulative impacts

5.5.1 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 economic assessment considers the potential impacts of Inland Rail's adjacent Narromine to Narrabri (N2N) and North Star to NSW/Qld Border (NS2B) projects, and other significant projects which may have material cumulative impacts on the proposal (Table 21).

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.⁴¹ 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 Inland Rail or other major projects may be bought forward.

Table 19: Cumulative projects and nature of potential impacts

Project and status	Project timing and jobs	Nature of potential cumulative impacts
Inland Rail – Narromine to North Star	2020-2023 500 jobs during construction	<ul style="list-style-type: none"> There is potential for overlap on construction commencement for N2NS phase 1 and phase 2. If construction is undertaken at the same time, significant traffic impacts are expected on the Newell Highway Potential labour drawn from the regional economic catchment Potential draw on construction materials from the regional economic catchment

⁴¹ 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	Project timing and jobs	Nature of potential cumulative impacts
		<ul style="list-style-type: none"> Businesses within the catchment area (e.g. Narrabri, North Star and Moree are likely to benefit from the Project as a result of increased local expenditure from construction personnel of the combined Inland Rail projects There is also the potential for construction worker accommodation pressure in Moree and surrounds
Narromine to Narrabri – Inland Rail	2021-2024 TBC jobs	<ul style="list-style-type: none"> Potential labour drawn from the regional economic catchment Potential draw on construction materials from the regional economic catchment
Newell Highway Heavy duty Pavement Upgrade	2021-2024 TBC jobs	<ul style="list-style-type: none"> The upgrade of the Newell Highway is planned for north of Moree. It is likely that the timing of construction of the two projects will coincide Potential labour drawn from the regional economic catchment If construction is undertaken at the same time as the rail corridor project, significant traffic impacts are expected on the Newell Highway due to the Newell highway serving as a portion of the haul route There is also the potential for construction worker accommodation pressure in Moree and surrounds
Hunter Gas Pipeline	Expected 2024 600 jobs during construction	<ul style="list-style-type: none"> If construction occurs at the same time, there is potential for increase in traffic using similar routes and demand for construction resources and personnel Potential labour drawn from the regional economic catchment There is also the potential for construction worker accommodation pressure in Moree and surrounds.
Narrabri Gas Project (Santos) (Assessment State with Response to Submission (RtS) and a Supplementary RtS prepared)	Timing TBC 1,300 jobs during construction	<ul style="list-style-type: none"> Planning approval obtained in 2020, with drilling to commence mid-2020 through to 2021 inclusive Potential labour drawn from the regional economic catchment during 2021

5.5.2 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 workers for projects with overlapping construction timeframes will lead to cumulative demands on construction labour, not only within the local and regional economy, but also across NSW, southern Queensland, and potentially nationally. As reported by the Australian Industry Group Construction Outlook (November 2018),

the concurrent delivery of rail projects across Australia has the potential to lead to difficulties in sourcing appropriately skilled labour (such as workers in specific trades requiring specialist skills).

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 5.4.3, the economy is rebounding faster than expected from the impacts of the COVID-19 pandemic which may result in significantly more activity in the construction sector than anticipated. 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 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 limited. This risk has now been further reduced by the COVID-19 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.

5.5.3 Cumulative impacts on local businesses

The expansion in construction activity and regional employment has the potential to increase demand for a range of local infrastructure and services, including housing, health care, childcare, and education. Further, spending on consumer orientated products by the construction workforce has the potential to benefit local businesses by increasing their trading levels. Notably, this impact is likely to be temporary in nature for the duration of construction.

5.5.4 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, borrow and quarried material. Transport or logistics businesses may also have significant opportunities during the construction phase. Where materials are sourced within the region, 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.

Competing demand for resources is likely to result from other heavy rail projects such as the adjacent Inland Rail project links.

6 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 19). These measures are consistent with the Social Impact Assessment⁴² and Land Use and Property Chapter 9.

Table 20: Proposed mitigation, management and enhancement measures

Impact	Management / Mitigation / Enhancement
Workforce impacts	
<p>Project Employment</p> <p>The Project has the potential to be a significant opportunity to support local employment, including Indigenous and youth employment opportunities.</p>	<ul style="list-style-type: none"> ● ARTC and the principal contractor will engage with local schools and training providers to build knowledge of training opportunities and employment pathways associated with the proposal ● The principal contractor will engage with Aboriginal Employment Strategy and the LALC to build awareness of Indigenous employment and business opportunities ● The principal contractor will prepare a proposal specific workforce management plan that sets out: <ul style="list-style-type: none"> ● Participation goals and targets, including Indigenous, women and youth participation, with consideration of the proportion of the Indigenous population and workforce participation rates ● Local skills gaps and potential workforce skills requirements with apprenticeship and training participation targets ● Workforce management protocols and strategies including induction framework, code of conduct, drugs and alcohol policy, and worker support pathways ● The principal contractor will liaise with the N2NS Phase 1 contractor to understand gaps, constraints and opportunities for improvement in the workforce recruitment process ● The principal contractor will liaise with the N2NS Phase 1 contractor to identify potential opportunities to provide, where possible, the continuation of employment to maximise worker retention ● The principal contractor will leverage local resources such as Moree Plain Shire Council (MPSC), Aboriginal Employment Strategy and local community support services to promote employment opportunities and pathways

⁴² WSP, 2021, ARTC Inland Rail Narrabri to North Star Phase 2 Moree to Camurra North Social Impact Assessment

Impact	Management / Mitigation / Enhancement
	<ul style="list-style-type: none"> ● ARTC and the principal contractor will monitor regional infrastructure projects to pre-emptively identify potential constraints in labour markets ● ARTC and the principal contractor will develop a localised communication and engagement strategy to help all interested community members understand opportunities to gain employment and training through the Inland Rail Skills Academy. ● The principal contractor will engage with the Moree LALC, MPSC and local Indigenous employment agencies to determine opportunities and strategies for maximising local training and employment opportunities for Indigenous residents. ● The principal contractor will engage with Moree Secondary College, Moree TAFE, and the Northern Skills Academy to promote current students' training and apprenticeship opportunities. ● ARTC will continue to facilitate the implementation of Inland Rail Skills Academy training programs for regional residents. ● ARTC will promote training opportunities to support rail operation and track maintenance.
<p>Local Business and Industry Participation</p> <p>The Project will have significant construction materials and services requirements which may provide local businesses with the opportunity to supply the Project.</p>	<ul style="list-style-type: none"> ● ARTC and the principal contractor will consult with MPSC, the Moree Chamber of Commerce and local agricultural bodies to identify any potential labour force constraints in the region. ● The principal contractor will liaise with the Moree Chamber of Commerce and the LALC to understand the capacity of local and Indigenous business to supply the proposal ● The principal contractor will seek an information-sharing agreement with the N2NS Phase 1 contractor to investigate opportunities to provide continuity of service for suppliers ● The principal contractor will prepare a local and Indigenous participation plan which identifies the: <ul style="list-style-type: none"> ● Capacity of local and indigenous businesses suitable to supply the proposal ● Methods for preparing suppliers to be ready for potential demand ● Local and indigenous procurement targets ● ARTC and the principal contractor will promote the Inland Rail information hub and ICN portal to businesses in the region ● ARTC and the principal contractor will support training and business capacity building programs available as part of Inland Rail Skills Academy ● The principal contractor will leverage the Moree Chamber of Commerce and MPSC to promote supply opportunities ahead of the construction phase ● The principal contractor will develop property specific construction management plans to manage potential access and amenity impacts.

Impact	Management / Mitigation / Enhancement
	<ul style="list-style-type: none"> • ARTC will maintain a register of local businesses able to supply the project during the operational phase • The principal contractor will monitor the implementation of CMPs and maintain regular communication with affected landowners
Agriculture industry	
<p>Agriculture industry</p> <p>Impacts on agricultural properties including loss of productive land, impacts on property infrastructure, and interruptions to stock and product movements.</p>	<ul style="list-style-type: none"> • Where required, ARTC will develop individual property agreements and consultation with landowners/occupants, with respect to the management of construction on or immediately adjacent to private properties. These will detail any required adjustments to fencing, access, farm infrastructure, irrigation assets and relocation of any impacted structures, as required. • ARTC will consult property owners and occupants in accordance with the Communication Plan, to ensure that owners/occupants are informed about the timing and scope of activities in their area; and any potential property impacts/changes, particularly in relation to potential impacts to access, services, or farm operational arrangements. • ARTC will consult with adjoining landowners regarding temporary construction impacts on viability and productivity. This may include consideration of: <ul style="list-style-type: none"> ○ temporary farm infrastructure to maintain farm management practices ○ modification of construction activities and footprint ○ compensation in accordance with NSW legislation. • ARTC will ensure stock fencing will be provided in accordance with the Inland Rail fencing standards and be constructed prior to the removal of existing fencing or any works being carried out on the subject land, unless otherwise agreed with the landowner. • ARTC will restrict access for stock, as well as non-construction related vehicles and people, to the construction area through fencing and other measures. • ARTC will consult with adjoining landowners prior to and during construction regarding how biosecurity risks are to be managed. • ARTC will ensure temporarily affected land for construction purposes will be restored to an agreed condition and returned to affected landowners as soon as practically possible.

7 Conclusions

A detailed economic assessment has been undertaken for the Narrabri to North Star Phase 2 Moree to Camurra North of Inland Rail, in accordance with the requirements under Key Issue SEARs Section 7 of the SEARs (Economic, Land Use and Agriculture).

Inland Rail impacts

As per the requirements of the SEARs, this economic assessment 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 sections, in collectively delivering the benefits of Inland Rail. In its entirety, Inland Rail will enhance Australia's existing national rail network and serve the interstate freight market. As per the Inland Rail Programme Business Case (2015), key economic impacts of Inland Rail 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 per cent discount rate (2.62 at a 4 per cent 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 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 study area 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. 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 results of the economic benefits assessment estimate that the proposal is expected to provide a total of \$14.73 million (\$2020) in incremental benefits to the project area (at a 7 per cent 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 ~56 per cent of the total benefits (at a 7 per cent discount rate). Freight benefits more broadly (including freight time travel savings, operating cost savings, as well as improved reliability and availability) represent ~90 per cent of the total projected benefits for the proposal.

Regional economic assessment

The prevailing trends in the 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. During the construction phase, real Gross Regional Product (GRP) for the New England and North West region is projected to be \$24 million 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 (\$10 million).

In the slack labour market scenario, it is estimated that an additional 97 direct and indirect jobs are generated.⁴³

⁴³ To put this in context, the planned workforce requirements (direct employment) of the proposal during the construction phase peak at approximately 150 personnel. Almost 80 per cent of the proposal CAPEX (see Appendix A for how CAPEX was derived) is expended in 2022 based on the cost profile provided by ARTC. We estimate that the number of jobs in this year for New England and North West is about 152 in slack labour market conditions and 37 in tight labour market conditions.

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 Programme 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.

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Economic impact assessment

Appendix A Regional economic assessment—assumptions

NARRABRI TO NORTH STAR—PHASE 2 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 undertaken 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 New England and North West's 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 such 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 we impose 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.

Table 21 below reports the projected CAPEX for the proposal. Over the construction phase,⁴⁴ 2020-23, the N2NS CAPEX is projected to be \$640 million (\$2020) (see Table 20). The proposal construction timing, 2022-23, is likely to overlap with the N2NS Phase 1. Therefore, the proposal's total CAPEX is derived using the length of the proposal alignment (14.6 kilometres) as a proportion of the entire N2NS (189.6 kilometres), which is about 8 per cent. The derived proposal's total CAPEX is \$49 million (\$2020) (see Table 21).

Table 21: N2NS Construction Phase

Year	\$2015 ^{a, c}	\$2020 ^{b, c}
2020	\$203,083,727	\$220,603,937
2021	\$215,048,080	\$233,600,465
2022	\$133,673,644	\$145,205,786
2023	\$37,117,332	\$40,319,477
Total	\$588,922,783	\$639,729,665

Table 22: Proposal CAPEX profile – Modelling inputs

Year	\$2015 ^{c, d}	\$2020 ^{b, c}
2022	\$35,493,902	\$38,555,992
2023	\$9,855,637	\$10,705,892
Total	\$45,349,539	\$49,261,883

Notes on Tables 20 and 21:

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

b) Conversion to 2020 dollars based on the Producer Price Index growth from Dec 2015 to Jun 2020. The Producer Price Index used relates to output of the Heavy and Civil Engineering Construction industry specifically.

c) These figures reflect capital costs and do not include other provisions (insurances, construction camps, ARTC train control system', utilities and property & site remediation).

d) Given that the proposal construction timing is 2022-23, the proposal's capital cost schedule is based on the N2NS capital cost profile from 2022-23 with approximately 78 per cent of the proposal CAPEX estimated to fall in 2022, and the remainder in 2023.

⁴⁴ 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 2022 are not included because they are spent outside of the indicative construction period. Total spending in the construction phase (including pre-construction costs) is \$696,665,728 (\$2015) and \$756,767,687 (\$2020).

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Economic impact assessment

Appendix B Treatment of coal demand for the Inland Rail EIS

NARRABRI TO NORTH STAR—PHASE 2 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 Environmental Impact Statements (EIS).

For the purposes of the economic benefits assessments contained within the Inland Rail EIS’, freight movements from coal demand have been excluded. This approach is consistent with the Cost Benefit Analysis (CBA) completed for the ARTC Inland Rail Programme 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 Programme 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 network⁴⁵, 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 links to be delivered as part of Inland Rail. For example, as a stand-alone project, the Calvert to Kagaru project link 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 Inland Rail with complementary investment in Western Line Upgrades, which do not form part of the scope of Inland Rail 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 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.

⁴⁵ 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”