APPENDIX

I

Economic Assessment Technical Report

NORTH STAR TO NSW/QUEENSLAND BORDER ENVIRONMENTAL IMPACT STATEMENT

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

KPMG

Inland Rail

North Star to the Queensland Border

Environmental Impact Statement

Economic Assessment Technical Report

2-0013-270-EEC-01-RP-0001

Disclaimers

Inherent Limitations

This report has been prepared as per the purpose outlined in the Introduction. The services provided in connection with this engagement comprise an advisory engagement, which is not subject to assurance or other standards issued by the Australian Auditing and Assurance Standards Board and, consequently no opinions or conclusions intended to convey assurance have been expressed.

No warranty of completeness, accuracy or reliability is given in relation to the statements and representations made by, and the information and documentation provided by, ARTC management, personnel and stakeholders consulted as part of the process.

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

KPMG is under no obligation in any circumstance to update this report, in either oral or written form, for events occurring after the report has been issued in final form.

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

Third Party Reliance

This report is solely for the purpose set out in the Introduction and for ARTC's information, and is not to be used for any other purpose without KPMG's prior written consent.

This report has been prepared at the request of ARTC in accordance with the terms of KPMG's contract (9000-0013) dated 4 May 2018. Other than our responsibility to ARTC, neither KPMG, nor any member or employee of KPMG undertakes responsibility arising in any way from reliance placed by a third party on this report. Any reliance placed is that party's sole responsibility.

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Summary

Introduction

The following economic impact assessment (EIA) report has been prepared to identify potential economic impacts of the proposed North Star to Queensland Border (NS2B or the Project) link of the Inland Rail Program (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 5.1 of the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

ARTC lodged its NS2B State Significant Application with the NSW Government on 21 May 2018, and the Secretary's Environmental Assessment Requirements (SEARs) were issued on 8 August 2018. The following assessment addresses the economic specific requirements of Section 15 of the SEARs.

Specifically, this assessment:

- Establishes the existing economic environment for the defined economic catchment area, to understand the local economic context and form the basis to measure change or impacts;
- Identifies potential economic benefits and impacts on affected local and regional communities and businesses. This will be drawn from local consultation and industry engagement undertaken by ARTC, evaluation of publically available information, and the outputs from the social impact assessment, economic benefits assessment and regional impact analysis;
- Assesses the projected economic benefits of the Project, including the basis for their estimation through a detailed economic benefits assessment. The outcomes of the proposed NS2B link-specific analysis will be contextualised against the results of the cost benefit analysis (CBA) undertaken for the entire Inland Rail Program, as per the Inland Rail Program Business Case (2015);
- Assesses the economic significance of the Project 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
- Proposes measures to enhance economic benefits and to avoid, mitigate or manage adverse economic impacts.

This report has been prepared to detail the findings of each of the above and acts as a Technical Report to the EIS that has been prepared. This report should not be considered in isolation from the EIS.

Study area

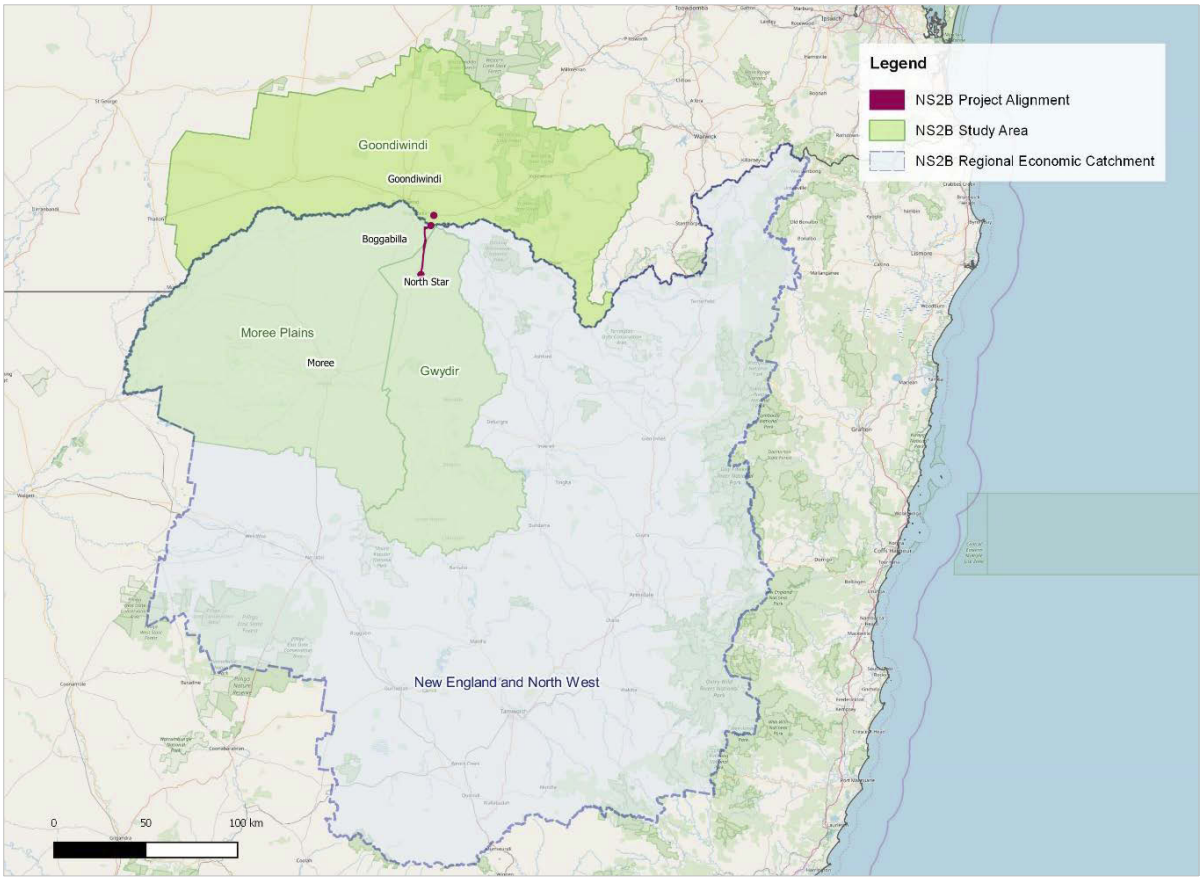
The Project traverses two local government areas (LGAs) which have been used to establish and analyse the existing economic environment of the NS2B link of Inland Rail – Moree Plains and Gwydir. For the purposes of the EIA, the Goondiwindi LGA is also relevant due to its proximity to the Project. Combined, these LGA boundaries form the **study area** for assessing the local economic impacts of the Project, 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 Project is located. The Project is located within the New England and North West (NewEngNthWst) labour market region which is defined as the regional economic catchment area for this EIA.

Area Definitions:

- **Study area:** Goondiwindi, Moree Plains and Gwydir Local Government Areas
- **Regional economic catchment area:** New England and North West Statistical Area 4

NS2B study area and regional economic catchment



Source: ARTC, KPMG Mapping

Baseline and impact assessment

Existing labour market conditions

According to the Australian Government's quarterly regional estimates of unemployment, as at September 2019 there were a total of 701 unemployed persons in the study area and 5,262 in NewEngNthWst. 56.6 percent of unemployed persons in the study area are located in Moree Plains, which also has the highest unemployment rate at 5.6 percent (four quarter average of 7.3 percent). The unemployment rate across the regional economic catchment is only marginally higher than the NSW state average at 4.4 percent (compared to 4.5 percent).

For the September 2019 quarter, the labour force participation rate across the study area and regional economic catchment was lower than the state averages (Table 4). Within the study area, the lowest rate of labour force participation is in Gwydir at 65.9 percent, followed by Moree Plains at 66.4 percent (compared to the NSW rate

of 78.2 percent). The highest rate of labour force participation is in Goondiwindi at 72.1 percent (compared to QLD rate of 78.5 percent).

Employment by industry

The major employment industry for those living in the study area is Agriculture, Forestry and Fishing, employing close to a third of the total workforce (28.6 percent). This industry strength is reflected at a LGA level, with the sector employing 40.2 percent of the workforce in Gwydir, 27.7 percent in Goondiwindi, and 25.0 percent in Moree Plains. Within this industry, the primary source of employment is in Sheep, Beef and Grain Farming, employing close to one fifth of the working population (18.0 percent).

As at June 2016, there were a number of residents within the study area employed in industry sectors and occupations directly relevant to supporting the construction of the Project. The largest proportion are employed in Construction Services (490 workers) and Heavy and Civil Engineering Construction (127 workers). Across the NewEngNthWst region, 3,140 workers are employed in Construction Services and 457 workers in Heavy and Civil Engineering Construction.

Occupation

The study area's primary occupations of employment are reflective of the study area's strong resident employment in the Agriculture, Forestry and Fishing industry. The largest proportion of the area's workforce are employed as Farmers and Farm Managers (15.1 percent).

At the broadest level, the study area has a higher proportion of workers employed as Managers and Labourers than the NSW and QLD averages (representing 37.0 percent of total employment, compared to the state averages of 22.3 percent and 22.6 percent respectively).

At a local government level, 27.1 percent of Gwydir's total workforce are employed as Farmers and Farm Managers, and a further 7.6 percent are employed as Farm, Forestry and Garden Workers. In Moree Plains and Goondiwindi, Farmers and Farm Managers represents the occupation of 12.5 percent and 12.9 percent of the local workforce respectively.

Workforce profile

Direct employment resulting from the construction and operation of NS2B has been estimated based on the indicative construction schedule and component activities. The Project is anticipated to require a workforce of up to 50 personnel during pre-construction, up to a peak of 350 personnel during construction and between 20 to 50 personnel once operational.

Further, the industrial and consumption effects of the Project will result in the creation of indirect jobs both due to upstream and downstream linkages between the Project'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 latent capacity within the study area and regional economic catchment to support the construction and operation of the Project (in isolation of adjacent rail and other major transport infrastructure projects. The cumulative impact of these interacting projects on the labour market is detailed in Section 6).

Local businesses and industry

Agriculture

According to the Department of Agriculture, the Project is located within (or in close proximity to) the North West NSW and QLD Murray Darling Basin agricultural regions. As Murray-Darling Basin irrigated agricultural areas, the region's agricultural production is underpinned by a relatively large area of quality agricultural land and irrigation water supplies. The agriculture industry offers significant export opportunities for the region, particularly for agricultural and livestock products. In 2016-17, the gross value of total agricultural commodities produced across the region was $4,862 million. Measured as a proportion of total agricultural production, the region's main agricultural products are livestock ($1,355 million), cotton ($1,058 million), and wheat ($835 million) (2016-17).

Across the study area, the largest proportion of businesses are in the Agriculture, Forestry and Fishing industry, represented by 879 businesses in Goondiwindi (45.3 percent), 819 businesses in Moree Plains (42.6 percent) and 471 businesses in Gwydir (63.2 percent).

As identified in the Social Impact Assessment (Appendix O), there are a number of large agribusinesses located close to the Project alignment:

- The Oakhurst Partnership: a major grazing and cattle production operations north of North Star.
- Merewah Poll Hereford stud: a Hereford stud situated near Boggabilla on the banks of the Macintyre River.
- Namoi Cotton Limited: a cotton processing and marketing organisation with logistics operations and a warehouse facility in Goondiwindi.
- Woods Group: a grain processing and storage facility in Goondiwindi including transport depot and container handling equipment facility.

There are several other family and corporate farming operations in the study area which have the potential to be impacted by the Project.

The construction and operation of the Project has the potential to impact farming operations and general agricultural uses across the study area. These impacts include:

- Loss of agricultural land;
- Land fragmentation and disruption to access and infrastructure;
- Disruption to stock and product movement; and
- Improvements in supply chain efficiency.

Loss of agricultural land

As detailed in EIS Chapter 21: Land Use and Property, the Project will result in the sterilisation of productive agricultural land within the permanent disturbance footprint.[1] The permanent disturbance footprint traverses through approximately 52 ha of high capability agricultural land (Class 1, 2 and 3) - 10 ha of Class 2 land and 42 ha of Class 3 land. There is no Class 1 agricultural land within the footprint. Overall, the permanent disturbance footprint will traverse significantly less than one per cent of agricultural land within the region (Less than 0.1 percent of any single agricultural land class across Moree Plains and Gwydir).

No local agribusinesses will be impacted by land acquisition or sterilisation.

Land fragmentation and disruption to access and infrastructure

The Project may also sever or isolate parcels of agricultural land that may prohibit or limit internal movements. According to EIS Chapter 21: Land Use and Property, the fragmentation of properties may cause a disruption in farm operations through impacts to essential farming infrastructure, services or access routes.

The Project will be designed to limit the impact to drainage lines, diversions, or any potential for cutting off water input to or from dams.

The specific impact on the economic viability of farming operations as a result of this potential disruption to access and infrastructure is not quantified in this assessment. ARTC will work with individual land owners to develop suitable solutions based on individual farm management practices.

Disruption to stock and product movement

The permanent disturbance footprint traverses four land parcels designated as travelling stock reserves.

[1] The permanent disturbance footprint is defined as the physical rail corridor including the rail tracks and associated infrastructure. It also includes other permanent works associated with the Project, such as where changes to the road network are required.

As detailed in EIS Chapter 21: Land Use and Property, it is understood that there may also be informal stock routes which may be used to transfer stock to various grazing paddocks and holding yards within or across the study area.

The nature and magnitude of the impact of the Project on these travelling stock reserves and informal stock routes is currently unknown. ARTC will continue its ongoing consultation with landholders to manage any impact on stock routes, and consultation has been incorporated into the feasibility design.

Improvements in supply chain efficiency

Efficient supply chains support the regional and national capacity to enhance economic opportunities within local communities. NS2B is a critical link in the broader Inland Rail Program, combining greenfield with brownfield development to create a more direct rail freight corridor, offering a more efficient solution for intra and interstate freight operators who will be able to avoid inland and coastal road and rail networks. Specifically, the Project:

- Offers opportunities to support local export industries (such as agriculture), by driving savings in freight costs (by increasing the competition between road and rail freight modes).
- Provides a link to existing intermodal terminals at Narrabri and Moree to interstate markets, improving access to and from regional areas identified to be significant areas for outbound containerised freight.
- Acts as a catalyst for development within these areas, particularly in relation to rail dependent industries and support industries associated with transport, freight handling, warehousing and logistics.

Tourism

The regional economic catchment area is recognised as a popular tourist destination for visitors seeking to explore Australia's rural landscape.

The Project has the potential to change local amenity and service capacity within the study area, during both construction (temporary) and operation (permanent). Impacts on the amenity of tourism attractions or scenic values may impact on visitation numbers, which could reduce local tourism expenditure. Conversely, there are also opportunities that may arise due to legacy infrastructure from the accommodation camp at North Star.

During construction, there is potential for road 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, but some tourists may be deterred from visiting during these periods. According to the Social Impact Assessment (Appendix O), the impact on local amenity is expected to be tolerated by tourists due to the location of touring routes and the temporary nature of construction activity.

The proposed North Star accommodation camp will service the non-residential workforce for the duration of the Project's construction. Accordingly, there will be no impact on the availability of local tourism accommodation in North Star (and surrounding areas) as a result of the Project's construction workforce. The accommodation camp also has the potential to have legacy benefits which may support tourism in the region. Following construction, the buildings and infrastructure established for the accommodation camp may be left for community use. This may enhance access to local facilities, with the potential to support tourism in North Star.

During operation, there is potential for reduced scenic amenity due to the Project's location within the rural and regional landscape. According to the Social Impact Assessment, this is not expected to have a significant impact on tourism visitation.

Supply opportunities

There are a number of construction businesses located within the study area. As at June 2018, there were a total of 199 employing businesses and a further 215 non-employing businesses across Goondiwindi, Moree Plains and Gwydir. These businesses are likely to be a significant source of services and equipment during the Project's construction.

Services which could potentially be sourced from within local or regional communities include:

- Fencing;
- Electrical installation (excluding rail systems) and instrumentation;
- Rehabilitation and landscaping;
- Cleaning and maintenance of construction and accommodation facilities;
- Trades services, possibly supplied by major construction contractors working out of Toowoomba;
- Professional services (e.g. human resources); and
- Community adaptation to the rail corridor (e.g. community and economic development services).

Quarry materials

The two closest operating quarries in the vicinity of the Project are Inglewood Quarry (outside Inglewood (approximately 75km northeast of the northern end of the Project alignment) and Johnstone Quarry near Moree (approximately 80km southwest of the southern end of the Project alignment). It has been assumed by ARTC that these quarries can provide ballast and capping for the whole Project.

Importantly, the Moree Plains Shire Council and Gwydir Shire Council both advised ARTC during consultation that there were approved quarry developments in their LGAs, with anticipation that the applicants could supply Inland Rail projects.

Transport

While transport is not a significant industry within the study area, there are several large transport companies based in Goondiwindi, which may have the capacity to support the construction of NS2B, including:

- Marshall Group, operating a number of aluminium trailers including B Doubles and Road Trains to haul grain into feedlots in South East Queensland;
- Frasers Livestock Transport, operating livestock transportation with more than 150 trailers of all configuration; and
- Woods Transport which has a large fleet of vehicles travelling between Goondiwindi, Toowoomba and the Port of Brisbane.

During construction, there will be significant opportunities for these businesses to bring construction materials to laydown areas and remove waste materials and recyclables from construction compounds.

During operation, enhanced competition between rail and road freight modes may decrease the demand for road freight, impacting on levels of trade for local transportation businesses.

Local resource interests

The Project is unlikely to have an impact on local resource interests as there are no mining, mineral exploration or petroleum exploration leases within the study area.

Local service and supply businesses

The Project is likely to offer opportunities in secondary service and supply industries (such as retail, hospitality and other support services) for businesses in close proximity to the construction footprint and accommodation camp. The expansion in construction activity would support additional flow-on demand and additional spending by the construction workforce in the local community. Retail businesses such as the Cleveland Motel, North Star Sporting Club and Wobbly Boot Hotel have the potential to benefit from increased trade. ARTC has developed an Inland Rail Sustainable Procurement Policy which will ensure that local, regional and Indigenous businesses will have opportunities to supply the Project.

Local business participation

The Project's local supply arrangements will be provide as an opportunity to develop and grow local and regional businesses.

As detailed in the Social Impact Assessment (Appendix O), and with reference to the Indigenous labour market conditions, the Project has a significant opportunity to improve community wellbeing in Toomelah through employment and training. Prior experience through the Community Development Employment Program in Toomelah demonstrates the potential for sustained employment to positively change the social and economic conditions in Toomelah. Construction work will be temporary only, and the operational workforce is anticipated to be small, therefore a customised employment program underpinned by empowerment through community development is needed.

ARTC is undertaking consultation with the Toomelah community to identify potential business opportunities and associated community development programs.

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 NS2B. However, the assessment acknowledges the role of the Project, and the remaining project 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 percent discount rate (2.62 at a 4 percent discount rate).
- Economic growth as increased profits (for industries and producers where intercapital freight is an input or output) and incomes are multiplied through the economy. The Program is anticipated to deliver a net positive impact of $16 billion on Gross State Product over its 10 year construction period and 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 over the construction 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).

Economic benefits assessment

An economic benefits assessment has been undertaken to identify and assess the likely benefits of NS2B, as a discrete project, to the community. These economic benefits have been estimated based on the impacts of the Project on the transport network, in particular freight operators, along with the benefits accrued by non-users (the community). Where the Project 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 Cost Benefit Assessment (CBA)

1. Evaluation of the likely benefits of the discrete NS2B Project (economic benefits assessment). This analysis assesses just 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 Project is expected to provide a total ($2019) of $65.72 million in incremental benefits (at a 7 percent discount rate). This consists of $52.51 million in freight benefits and $13.21 million in community benefits.

Observing the composition of benefits, the largest share of benefits for NS2B is freight operating cost savings, representing ~37 percent of the total benefits (at a 7 percent discount rate). This is consistent with the analysis for Inland Rail Program Business Case (2015), where freight operating cost savings were ~39 percent of the total benefits.[2] Freight benefits more broadly (including freight time travel savings, operating cost savings, as well as improved reliability and availability) represent ~80 percent of the total projected benefits for NS2B.

Reductions in environmental externalities (i.e. air pollution and greenhouse gas emissions) from reduced heavy vehicle kilometres travelled represents ~8 percent of the total benefits (at the 7 percent discount rate).

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

Results of the economic benefits assessment ($2019)

BENEFITS	Discount Rate		
	4%	7%	10%
Freight Benefits	**$108.11 m**	**$52.51 m**	**$29.72 m**
Travel Time Savings	*$6.80 m*	*$3.20 m*	*$1.76 m*
Operating Cost Savings	*$45.11 m*	*$24.01 m*	*$14.66 m*
Improved Availability	*$43.76 m*	*$19.46 m*	*$10.08 m*
Improved Reliability	*$12.44 m*	*$5.84 m*	*$3.22 m*
Community Benefits	**$24.35 m**	**$13.21 m**	**$8.19 m**
Crash Reduction	*$3.34 m*	*$1.81 m*	*$1.12 m*
Environmental Externalities	*$9.71 m*	*$5.27 m*	*$3.27 m*
Road Decongestion Benefits	*$11.30 m*	*$6.13 m*	*$3.80 m*
TOTAL BENEFITS	**$132.46 m**	**$65.72 m**	**$37.91 m**

Source: KPMG

Cost Benefit Analysis: Inland Rail Program Business Case

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

[2] $2015 PV at 7 percent discount rate; assumes Western Line upgrades.

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 NS2B has been undertaken by identifying and quantifying the impacts of the Project on the regional, state and national economy using an equilibrium modelling framework. The regional economy is represented by the NewEngNthWst labour market region.

A CGE model (KPMG-SD) was developed to examine the direct and indirect (flow-on) effects arising from the construction of NS2B 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.[3]

Note: When modelling each link of Inland Rail in isolation, the CAPEX is disproportionate to the benefits directly attributable to that link of Inland Rail. An operational phase shock generates results consistent with a significant overinvestment in rail infrastructure for the NewEngNthWst region, with consequent distortionary effects on the local economy as the demand and supply of rail services is rebalanced. Accordingly, the operational phase modelling results are not included in this EIA.

The key impacts of NS2B on the NewEngNthWst region during the construction phase are summarised in the table below

Summary of the direct and indirect economic impacts of NS2B on the NewEngNthWst region over the construction phase

Measure	Slack Labour Markets	Tight Labour Markets
Additional Real Gross Regional Product ($2018-19)	$79 m	$41 m
Additional Employment (persons)	448	75

Source: KPMG

Over the construction phase, real GRP for the NewEngNthWst region is projected to be $79 million higher than the baseline level under the assumption of slack labour markets. This increase is almost halved if labour markets are assumed to be tight ($41 million) as a redistribution of employed workers to higher value adding jobs is less beneficial in GSP (value adding) terms than an increase in the number of workers employed.

The importance of the labour market assumption is further reflected in the employment results. In the scenario with slack labour markets, the construction phase of NS2B generates an additional 448 jobs per annum in the NewEngNthWst region (direct and indirect employment).[4] With tight labour markets, the increase in jobs is significantly less at just 75 jobs per annum. Under tight labour markets, 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 underemployed workers to accommodate the increase in demand for labour without increasing real wages.

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

[4] To put this in context, the planned workforce requirements of the NS2B project during the construction phase peak at approximately 350 personnel.

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 will prevail during the construction phase of NS2B will be closer to those characterised by the "slack" labour market scenario. Accordingly, it is reasonable to assume that the regional labour market has the capacity to supply a significant portion of the workforce requirements of the Project, without major disruption. Based on the industry of employment and occupation of the local workforce, it can be broadly assumed that the labour force has the appropriate skills and knowledge to support the Project.

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 NS2B. As selected by ARTC, these projects include Inland Rail's adjacent Narrabri to North Star (N2NS) and NSW / QLD Border to Gowrie (B2G) projects, and those State Significant projects which were planned, or in construction within the Gwydir and Moree Plains LGAs, at the time the SEARs were finalised.

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.

For NS2B, given current labour market conditions (deteriorating over the past 12 months and characterised by high under-employment), the labour market is likely to reflect a "slack" labour market and will have the capacity to supply a portion of the workforce requirements of the Project. The prevailing trends in the New England North West labour market, and the ability of construction workers to mobilise to project locations, suggests that the risks of labour market disruption are limited.

The cumulative stimulus to the economy resulting from the construction and operation of the proposed projects will primarily result in labour market and supply chain impacts. The combined stimulus will create significant demand for additional labour and physical inputs (e.g. material), and may also increase demand for a range of infrastructure, goods and services which may increase business trading levels in the local economy.

Mitigation and management strategies

NS2B 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 Project, 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.

A Social Impact Management Plan (SIMP) has been developed which outlines the objectives, outcomes and performance measures required to manage the social and socio-economic impacts of the Project, and enhance

Project benefits and opportunities. There are two sub-plans which are directly relevant to the economic impacts identified and assessed in this EIA – Workforce Management and Local Business and Industry Participation.

Conclusions

The economic impact of the NS2B Project will promote community development by supporting local and regional employment, businesses and industries. The findings of this EIA suggests:

- NS2B will support regional development through:
    - Opportunities to encourage, develop and grow Indigenous, local, and regional businesses through the supply of resources and materials for the construction and operation of the Project (e.g. borrow and ballast materials, fencing, electrical installation (excluding rail systems) and instrumentation, rehabilitation and landscaping, cleaning and maintenance of construction and accommodation facilities).
    - Opportunities in secondary service and supply industries (such as retail, hospitality and other support services) for businesses in close proximity to the construction footprint and the proposed accommodation camp at North Star. The expansion in construction activity is also likely support additional flow-on demand and additional spending by the construction workforce in the local community.
- NS2B is a critical link in the broader Inland Rail Program, combining greenfield with brownfield development to create a more direct rail freight corridor for freight operators. NS2B offers opportunities to support the local agricultural industry, by driving savings in freight costs, improving market access, and reducing the volume of freight vehicles on the region's road network.
- NS2B has the potential to acts as a catalyst for development around intermodal terminals at Narrabri and Moree, particularly in relation to rail dependent industries and support industries associated with transport, freight handling, warehousing and logistics.
- The Project alignment has been designed to minimise impacts to local business and industry, however the Project may result in disruption to agricultural, transportation and tourism 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. ARTC will work with individual land owners to develop suitable management solutions based on individual farm management practices to mitigate and manage these impacts.
    - Once the Project is operational, enhanced competition between rail and road freight modes may decrease the total demand for road freight, impacting on levels of trade for local transportation businesses.
    - NS2B will impact on local amenity, with the potential to impact the attractiveness of the area for tourists. The Social Impact Assessment (Appendix O) assessment concludes that it is unlikely that this impact will result in a significant decrease in visitation.
- The economic benefits assessment estimate that the Project is expected to provide a total of $65.72 million ($2019) in incremental benefits (at a 7 percent discount rate). These benefits result from improvements in freight productivity, reliability and availability, and benefits to the community from crash reductions, reduced environmental externalities and road decongestion benefits.
- The Project will promote regional economic growth across the NewEngNthWst region. Using recent labour market trends to inform workforce capacity and capability within the local region, it has been concluded that it is likely that the labour market conditions that will prevail during the construction phase of NS2B will be closer to those characterised by the "slack" labour market scenario. Under this scenario, over the construction phase, real Gross Regional Product for the region is projected to be $79 million higher than the baseline level.

- Under a "slack" labour market scenario, NS2B is also expected to deliver an additional 448 jobs per year over the construction period.

ARTC are committed to enhancing the economic benefits of the Project while avoiding, mitigating or managing any adverse economic impacts. Accordingly, they have developed a Social Impact Management Plan which outlines the objectives, outcomes and performance measures for, and the actions that ARTC will undertake and / or require its contractor to undertake to manage the social and socio-economic impacts of NS2B, and enhance Project benefits and opportunities.

1 Introduction

The following economic impact assessment (EIA) report has been prepared to identify potential economic impacts of the proposed North Star to Queensland Border (NS2B or the Project) link of the Inland Rail Program (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).

Inland Rail would 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.

Australian Rail Track Corporation Ltd (ARTC) has sought approval to construct and operate Inland Rail.

1.1 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 5.1 of the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

ARTC lodged its NS2B State Significant Application with the NSW Government on 21 May 2018, and the Secretary's Environmental Assessment Requirements (SEARs) were issued on 8 August 2018. The following assessment addresses the economic specific requirements of Section 15 of the SEARs.

Table 1: SEARs requirements - Socio-economic, Land Use and Property

Desired Performance Outcome
The Project minimises adverse social and economic impacts and capitalises on opportunities potentially available to affected communities. The Project minimises impacts to property and business and achieves appropriate integration with adjoining land uses, including maintenance of appropriate access to properties and community facilities, and minimisation of displacement of existing land use activities, dwellings and infrastructure.
Current Guidelines
Environmental Planning and Impact Assessment Practice Note: Socio-economic Assessment (RMS, 2013) Social Impact Assessment Guideline for State Significant mining, petroleum production and extractive industry development (DPE, 2017) Social Impact Assessment Scoping Tool (DPE, 2017) Infrastructure Proposals on Rural Land Primefact 1063, second edition (DPI, 2013) Strategic Rural Land Use Plan New England North West (DPI, 2012) New England North West Regional Plan 2036 (DPE, 2017)

EIS Requirement	**EIS Section**
The Proponent must assess social and economic impacts in accordance with the current guidelines.	Addressed throughout the following technical report and in Appendix O: Social Impact Assessment Technical Report

EIS Requirement	EIS Section
The Proponent must assess agricultural land use impacts.	Addressed throughout the following technical report, EIS Chapter 21: Land Use and Property and in Appendix O: Social Impact Assessment Technical Report
The Proponent must undertake an assessment of biosecurity risks and management measures relating to the potential for spread of pests, diseases or weeds along the length of the Project alignment.	EIS Chapter 10: Biosecurity
The Proponent must assess the social and economic impact of temporary accommodation for construction workers (construction camps) on communities near the Project site.	Addressed throughout the following technical report and in Appendix O: Social Impact Assessment Technical Report
The Proponent must assess impacts from construction and operation on potentially affected properties, businesses, recreational users and land and water users (for example, recreational and commercial fishers, including property acquisitions/adjustments, access, amenity and relevant statutory rights.	Addressed throughout the following technical report and in Appendix O: Social Impact Assessment Technical Report
Where the Project may impact on significant mineral resources, the Proponent must assess the impact of the project on these resources.	Addressed in the following technical report and in EIS Chapter 21: Land Use and Property
The Proponent must identify encroachments into adjoining road reserves, travelling stock routes and Crown land and roads affected by the Project.	Addressed in the following technical report and in EIS Chapter 21: Land Use and Property

1.2 Guidelines

As identified in the SEARs, the following EIA has been undertaken in accordance with 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.'*

1.3 Local and regional policy and planning

There are a number of strategic policy and planning documents that align to the objectives and intent of the development of NS2B. These documents are discussed below.

Australian Infrastructure Plan 2016, Infrastructure Australia

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

- Productive cities, productive regions

- Efficient infrastructure markets
- Sustainable and equitable infrastructure
- Better decisions and better delivery.

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

The Plan highlights the importance of the Melbourne to Brisbane freight corridor in supporting population, production and employment precincts along the east coast of Australia. Inland Rail will improve the efficiency, effectiveness and safety of freight movements travelling along this corridor. As both a greenfield and enhancement (brownfield) project, NS2B will contribute to the realisation of these benefits, including improvements to the productivity and competitiveness of Australia's freight sector.

Upper North West Regional Economic Development Strategy 2018-2022, NSW Government

The study area is covered by the Upper North West Regional Economic Development Strategy 2018-2022 (the Strategy). The NSW Government's vision for the economic region is to *'maximise the opportunities provided by the region's engine industries and wealth of natural assets while maintaining the quality of the environment and quality of life for a growing population.'*

The Strategy recognises the region's natural endowments, and subsequently specialisation in agriculture, mining and gas, manufacturing, renewable energy and tourism. Four core strategies have been identified to capture the opportunities, manage risks and deliver on the vision for the Region. The Project aligns to a number of the key initiatives and actions to deliver on these strategies.

Core strategies:

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.

As part of Inland Rail, NS2B has the potential to provide supply chain benefits and cost savings for freight companies and producers. Improvements to freight efficiency will improve the productivity of local industry and businesses, promoting employment and economic growth.

New England North West Regional Plan 2036, NSW Government

The New England North West Regional Plan 2036 (NENWRP) 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.'*

Gwydir is identified as having a strong and growing economy based on agriculture which is supported by the 'Golden Triangle' area around North Star, an area known for its high yielding crops. Moree Plains is identified within the Plan as one of the top agricultural producing areas in Australia, producing large-scale cereal and chickpea crops as well as cotton, pecan nuts, sheep and cattle. Moree is also identified as a key location for the Inland Rail.

The Project's economic impacts would contribute to the achievement of two of the key regional goals outlined in the plan:

- A strong and dynamic regional economy.
- Strong infrastructure and transport networks for a connected future.

The NENWRP recognises the importance of expanding export-related and value-adding industries to encourage investment, attract industry and provide certainty to industries. It further recognises the critical role of stronger

transport links, through projects such as Inland Rail, to enable this expansion through freight and logistics connectivity.

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

The New England North West Regional Transport Plan (the Plan) describes a vision for transport in the region over the next 20 years. The Plan acknowledges the significance of the freight task on the region's transport network, and the need for the right network capacity and configuration to enable efficient freight movements, meet capacity and complexity needs, support productivity and operate in a sustainable way.

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

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

Goondiwindi Community Plan 2012-2022, Goondiwindi Regional Council

The Goondiwindi Community Plan 2012-2022 describes a shared vision for the Goondiwindi community's future and economic growth. The community plan's economic priority is to develop *'a strong and sustainable regional economy that supports the growth of existing and new industry and business activities that enhance local lifestyle and provide long term employment opportunities.'*

As a dedicated freight network, Inland Rail will provide supply chain benefits and cost savings for freight companies and producers which will support the growth of industry and businesses.

Moree Plains 2035 Community Strategic Plan, Moree Plains Shire Council

The Moree Plains 2035 Community Strategic Plan (the Plan) describes the community's main priorities and aspirations for the future and outlines strategies to achieve them. The Plan's economic priority is to be *'a vibrant regional economy'*, where the Moree Plains Shire:

- is a place that attracts and retains new businesses and residents;
- has the infrastructure we need to support our economy;
- supports existing businesses; and
- has the skills and knowledge to undertake the work available.

In the context of Inland Rail, a key strategy identified in the Plan for achieving a 'vibrant regional economy' is to capitalise on the Shire's location on the Melbourne to Brisbane Inland Rail route and support local businesses to embrace these opportunities. Within the Plan, the Moree Plains Council recognises its role as an advocacy partner, partnering with ARTC, Commonwealth and State Government and private enterprise to deliver on the Project.

Gwydir Shire Economic Development Strategy (2017 – 2020) & Gwydir Shire Community Strategic Plan 2017-2027, Gwydir Shire Council

The Gwydir Shire Community Strategic Plan 2017-2027 (the Plan) is a 10 year roadmap for the future that reflects the community's priorities and future aspirations. The Plan's economic objective is to build the business base in Gwydir so that the economy is growing and supported.

The Gwydir Shire Economic Development Strategy (2017 – 2020) supports the community objectives outlined in the Plan relating to economic development, including building a local business base to support and grow the economy.

As part of Inland Rail, NS2B has the potential to provide supply chain benefits and cost savings for local agricultural businesses, freight companies and producers. Improvements to freight efficiency will improve the productivity of local industry and businesses, promoting employment and economic growth.

2 Methodology

2.1 Study area

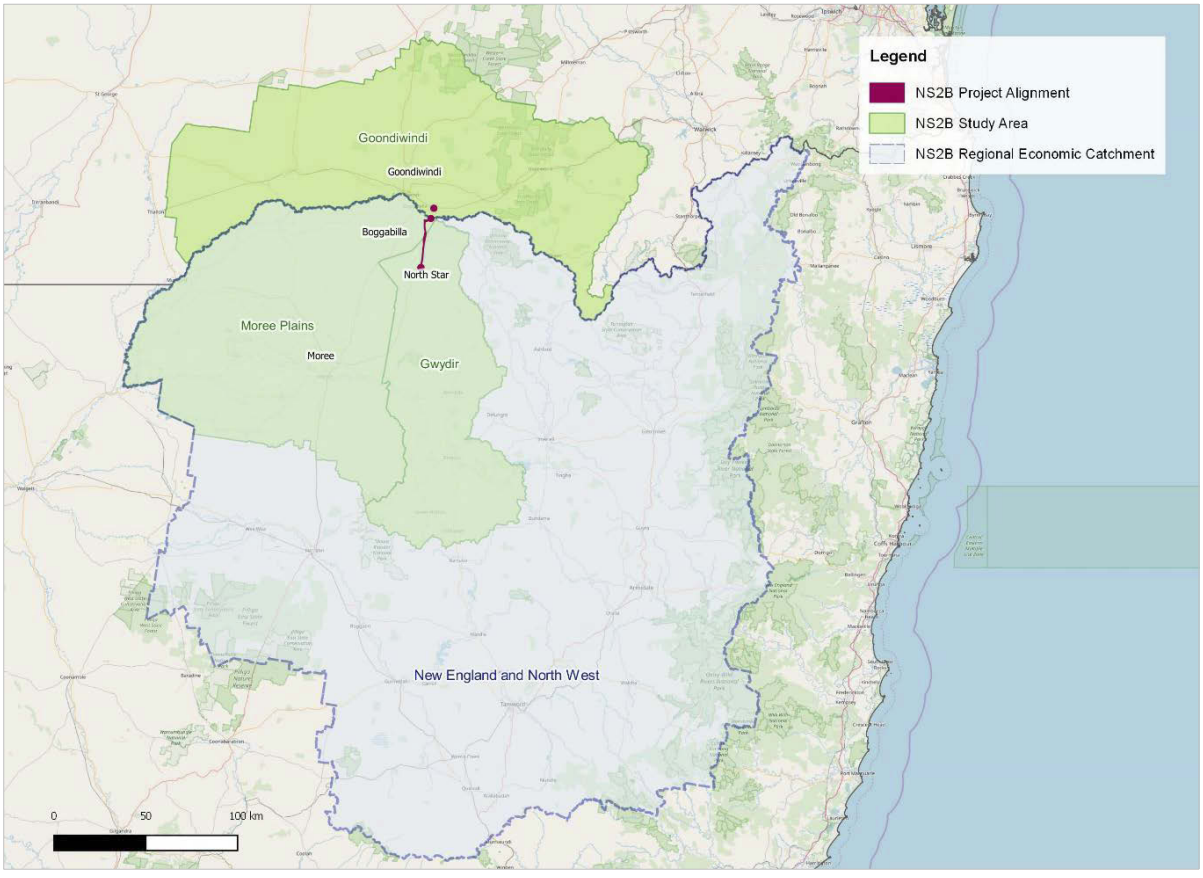
The Project traverses two local government areas (LGAs) which have been used to establish and analyse the existing economic environment of the NS2B link of Inland Rail – Moree Plains and Gwydir. For the purposes of the EIA, the Goondiwindi LGA is also relevant due to its proximity to the Project. Combined, these LGA boundaries form the **study area** for assessing the local economic impacts of the Project, 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 Project is located. The Project is located within the New England and North West (NewEngNthWst) labour market region which is defined as the regional economic catchment area for this EIA.

Area Definitions:

- **Study area:** Goondiwindi, Moree Plains and Gwydir Local Government Areas
- **Regional economic catchment area:** New England and North West Statistical Area 4

Figure 1: NS2B study area and regional economic catchment



Source: ARTC, KPMG Mapping

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

There are a number of population centres that are located within close proximity to NS2B including Goondiwindi, Boggabilla, Toomelah, Moree, Warialda and North Star. As a result of their proximity to the Project, these communities may be impacted during the construction or operation of NS2B. These population centres are located within 125 km of the Project alignment, and accordingly, align with ARTC's local business and industry participation catchment.

Goondiwindi

Located within the Goondiwindi LGA, Goondiwindi sits on the northern side of the Macintyre River, forming part of the QLD/NSW border. The town is situated approximately 300 km south-west of Brisbane and is connected by the Newell Highway, Cunningham Highway and Leichhardt Highway. Goondiwindi is a regional community with a population of 6,355 people.[5] Goondiwindi's local economy is driven by strong agricultural production due to its location on the floodplains of the Border Rivers basins.

Boggabilla

Located within the Moree Plains LGA, Boggabilla is a small locality sitting on the southern side of the NSW / QLD border approximately 9 km south-east of Goondiwindi. Boggabilla is serviced by the Newell Highway to the north and south, and the Bruxner Highway to the south-east. Notably, the locality has a high Indigenous population, with 62.7 percent of the population identifying as Aboriginal and / or Torres Strait Islander.[6] Boggabilla is a rural community with a population of 990 people.

Toomelah

Toomelah is an Aboriginal community located east of the most northerly part of NS2B. Approximately 98.5 percent of the localities small population (of approximately 205 persons) identify as Aboriginal and / or Torres Strait Islander. There are strong community links between the Boggabilla and Toomelah communities.

Moree

Moree is the municipal centre of the Moree Plains Shire. Moree is located on the banks of the Mehi River, 129 km south from Goondiwindi. Moree is at the junction of the Newell Highway and Gwydir Highway, and approximately 80 km south-west of the NS2B alignment. The town is a rural community with a population of 9,311 people.

Warialda

Located within the Gwydir LGA, Warialda is situated on the banks of the Warialda Creek approximately 326 km south-west of Brisbane and 80 km east of Moree. The town is connected by the Gwydir Highway. Warialda is approximately 85 km south of the NS2B alignment and has a population of 1,590 people.

North Star

North Star is a rural village within the Gwydir LGA, approximately 1.5 km south of the NS2B project extent. North Star is Gwydir Shire's most northern township, and is a local hub for surrounding land holders offering public school, community networks and places to socialise. The village is 43 km south of Goondiwindi and 80 km north-east of Moree. North Star is a rural community with a population of 230 people.

2.2 Assessment methodology

The 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

[5] Population centres are defined as ABS State Suburbs

[6] Boggabilla and Toomelah are defined as Localities (ABS Urban Centres and Localities).

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 Project 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 complimentary projects.

Importantly, while this report is intended to support the NSW Planning Approval, economic impacts realised in QLD are captured in this report. This reflects the design and location of the Project (across the NSW / QLD border), and subsequently the nature of the economic impacts and the flow of economic activity generated by the Project, which will extend across state borders between local and regional economies.

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** for the defined economic catchment area, to understand the local economic context and form the basis to measure change or impacts;
- Identifies potential **economic benefits** and impacts on affected local and regional communities and businesses. This will be drawn from local consultation and industry engagement undertaken by ARTC, evaluation of publically available information, and the outputs from the social impact assessment, economic benefits assessment and regional impact analysis;
- Assesses the projected economic benefits of the Project, including the basis for their estimation through a detailed economic benefits assessment. The outcomes of the proposed NS2B link-specific analysis will be contextualised against the results of the **cost benefit analysis** (CBA) undertaken for the entire Inland Rail Program, as per the Inland Rail Program Business Case (2015);
- Assesses the economic significance of the Project 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
- Proposes measures to **enhance** economic benefits and to **avoid, mitigate or manage** adverse economic impacts.

This report has been prepared to detail the findings of each of the above and acts as a Technical Report to the EIS that has been prepared. This report should not be considered in isolation from the EIS.

2.2.1 Existing economic environment

The existing economic environment section describes the existing economic profile of the study area, and provides a baseline for assessment of the potential economic impacts of NS2B. 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
- 2016 NSW population and household projections
- Queensland Government Statisticians Office 2018 edition population projections
- ABS, Labour Force Survey, Australia, September 2019
- Australian Government's Small Area Labour Markets publication, September 2019
- Consultation with local businesses and the community undertaken by ARTC.

2.2.2 Local economic impacts

The local economic impact assessment section describes potential economic impacts resulting from the Project 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 (Appendix O) process to identify local and regional business capacity, aspirations and initiatives.

2.2.3 Economic benefits assessment

A large proportion of the benefits of the Inland Rail Program stem from improving the connection between regional producers and markets; through to both domestic markets in cities and international markets through ports. As such, an incremental CBA approach assessing each link of the Inland Rail Program individually, and in isolation of the whole Program, will not capture the full impact that is expected to be delivered upon completion of the entire Melbourne to Brisbane connection. Put simply, the benefits of Inland Rail Program 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 NS2B Project (economic benefits assessment). This analysis assesses just those impacts that would be likely if freight operators were to respond to the completion of the individual Project.
2. Description of the CBA economic performance measures calculated for the Inland Rail Program as a whole (as per the Inland Rail Program Business Case (2015)).

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;
- The Australian Transport Assessment and Planning (ATAP) guidelines;
- Transport for NSW Principles and Guidelines for Economic Appraisal of Transport Investment and Initiatives – Transport Economic Appraisal Guidelines; and
- QLD Government's Project Assessment Framework (PAF) guidance material.

2.2.4 Regional impact analysis

A regional impact analysis has been undertaken to highlight the economic impacts of NS2B 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 NS2B 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.

The CGE model 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.[7]

As described above, the regional economy is represented by the NewEngNthWst labour market region.

[7] As compared to the direct jobs determined through the indicative construction schedule and component activities as described in Section 5.2.

2.2.5 Cumulative impact assessment

The cumulative economic impact 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 (as identified by ARTC).

Specifically, the EIA considers the potential impacts of Inland Rail's adjacent Narrabri to North Star (N2NS) and NSW / QLD Border to Gowrie (B2G) projects, and those State Significant projects which were planned, or being constructed or operated at the time the SEARs were finalised within the Gwydir and Moree Plains LGAs.

The cumulative economic impact of interacting projects was assessed by developing a construction and operation timeline (including workforce profile) to evaluate the spatial and temporal relationship between NS2B and other projects. The cumulative impact on local business and industry, and demand for labour and material was assessed.

2.2.6 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 NSW Department of Planning and Environment guidelines for EIA.
- Demand inputs to the economic benefits assessment have been sourced from the freight demand projections developed by ACIL Allen Consulting for the Inland Rail Program Business Case (2015). These values have been apportioned based on the information available to represent freight movements that would benefit from the improved rail connectivity provided by NS2B, and represent those that are reasonably likely to make use of the NS2B as an independent Project.
- A large proportion of the benefits of the Inland Rail Program stem from improving the connection between producers and markets; through to both domestic markets in cities and international markets through ports. As such, an incremental EIA approach assessing each link of the Inland Rail Program individually and in isolation of the whole Program will not capture the full impact that is expected to be delivered upon completion of the entire Melbourne to Brisbane connection.
- The assessment assumes capital expenditure consistent with the Inland Rail Program Business Case (2015).

ARTC Statement

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

3 Project description

NS2B is a new rail corridor approximately 30 km in length, completing one of the key missing links and providing a new, efficient connection between regional farms in northern NSW and export markets. The new rail corridor will connect North Star (NSW) in north western NSW to the Queensland Rail South West Rail Line just over the NSW / QLD border.

NS2B would follow the existing disused rail corridor from approximately 1.5 km north of North Star, with an upgrade to the existing rail line for approximately 25 km towards Boggabilla. Diverging north east from the existing corridor, 5 km of new corridor would be developed from north of Whalan Creek, crossing the Macintyre River and NSW / QLD border.

The Project is planned to operate for 100 years, from 2025 to 2125. NS2B will initially accommodate double-stacked container freight trains of up to 1,800 m length, with potential for future accommodation of freight trains of 3,600 m length. ARTC estimates a gradual increase in the number of trains using Inland Rail from when the line becomes operational, with a forecast of approximately 40 train movements per day by 2040. Trains would operate 24 hours per day. Subject to approval, construction of NS2B is planned to start in mid-2021, and be completed in mid-2023.

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

Table 2: Key components of NS2B

Key Component	
Start and finish point	North Star to the NSW / QLD border
Local government areas	• Gwydir Shire Council • Moree Plains Shire Council
Length of alignment	• 30 km total length. • Upgrading approximately 25 kilometres of the existing disused 'Camurra Boggabilla Line' and reconstruction to ARTC standards.
Key features	• 11 new bridges including 9 rail bridges over waterways, a rail bridge over Bruxner Way and is a significant rail crossing over Tucka Tucka Road and the Macintyre River. • Grade separation of Bruxner Way and the rail line (road-over-rail bridge). • Three active level crossings – North Star Roads, Forest Creek Road and North Star Road.
Train lengths	Up to 1,800 m length, with potential for future accommodation of 3,600 m length
Employment	Pre-construction employment: Up to 50 personnel will be required during pre-construction. Construction employment: Up to 350 construction personnel will be required during peak construction. Operational employment: Between 20 and 50 personnel are estimated as required. Operational groups would include train drivers, signallers and maintenance staff.
Construction	Construction is anticipated to commence in mid-2021 and is expected to take about 24 months to complete.

Key Component	
Decommissioning	The Project may be decommissioned in 2125. This would involve removal and recycling of the track and infrastructure which is not required for other future purposes. The corridor would then be rehabilitated to an agreed condition which would enable future land uses to proceed.
Workforce accommodation	Due to the location of the Project, an accommodation camp will be required to house construction workers who live outside a safe daily driving distance (one hour) from the Project. The accommodation camp is proposed to be established in North Star, accommodating up to 350 persons at peak construction.

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.

4.1 Population summary

4.1.1 Population and age profile

In June 2018, the study area had an estimated resident population of 29,427 persons. Between 2008 and 2018, the population declined by an annual average rate of 0.2 percent, due to negative growth in Moree Plains (-0.5 percent) and weak growth in Gwydir (0.3 percent) and Goondiwindi (0.1 percent). In comparison, the population in NSW and QLD grew at an average annual rate of 1.4 percent and 1.7 percent respectively over the same period. Notably, the population is projected to continue to decline, by an average 180 persons per year (-0.6 percent) to 2026. In absolute terms, this decline will be most significant in Gwydir, where an average of 100 persons are projected to leave the area each year over this period.

The study area's projected age profile reflects a broader and ongoing trend in rural NSW as the population, particularly young people, leave rural areas and relocate to larger, urbanised areas to access employment, education and social opportunities.[8] By 2026, the proportion of young people (0 to 24 years) residing in the area is projected to decline to represent 29.8 percent of the area's population (from 31.9 percent in 2017). By 2036, young people will represent just 28.0 percent of the area's population.

Notably, the current age profile of the study area reflects a lower working age population (15 to 64 years) relative to the NSW and QLD state averages (60.8 percent compared to 65.2 percent and 65.3 percent respectively). This population segment is projected to decline to represent just 57.6 percent of the population by 2026. A declining working population may reduce the local supply of relevant qualified skilled or non-skilled workers available to support the Project.

Table 3: Estimated resident population and projections, study area

	2008	2018	2026	% average annual growth 2008 – 2018	% average annual growth 2018 – 2026
Goondiwindi LGA	10,605	10,728	10,785	0.1%	0.1%
Moree Plains LGA	14,070	13,350	12,650	-0.5%	-0.7%
Gwydir LGA	5,210	5,349	4,550	0.3%	-2.0%
Study area	29,885	29,427	27,985	-0.2%	-0.6%
NSW	6,943,461	7,988,241	8,844,700	1.4%	1.3%
QLD	4,219,505	5,011,216	5,722,780	1.7%	1.7%

Source: ABS Regional Population Growth, 2017-18; NSW Government 2016 Population and Household Projections; Queensland Government Statisticians Office 2018 edition population projections.

[8] ABS, Australian Social Trends, cat.no. 4102.0

4.1.2 Indigenous population

The proportion of the population that identify as Indigenous (Aboriginal, Torres Strait Islander, or both) within the study area is higher than NSW and QLD state averages. 12.7 percent of the study area's population identify as Indigenous (Aboriginal, Torres Strait Islander, or both) compared to 2.9 percent for NSW and 4.0 percent for QLD. Within the study area, Moree Plains has the highest proportion of the population that identify as Indigenous at 21.6 percent. Within Toomelah, 98.5 percent of the population identify as Indigenous, all of Aboriginal descent.

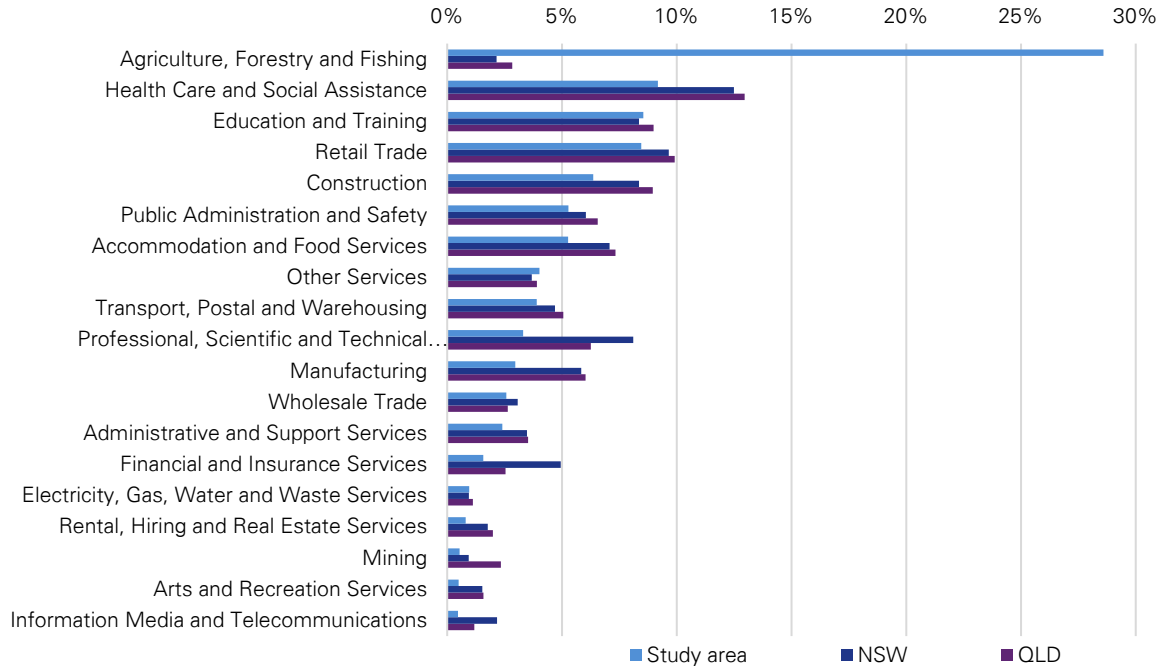
4.2 Description of the economy

4.2.1 Labour market and employment characteristics

Employment by industry

As shown in Figure 2 below, the sectoral distribution of employment for local residents indicates a high reliance on the Agriculture, Forestry and Fishing industry. This reflects the study area's land use and the rural location.

Figure 2: Employment by industry, study area[9]



Source: ABS 2016 Census of Population and Housing

The major employment industry for those living in the study area is Agriculture, Forestry and Fishing, employing close to a third of the total workforce (28.6 percent). This industry strength is reflected at a LGA level, with the sector employing 40.2 percent of the workforce in Gwydir, 27.7 percent in Goondiwindi, and 25.0 percent in Moree Plains. Within this industry, the primary source of employment is in Sheep, Beef and Grain Farming, employing close to one fifth of the working population (18.0 percent).

As shown in Figure 2, service based industries also support employment within the area. Following Agriculture, Forestry and Fishing, Health Care and Social Assistance (9.6 percent), Education and Training (8.9 percent), and Retail Trade (8.8 percent) are the largest sectors of employment.

[9] 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.

As at June 2016, there were a number of residents within the study area employed in industry sectors and occupations directly relevant to supporting the construction of the Project. The largest proportion were employed in Construction Services (490 workers) and Heavy and Civil Engineering Construction (127 workers). Across the NewEngNthWst region, 3,140 workers were employed in Construction Services and 457 workers in Heavy and Civil Engineering Construction.

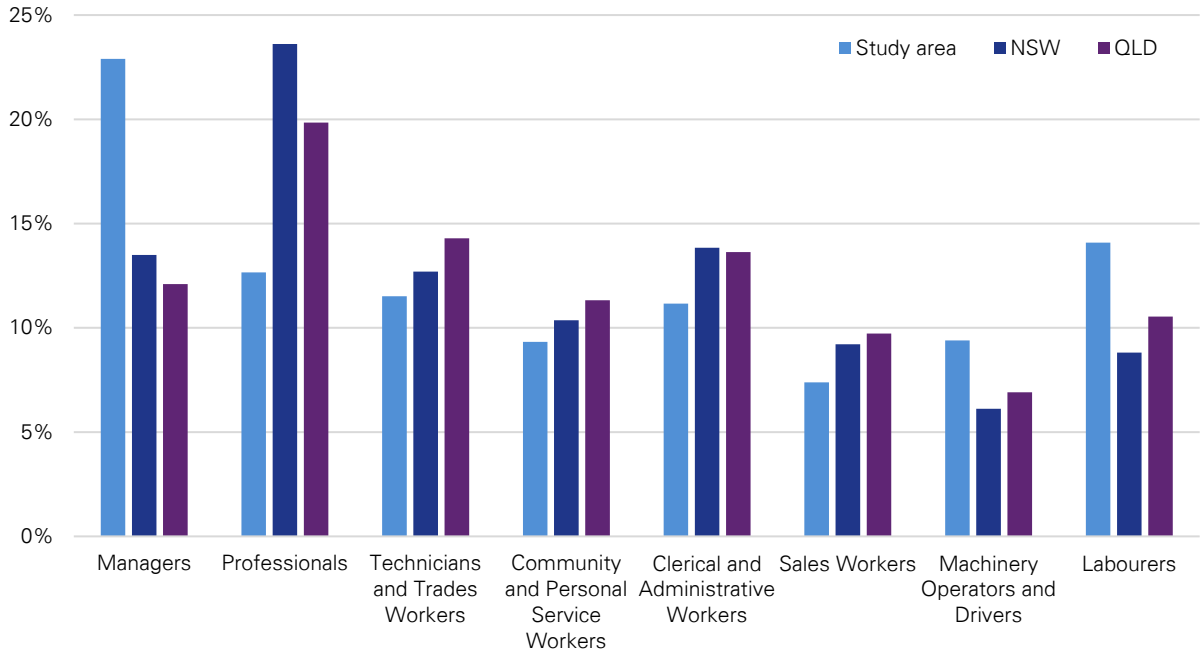
Occupation

The study area's primary occupations of employment are reflective of the study area's strong resident employment in the Agriculture, Forestry and Fishing industry. The largest proportion of the area's workforce are employed as Farmers and Farm Managers (15.1 percent).

At the broadest level, the study area has a higher proportion of workers employed as Managers and Labourers than the NSW and QLD averages (representing 37.0 percent of total employment, compared to the state averages of 22.3 percent and 22.6 percent respectively).

At a local government level, 27.1 percent of Gwydir's total workforce are employed as Farmers and Farm Managers, and a further 7.6 percent are employed as Farm, Forestry and Garden Workers. In Moree Plains and Goondiwindi, Farmers and Farm Managers represents the occupation of 12.5 percent and 12.9 percent of the local workforce respectively.

Figure 3: Local workers occupation, study area



Source: ABS 2016 Census of Population and Housing

Construction labour availability

The Australian Industry Group Construction Outlook (November 2018) found that, at a national level, businesses are reporting widespread and increasing difficulties in sourcing skilled labour.[10]

According to the survey, construction companies are forecasting strong growth in major project work, led by a strong pipeline of transport infrastructure projects. The results indicate that a 69.2 percent of respondents, up from 66.7 percent six months prior, reported either 'major' or 'moderate' difficulty in recruiting skilled labour in the six months to September 2018. With workforce demand expected to continue at high levels in line with major project activity, labour sourcing difficulties are expected to remain. According to the survey, labour supply constraints are being reflected in rising input costs which is exerting ongoing pressure on profit margins and

[10] Due to the highly mobile nature of the construction workforce, national trends are an appropriate indicator of the construction labour market.

increasing the total cost of project delivery. Shortages in labour availability is most likely for specific trades requiring specialist skills.[11]

Qualifications

Across the study area, 33.0 percent of the population have a non-school qualification, with the largest proportion holding a certificate qualification. Typical of rural areas, the study area has lower levels of tertiary qualifications (10.0 percent of the population have a bachelor degree and above) than the averages for NSW (23.4 percent) and QLD (18.3 percent). This further reflects the occupation profile of the study area, with key occupations, such as labourers, typically not requiring higher levels of education.

A small proportion of the population in Toomelah hold qualifications (13.6 percent), however as detailed in the Social Impact Assessment (Appendix O), consultation with the Toomelah community indicates that a number of residents have trade or certificate qualifications.

Labour force

According to the Australian Government's quarterly regional estimates of unemployment, as at September 2019 there were a total of 701 unemployed persons in the study area and 5,262 in NewEngNthWst. 56.6 percent of unemployed persons in the study area are located in Moree Plains, which also has the highest unemployment rate at 5.6 percent. The unemployment rate across the regional economic catchment is only marginally higher than the NSW state average at 4.4 percent (compared to 4.5 percent).

For the September 2019 quarter, the labour force participation rate across the study area and regional economic catchment was lower than the state averages (Table 4). Within the study area, the lowest rate of labour force participation is in Gwydir at 65.9 percent, followed by Moree Plains at 66.4 percent (compared to the NSW rate of 78.2 percent). The highest rate of labour force participation is in Goondiwindi at 72.1 percent (compared to QLD rate of 78.5 percent).

Table 4: Summary of labour force characteristics, September 2019

	Labour force	Participation rate*	Unemployed persons	Unemployment rate	12 month unemployment rate Δ
Goondiwindi LGA	5,858	72.1%	207	3.5%	0.0
Moree Plains LGA	7,090	66.4%	397	5.6%	-3.0
Gwydir LGA	2,645	65.9%	97	3.7%	-1.5
New England and North West SA4	109,540	76.6%	5,262	4.5%	-2.4
NSW	4,332,914	78.2%	188,955	4.4%	-0.4
QLD	2,724,259	78.5%	171,644	6.2%	-0.1

Source: Australian Government's Small Area Labour Markets publication, September 2019; ABS, *Labour Force Survey, Australia,* September 2019 (12-month average) – published 24 October 2019; ABS 2016 Census of Population and Housing.
*Working age population 15 to 64 years.

Over the four quarters to September quarter 2019, the rate of unemployment declined across the study area, excluding Goondiwindi which remained constant year-on-year. These trends are most likely to reflect net out-migration of the population across these areas. While the unemployment rate reached a four quarter low in September 2019, the unemployment rate has averaged 7.3 percent in Moree Plains and 4.5 percent in Gwydir over this period.

[11] AiGroup, Construction Outlook November 2018

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

Indigenous labour force

According to the 2016 Census, Indigenous Australians are inadequately represented in the study area's workforce, which is reflected in the high rates of Indigenous unemployment and low labour force participation. Across the regional economic catchment and study area, approximately one fifth of the Indigenous population is unemployed (19.7 percent for NewEngNthWst and 21.9 percent in the study area). Within the study area, over a quarter of the Indigenous population in Moree Plains is unemployed (25.4 percent), and the labour force participation rate is low at 43.7 percent (compared to 66.4 percent for the population as a whole). Within the Aboriginal community of Toomelah, the participation rate is very low at 12.2 percent.

The labour force participation rate for the Indigenous population in the regional economic catchment was 49.8 percent, compared to rate for the non-Indigenous population at 61.2 percent. The disparity in labour force participation widens further in the regional economic catchment when adjusted to include only persons aged 15 to 64 years, with 53.9 percent of Indigenous working age people in the labour force compared to 76.2 percent of the non-Indigenous population.

Youth labour force

Youth unemployment rates (persons aged 15 to 24 years) are significantly higher than the total unemployment rates across the regional economic catchment and study area, more than double in NewEngNthWst (13.9 percent), Goondiwindi (7.9 percent) and Gwydir (11.3 percent).

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	**Unemployed persons**	**Participation rate**	**Unemployment rate**	**Unemployed persons**	**Participation rate**
Goondiwindi LGA	7.9%	57	62.7%	3.5%	207	72.1%
Moree Plains LGA	13.9%	114	53.4%	5.6%	397	66.4%
Gwydir LGA	11.3%	29	52.8%	3.7%	97	65.9%
New England and North West SA4	13.9%	1,733	56.3%	4.5%	5,262	76.6%

Source: Australian Government's Small Area Labour Markets publication, September 2019; ABS; ABS 2016 Census of Population and Housing.

As shown in Table 5, the youth labour force participation rate within the regional economic catchment is lower than the total population participation rate, however this trend is not consistent at a local government area level. The youth labour force participation rate was lower than the total rate in Moree Plains but higher than the total rate in Goondiwindi and Gwydir.

Lower levels of labour force participation indicates that a high proportion of young people are either not able to work or are not actively looking for work (for example students, or those who are voluntarily inactive). Across the study area, 62.1 percent of young persons who are not in the labour force are studying full time (54.4 percent in Moree Plains, 68.7 percent in Goondiwindi and 73.0 percent in Gwydir).

Overall, the youth labour market profile (high unemployment and low labour force participation) indicates that there may be some latent capacity in the youth labour force, and current job seekers may have the skills, or

ability to be up-skill, to be engaged in the Project. Local workforce participation programs may be required to support youth employment.

Household income

The distribution of the population by total household weekly income level in the study area and regional economic catchment are compared in Table 6 below. As a measure of socio-economic disadvantage, household income levels reflect relative disadvantage across the study area and regional economic catchment compared to NSW and QLD. The proportion of households earning less than $500 per week is between 17.0 and 24.7 percent compared to 15.2 and 14.5 percent for NSW and QLD respectively. In Gwydir, close to a quarter of the population are in this low income bracket (24.7 percent).

These observations are reflected in the median weekly household income. The median weekly household income is highest in Moree Plains ($1,212), followed by Goondiwindi ($1,212) and NewEngNthWst ($1,107). The median weekly household income in Gwydir is $910. This is compared to the States, where the median household income is $1,486 for NSW and $1,402 for QLD.

Table 6: Distribution of population by total weekly household income

	< $500	$500 - $1,249	> $1,250	Median Income
Goondiwindi LGA	17.0%	34.2%	48.0%	$1,212
Moree Plains LGA	17.7%	32.8%	48.8%	$1,240
Gwydir LGA	24.7%	39.3%	34.9%	$910
New England and North West SA4	19.6%	35.7%	44.2%	$1,107
NSW	15.2%	27.7%	57.1%	$1,486
QLD	14.6%	30.6%	54.8%	$1,402

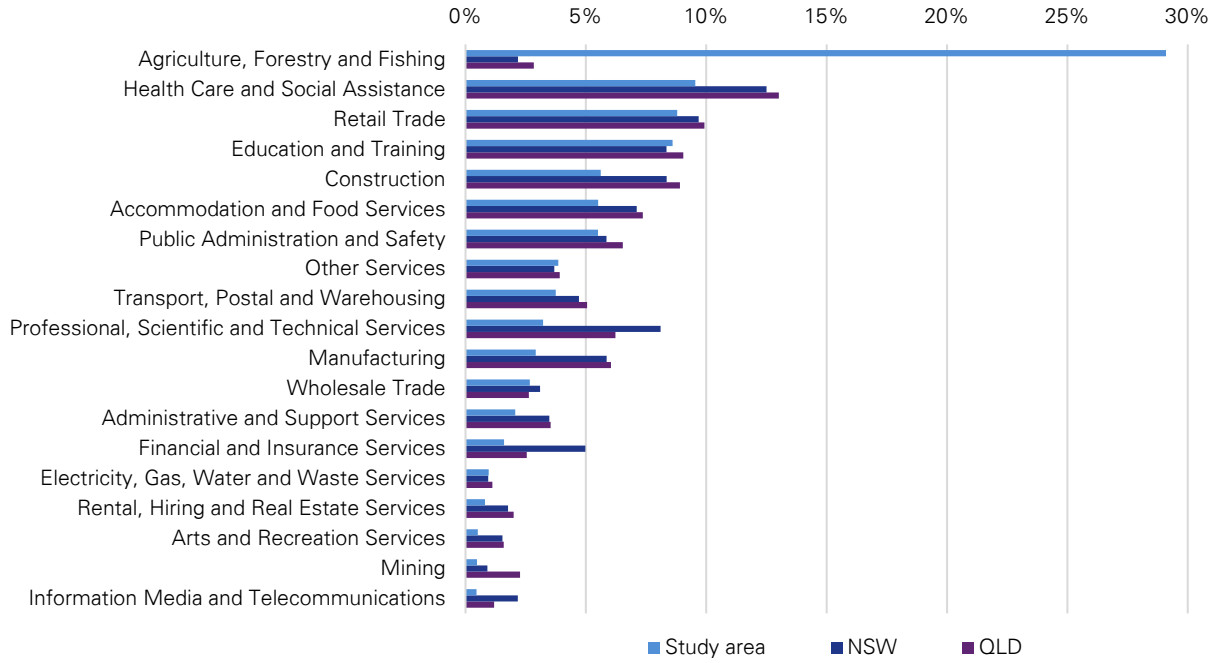
Source: ABS 2016 Census of Population and Housing. This excludes all the following responses: partial and incomplete income declaration. Note: Negative income is not included in the table.

4.2.2 Business and industry

Industry by employment

The study area is a place of work for approximately 12,198 persons (who live both within and outside the catchment area) which broadly reflects the number of jobs located within the study area. Industry by employment in the study area is shown in the figure below.

Figure 4: Industry by employment, study area[12]



Source: ABS 2016 Census of Population and Housing

Agriculture, Forestry and Fishing is the largest industry of employment in the study area, accounting for nearly one third of total jobs (29.1 percent). Within this industry, most workers are employed in the Sheep, Beef Cattle and Grain Farming sector (2,266 persons) which is reflected in the local businesses and industry profile below. The strength of the study area's agricultural sector highlights the importance of supply chain efficiency in supporting the local and regional economy. There are opportunities offered by the Project to improve the productivity of the local agricultural industry by reducing the distance between dispersed agricultural activities to processing facilities and markets. These impacts are outlined in the economic benefits assessment (Section 5.4).

Excluding the Agriculture, Forestry and Fishing industry, the sectoral distribution of jobs is diverse and focused on service-based industries such as Health Care and Social Assistance (9.5 percent), Retail Trade (8.8 percent) and Education and Training (8.6 percent).

4.3 Local businesses and industry

4.3.1 Agriculture and agribusiness

According to the Department of Agriculture, the Project is located within (or in close proximity to) the North West NSW and QLD Murray Darling Basin agricultural regions. As a Murray-Darling Basin irrigated agricultural area, the region's agricultural production is underpinned by a relatively large area of quality agricultural land and irrigation water supplies. The agriculture industry offers significant export opportunities for the region, particularly for agricultural and livestock products. In 2017-18, the gross value of total agricultural commodities produced across the region was $3,697 million.[13] Measured as a proportion of total agricultural production in 2017-18, the region's main agricultural products are livestock ($1,133 million), cotton ($1,309 million), and wheat ($371 million).

[12] 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.

[13] Natural Resource Management (NRM) regions - North West NSW and Queensland Murray Darling Basin; ABS, *Value of Agricultural Commodities Produced, Australia, 2017-18*, cat.no. 7503.0

At a local government level, the Gwydir and Moree Plains LGAs support a diverse range of cropping activities including cereal crops (wheat, barley, oats and maize) and non-cereal crops (cotton, canola, chickpeas and other legumes).[14] In addition to cropping, production in Gwydir and Moree Plains includes livestock grazing (sheep and cattle) and cattle feedlots.

Within Goondiwindi, production is focused on broad acre cropping, supported by the combination of biophysical attributes exhibited in this area (including slope and water-holding capacity). The cotton industry in Goondiwindi is worth over $350 million[15] and represents 11.1 percent of total agricultural production in the region.[16]

Across the study area, the largest proportion of all businesses are in the Agriculture, Forestry and Fishing industry, represented by 879 businesses in Goondiwindi (45.3 percent), 819 businesses in Moree Plains (42.6 percent) and 471 businesses in Gwydir (63.2 percent).[16]

As identified in the Social Impact Assessment (Appendix O), there are a number of large agribusinesses located close to the Project alignment:

- The Oakhurst Partnership which has major grazing and cattle production operations north of North Star.
- Marrawah Poll Hereford stud, which is one of the oldest Hereford studs in Australia and is situated near Boggabilla on the banks of the Macintyre River.
- Namoi Cotton Limited, a cotton processing and marketing organisation that has an extensive network of ginning, marketing and logistics operations and a warehouse facility in Goondiwindi.
- Woods Group, which is owns a grain processing and storage facility in Goondiwindi and has six vertically integrated business divisions, with a transport depot and container handling equipment facility at Goondiwindi.

There are several other family and corporate farming operations in the study area which have the potential to be impacted by the Project.

4.3.2 Tourism

The regional economic catchment area is recognised as a popular tourist destination for visitors seeking to explore Australia's rural landscape. According to Tourism Research Australia (TRA), during the year ending December 2018, the NewEngNthWst region received over 3.3 million visitors with tourism expenditure totalling approximately $943 million. Domestic daytrip visitors comprised the largest proportion of visitors, with 39.9 percent of these visitors travelling for holiday and a further 20.2 percent visiting friends and relatives. [17]

At a local government level, Goondiwindi received approximately 174,000 visitors in 2017, the majority of which were domestic overnight visitors (172,000). Expenditure by these visitors totalled $42 million. Tourism in Goondiwindi is underpinned by its location on major touring routes, scenic landscapes, heritage values, community festivals and sporting events. The area attracts drive tourism along the Adventure Way, the Great Inland Way, Australia's Country Way, and the Leichhardt Highway. There are approximately 138 recorded tourism businesses in Goondiwindi.[18]

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 (in development). In 2017, Moree Plains received approximately 171,000 visitors, 167,000 of which were domestic overnight visitors and the remaining 4,000 being international visitors. Expenditure by these visitors totalled $64 million, through participation with the area's 138 recorded tourism businesses.[19]

The local tourism industry in Gwydir is small, however there are a number of tourism attractions in the area including the townships of Bingara and Warialda, the Copeton Waters State Park, Gwydir River, Roxy Theatre in Bingara, Cranky Rock Reserve, Three Creeks Gold Mine, the Myall Creek Memorial Site and the Rocky Creek

[14] EIS Chapter 21 – Land Use and Property

[15] Goondiwindi Regional Council, *Rural Production*, 2019

[16] ABS, *Counts of Australian Businesses, including Entries and Exits, Jun 2014 to Jun 2018,* cat. no. 8165.0

[17] Destination NSW, *Travel to New England North West*, Year ended December 2018.

[18] Tourism Research Australia, *Local Government Area Profiles 2017 – Goondiwindi.*

[19] Tourism Research Australia, *Local Government Area Profiles 2017 – Moree Plains.*

Glacial Area. Tourism Research Australia is unable to publish information for Gwydir due to small sample sizes and data validity.

Table 7: Visitor Numbers and Tourism Expenditure, 2017

Area	Domestic Overnight Visitors		International Overnight Visitors		Domestic Daytrip Visitors	
	Total Visitors	Expenditure	Total Visitors	Expenditure	Total Visitors	Expenditure
Goondiwindi LGA	172,000	$40 m	2,000	$2 m	np	np
Moree Plains LGA	167,000	$58 m	4,000	$6 m	np	Np
North England and North West#	1.6 m	$633 m	35,500	$62 m	1.7 m	$248 m

Source: Tourism Research Australia, 2017, Local Government Area Profile; Destination NSW, Regional Tourism Statistics, December 2018. # Regional tourism data is recorded for the year ending December 2018.

4.3.3 Local businesses

Supply opportunities

There are a number of construction business located within the study area. As at June 2018, there were a total of 199 employing businesses and a further 215 non-employing businesses across Goondiwindi, Moree Plains and Gwydir.[20] These businesses are likely to be a significant source of services and equipment during the Project's construction.

As detailed in the Social Impact Assessment (Appendix O), Goondiwindi's Chamber of Commerce has noted that Goondiwindi contains a wide range of businesses which may have capacity to engage with the Project, including:

- Civil construction companies
- Earthmoving services
- Diesel and petrol suppliers
- Plumbers, electricians, mechanics and building contractors
- Engineering and machining services
- Transport companies
- Steel fabrication companies
- Hardware and gardening service suppliers.
- Accommodation facilities
- Hotels and meeting venues
- Shops which may experience either direct Project demand or personnel expenditure.

A small range of earthmoving and construction-oriented businesses operate within the Gwydir and Moree Plains LGAs.

Quarry materials

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

Transportation

While transport is not a significant industry within the study area, there are several large transport companies based in Goondiwindi, which may have the capacity to support the construction of NS2B, including:

[20] ABS, *Counts of Australian Businesses, including Entries and Exits, Jun 2014 to Jun 2018,* cat. no. 8165.0

- Marshall Group, operating a number of aluminium trailers including B Doubles and Road Trains to haul grain into feedlots in South East Queensland
- Frasers Livestock Transport, operating livestock transportation with more than 150 trailers of all configuration
- Woods Transport which has a large fleet of vehicles travelling between Goondiwindi, Toowoomba and the Port of Brisbane.

Local resource interests

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

5 Impact assessment

5.1 Inland Rail Program impacts

A per the requirements of the SEARs, this EIA has focussed on the specific economic impacts resulting from the construction and operation of NS2B. However, the assessment acknowledges the role of the Project, and the remaining project 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 percent discount rate (2.62 at a 4 percent discount rate).
- Economic growth as increased profits (for industries and producers where intercapital freight is an input or output) and incomes are multiplied through the economy. The Program is anticipated to deliver a net positive impact of $16 billion ($2015) on Gross Domestic Product over its 10 year construction period and 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 over the construction 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 results 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 Workforce impacts

5.2.1 Direct employment

The Project will result in a number of direct employment opportunities across the pre-construction, construction and operational phases of NS2B. These jobs have been estimated based on the indicative construction schedule and component activities.

Pre-Construction

A workforce of up to 50 personnel would be required for pre-construction activities in late 2020 to early 2021. This is likely to provide employment for land surveyors, ground clearance crews, access track construction crews, cultural heritage surveyors, and contractors developing laydown areas, flashbutt welding facilities and administration facilities.

Construction

During the construction phase of the Project, the size and composition of the construction workforce will vary depending on the construction activities being undertaken, and the staging strategy adopted for the Project. The

Project is scheduled to commence in mid-2021. The construction workforce is expected to build to approximately 190 FTE personnel by the end of 2021 and remain at that level until around April 2022. The workforce will then ramp up to approximately 350 FTE personnel by August 2022, before declining to approximately 300 FTE personnel by the end of 2022. The workforce is anticipated to gradually decline to approximately 35 FTE personnel by the end of 2023, remaining at that level for the next 18-24 months as corridor works and rehabilitation are completed.

Construction employment opportunities would include:

- Civil construction engineers
- Trackwork laying
- Roadworks
- Bridge construction
- Professional and technical specialists
- Transport drivers (road and rail)
- Crane, excavator and bulldozer drivers
- Machine operators
- Concreters and pavers
- Earth movers
- Skilled trades including welding, electrical and drainage/plumbing trades.

Operations

Once operational, a workforce of between 20 and 50 personnel is expected for the Project's operation. Occupational groups required will include:

- Train drivers
- Maintenance staff, including for the track and associated infrastructure
- Signallers.

Local employment

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

Based on current labour market trends, and industries and occupations of the local workforce, there may be latent capacity and capability within the study area and regional economic catchment to support the construction and operation of the Project.

The Project represents a source of potential training and career pathway development for local workers in the study area. The Project's SIMP (see Social Impact Assessment - Appendix O) specifies that ARTC will work with schools and local training providers to provide appropriate training for local workers. Further, ARTC will work with the Australian Government to provide long term outcomes through training, mentoring and other support programs.

Indigenous participation

ARTC has a strong commitment to training Indigenous people. Capacity building assistance is likely to be required to facilitate Indigenous business and employment engagement with the Project. Local community engagement by ARTC found that workforce participants who identify as Indigenous, are interested in participating in the Project, however need timely engagement to be able to participate effectively.

The Project's SIMP (see Social Impact Assessment - Appendix O) specifies that ARTC will work with Indigenous communities, industry and government agencies to support the design and delivery of training and development programs to improve local capacity where this is needed. ARTC will also work closely with the Aboriginal community to strengthen community members' capacity for employment, encourage applications and increase the number of Indigenous people applying for Project-related jobs.

5.2.2 Indirect employment

The industrial and consumption effects of the Project will result in the creation of indirect jobs both due to upstream and downstream linkages between the Project's activities and the rest of the economy, such as the stimulation of businesses further up the supply chain (e.g. manufacturers and suppliers of industry inputs), and the stimulation of activities downstream (e.g. through the provision of inputs to other sectors and the expenditure patterns of employees). The regional economic modelling results (Section 5.5) indicate that indirect employment will be generated in the Professional, Scientific and Technical Services and Wholesale Trade sectors, reflecting the importance of these two sectors in the construction sector's supply chain. The development of NS2B will not only provide employment opportunities in local construction activities, but create indirect employment in occupations required to support the design and construction during Project planning (e.g. civil engineering), and in the supply chain for construction materials during Project construction.

5.3 Business and industry impacts

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

5.3.1 Agriculture and agribusiness

The construction and operation of the Project has the potential to impact farming operations and general agricultural uses across the study area. These impacts include:

- Loss of agricultural land;
- Land fragmentation and disruption to access and infrastructure;
- Disruption to stock and product 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. Consultation with landholders is ongoing to further determine potential impacts. Details on consultation undertaken for the Project is included within EIS Chapter 8: Stakeholder Engagement.

Loss of agricultural land

The Project site is located in a rural / agricultural landscape, primarily dedicated to cropping and grazing. As detailed in EIS Chapter 21: Land use and Property, the Project will result in the sterilisation of productive agricultural land within the permanent disturbance footprint.[21]

The land capability classification system classifies agricultural area based on slope and soil physical characteristics. The approach comprises an eight tier hierarchy ranging from Class 1 (extremely high capability land) through to Class 8 (extremely low capability land). Class 1 land is suitable for a wide range of current and potential crops with few, if any, constraints to production. Class 8 land is generally unsuited to agriculture or at best suited only to light grazing.[22]

Specific to NS2B, the permanent disturbance footprint traverses through approximately 52 ha of high capability agricultural land (Class 1, 2 and 3) - 10 ha of Class 2 land and 42 ha of Class 3 land. There is no Class 1 agricultural land within the footprint. Overall, the permanent disturbance footprint will traverse significantly less

[21] The permanent disturbance footprint is defined as the physical rail corridor including the rail tracks and associated infrastructure. It also includes other permanent works associated with the Project, such as where changes to the road network are required.

[22] NSW Government, Agriculture, Land Capability, https://www.lls.nsw.gov.au/agriculture/land-capability

than one per cent of agricultural land within the region (Less that 0.1 percent of any agricultural land class across Moree Plains and Gwydir).

No local agribusinesses will be impacted by land acquisition or sterilisation.

Land fragmentation and disruption to access and infrastructure

The Project may also sever or isolate parcels of agricultural land that may prohibit or limit internal movements. According to EIS Chapter 21: Land Use and Property, the fragmentation of properties may cause a disruption in farm operations through impacts to essential farming infrastructure, services or access routes.

The Project will be designed to limit the impact to drainage lines, diversions, or any potential for cutting off water input to or from dams.

The specific impact on the economic viability of farming operations as a result of this potential disruption to access and infrastructure is not quantified in this assessment. ARTC will work with individual land owners to develop suitable solutions based on individual farm management practices.

Disruption to stock and product movement

The permanent disturbance footprint traverses four land parcels designated as travelling stock reserves.

As detailed in EIS Chapter 21: Land Use and Property, it is understood that there may also be informal stock routes which may be used to transfer stock to various grazing paddocks and holding yards within or across the study area.

The nature and magnitude of the impact of the Project on these travelling stock reserves and informal stock routes is currently unknown. ARTC will continue its ongoing consultation with landholders to manage any impact on stock routes, and consultation has been incorporated into the feasibility design.

EIS Chapter 21: Land Use and Property provides further details on the specific location and nature of the impact on these travelling stock reserves.

Improvements in supply chain efficiency

Efficient supply chains support the regional and national capacity to enhance economic opportunities within local communities. NS2B is a critical link in the broader Inland Rail Program, combining greenfield with brownfield development to create a more direct rail freight corridor, offering a more efficient solution for intra and interstate freight operators who will be able to avoid inland and coastal road and rail networks. Specifically, the Project:

- Offers opportunities to support local export industries (such as agriculture), by driving savings in freight costs (by increasing the competition between road and rail freight modes).
- Provides a link to existing intermodal terminals at Narrabri and Moree to interstate markets, improving access to and from regional areas identified to be significant areas for outbound containerised freight.
- Acts as a catalyst for development within these areas, particularly in relation to rail dependent industries and support industries associated with transport, freight handling, warehousing and logistics.

5.3.2 Tourism

As described above, there is a focus on tourism within the study area underpinned by the area's natural endowments and scenic rural landscape. The Project has the potential to change local amenity and service capacity within the study area, during both construction (temporary) and operation (permanent) phases. Impacts on the amenity of tourism attractions or scenic values may impact on visitation numbers, which could reduce local tourism expenditure. There are also opportunities that may arise due to legacy infrastructure from the accommodation camp at North Star.

During construction, there is potential for road 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, but

some tourists may be deterred from visiting during these periods. According to the Social Impact Assessment (Appendix O), the impact on local amenity is expected to be tolerated by tourists due to the location of touring routes and the temporary nature of construction activity.

The proposed North Star accommodation camp will service the non-residential workforce for the duration of the Project's construction. Accordingly, there will be no impact on the availability of local tourism accommodation in North Star (and surrounding areas) as a result of the Project's construction workforce. The accommodation camp also has the potential to have legacy benefits which may support tourism in the region. Following construction, the buildings and infrastructure established for the accommodation camp may be left for community use. This may enhance access to local facilities, subsequently increasing the capacity and attractiveness of North Star as a tourism destination.

During operation, there is potential for diminished scenic amenity due to the Project's location within the rural and regional landscape, particularly where the rail line runs parallel to the Bruxner Way. Bruxner Way is a major east-west link between the Newell Highway (in the northwest near Boggabilla) and the New England highway (in the east at Tenterfield). According to the Social Impact Assessment, tourists encounter many variations of rail-road interfaces and some will find the rail corridor of visual interest, however some diminishment of the rural landscape experience may be expected in the section where the rail corridor will be parallel to Bruxner Way. This is not expected to have a significant impact on the study area's tourism visitation.

5.3.3 Local businesses

Supply opportunities

The Project will require a range of construction supplies, including borrow material (spoil, gravel or sand) and ballast material (crushed stone), pre-cast concrete, concrete sleepers and turnout panels, steel, fencing, electrical components, fuel and consumables.

There is an opportunity for precast concrete to come from Toowoomba or Ipswich, which have the closest commercial operations. It is likely that borrow and ballast materials may be accessed from within the study area / regional economic catchment area. Other major components are likely to come from outside the area.

The primary opportunities for supply to the construction phase include fuels, equipment replacement and borrow and quarried material, as most other components would be sourced from other major centres in NSW or QLD. The two closest operating quarries in the vicinity of the Project are Inglewood Quarry (outside Inglewood (approximately 75km northeast of the northern end of the Project alignment) and Johnstone Quarry near Moree (approximately 80km southwest of the southern end of the Project alignment). It has been assumed by ARTC that these quarries can provide ballast and capping for the whole Project. The Project may act as a catalyst for private investment into the establishment of local fuel supply, which could have legacy benefits for the local community beyond the Project's construction.

Services which could potentially be sourced from within local or regional communities include:

- Fencing;
- Electrical installation (excluding rail systems) and instrumentation;
- Rehabilitation and landscaping;
- Cleaning and maintenance of construction and accommodation facilities;
- Trades services;
- Professional services (e.g. human resources); and
- Community adaptation to the rail corridor (e.g. community and economic development services).

Transport

During construction, there will be significant opportunities for the transport businesses located within Goondiwindi to bring construction materials to laydown areas and remove waste materials and recyclables from construction compounds.

During operation, enhanced competition between rail and road freight modes may decrease the demand for road freight, impacting on levels of trade for local transportation businesses.

EIS Chapter 19 provides further detail regarding the Traffic and Transport impacts of the Project.

Local resource interests

The Project is unlikely to have an impact on local resource interests as there are no mining, mineral exploration or petroleum exploration leases within the study area.

Local service and supply businesses

The Project is likely to offer opportunities in secondary service and supply industries (such as retail, hospitality and other support services) for businesses in close proximity to the construction footprint and accommodation camp. The expansion in construction activity would support additional flow-on demand and additional spending by the construction workforce in the local community. Retail businesses such as the Cleveland Motel, North Star Sporting Club and Wobbly Boot Hotel have the potential to benefit from increased trade. ARTC has developed an Inland Rail Sustainable Procurement Policy which will ensure that local, regional and Indigenous businesses will have opportunities to supply the Project.

A number of these benefits to local retail businesses will extend from the accommodation camp proposed for North Star, which may house up to 350 persons during peak construction. Importantly, there are also opportunities for local businesses to be engaged to supply materials and services to the accommodation camp.

Local business participation

The Project's local supply arrangements will be provide an opportunity to develop and grow local and regional businesses.

As detailed in the Social Impact Assessment (Appendix O), and with reference to the Indigenous labour market conditions described in Section 4.2.1, through employment and training opportunities, the Project is a significant opportunity to improve community wellbeing in Toomelah. Prior experience through the Community Development Employment Program in Toomelah demonstrates the potential for sustained employment to change local social and economic conditions.[23] Construction work will be temporary only, and the operational workforce is anticipated to be small, therefore a customised employment program underpinned by empowerment through community development is needed.

ARTC is undertaking consultation with the Toomelah community to identify potential business opportunities and associated community development programs. These are yet to be developed with the community, but may include:

- Development of a plant nursery, which could include species for bush tucker, rehabilitation or land conservation
- Development of a traffic management business
- Development of a rehabilitation, maintenance or environmental monitoring businesses
- Businesses unrelated to the Project.

ARTC are developing a range of strategies to encourage Indigenous, local, and regional business opportunities to supply the Project. These strategies form part of the Social Impact Management Plan (SIMP), described further in Section 7.

[23] The Community Development Employment Program is detailed in the Social Impact Assessment.

5.4 Economic benefits assessment

5.4.1 Introduction

An economic benefits assessment has been undertaken to identify and assess the likely benefits of NS2B as a discrete project to the community. This analysis assesses only those impacts that would likely occur if freight operators were to respond to the completion of the individual Project, in isolation of the rest of the Inland Rail Program. These economic benefits have been estimated based on the impacts of the Project to the transport network (including freight operators), along with the benefits accrued by non-users (the community). [24] Where the Project improves the transport connectivity and efficiency between freight originators and destinations, these movements across road and rail have been assessed in the appraisal.

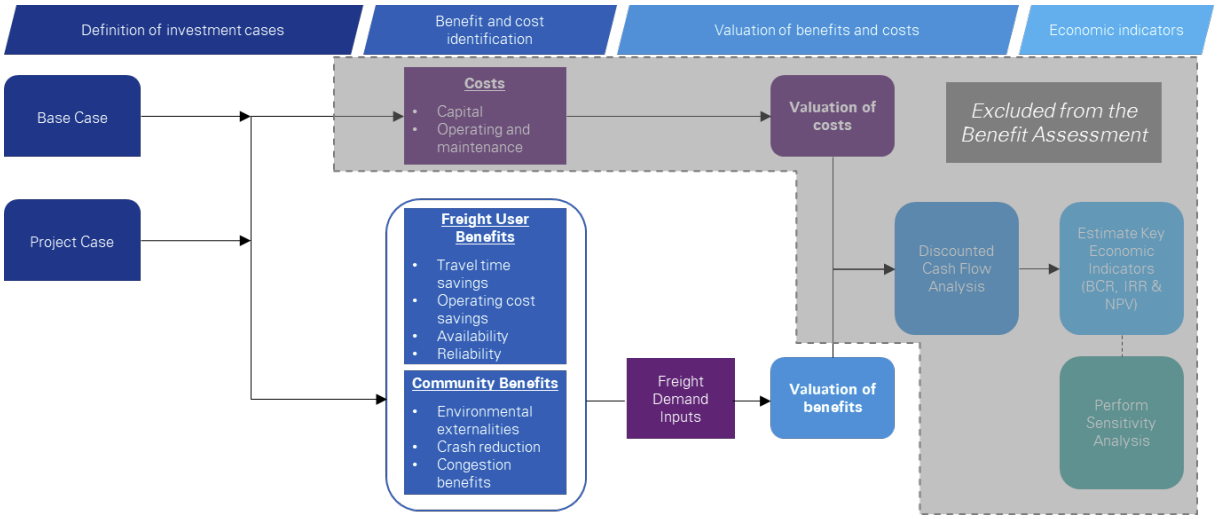
5.4.2 Methodology

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

1. **Define base and investment cases**: a clear articulation of the problem, investigation and definition of Base Case and Project Case option, and future demand drivers.
2. **Identify benefits**: identification of relevant economic, social and environmental benefits associated impact groups which can be measured for the Project.
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 NS2B.

Figure 5: CBA approach and the economic benefits assessment



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

[24] The benefits associated with the entire Inland Rail Program are well established and are presented in the Inland Rail Program Business Case (2015).

5.4.3 Base Case and Project Case

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

- The **Base Case** adopted for this benefit assessment is a 'do nothing' scenario, where it is assumed that no other sections of the Inland Rail Program are progressed, and freight continues to be moved via either coastal rail or the road network.
- The **Project Case** adopted for this benefit assessment is NS2B. The economic benefits estimated as part of the analysis assess just those impacts that would be likely if freight operators were to respond to the completion of this individual Project.

Key assumptions and parameters adopted for use in the benefit assessment are presented in Table 8.

Table 8: Economic benefits assessment assumptions

Parameter	Value	Source
Discount rate	A 7 percent real discount rate is used for the central case with sensitivity tests conducted at 4% and 10%	Infrastructure Australia Business Case Assessment Template 2016
Price year	2019	
Discount reference year	2019	
Appraisal period	50 years from the year of opening. First year of measured benefits is 2024 (first full year of benefits)[25]	Australian Transport Assessment and Planning (ATAP) Guidelines (Category 4, section 2.4)
Temporal treatment of benefits and costs	Demand model outputs for 2024, 2054 and 2074 were used as the basis for analysis. Linear interpolation has been undertaken to estimate benefits between these years	Inland Rail Program Business Case (2015) and KPMG analysis
Indexation	Unit costs and parameter values indexed to the price year by the appropriate price indices	Australian Bureau of Statistics
Annualisation	Demand projections are presented in annual terms	Inland Rail Program Business Case (2015)

5.4.4 Freight demand

At the request of ARTC, demand inputs to the benefit assessment have been sourced from the freight demand projections developed by ACIL Allen for the Inland Rail Program Business Case (2015). The assumptions underpinning these demand projections are documented in Chapter 7 of the Inland Rail Program Business Case (2015). This section outlines how these demand projections have been adopted for the NS2B EIS.

The demand projections developed by ACIL Allen are presented in terms of 66 different origin-destination (OD) pairs for both the Base Case and Project Case. These OD pairs span the entire Program length, and as discussed above, many represent freight movements that would not be impacted if NS2B were to be constructed independent of the overarching Inland Rail Program.

[25] 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.

To enable an incremental economic benefits assessment to be undertaken for NS2B, selected OD pairs were chosen which represent freight movements that would benefit from the improved rail connectivity associated specifically with NS2B. The selected OD pairs, which all depart south of North Star and flow through to Brisbane, consist of:

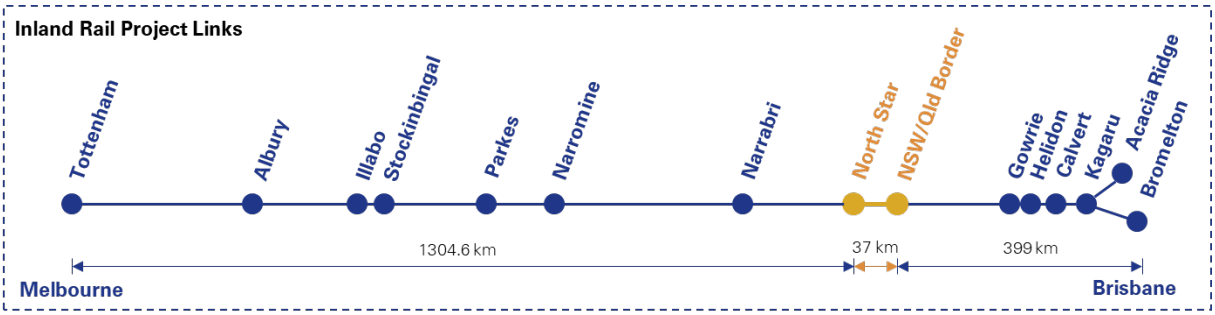
- North Star to Brisbane;
- Narrabri Cotton to Brisbane; and
- North Moree to Brisbane.

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

As the projected travel time (both in terms of net tonne hours and hours travelled) for these OD pairs are dependent on downstream upgrades, the benefits associated with these freight movements have been apportioned. The factor used to scale these benefits is the ratio of the length of track upgrades that forms NS2B, and the total length of proposed track upgrades from North Star north to the program extent at Acacia Ridge (e.g. 37 km / 436 km).[26]

Some road freight movements are not presented in terms of OD pairs, and instead are presented by commodity (e.g. 'agriculture'). To account for these general freight movements, the proportion of freight movement associated with NS2B has been estimated using the ratio of the length of track upgrades that forms NS2B, and the total length of track upgrades as part of Inland Rail (e.g. 37 km / 1,740.6 km).

Figure 6: Inland Rail Program - Project extents



Source: ARTC Note: The northern project extent of NS2B is located 7 km north across the NSW/QLD border into QLD.

5.4.5 Benefit categories

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

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

A description of each of the benefits included in the assessment are provided in the following table.

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

Table 9: Benefit category descriptions

Benefit Category	Description
Freight Benefits	
Travel time savings	Freight travel time cost savings represent the value to the economy associated with more efficient freight movements as a result of improvements to the rail network that enable shorter distances, faster travel, and subsequently, increased network capacity. 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[27] has been used to estimate the benefits to the new rail freight. Notably, there is no induced freight demand assumed for NS2B.
Operating cost savings	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 Project. 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.
Improved service availability	Improved service availability represents the increased flexibility in arrival and departure times afforded to the rail freight network as result of the Project. This is due to fewer restrictions on freight service times provided by the increased network capacity. Freight service availability benefits have been estimated based on the values presented in the Inland Rail Program Business Case (2015). These benefits were derived by ARTC in 2015, and have been apportioned to individual projects for the purposes of this incremental benefit assessment. The values calculated by ARTC have been escalated to a 2019 price year using PPI Rail Freight Transport (A2314067L).
Improved service reliability	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. As with availability benefits, reliability benefits have been estimated based on the values presented in the Inland Rail Program Business Case (2015). These benefits were derived by ARTC in 2015, and have been apportioned to individual projects for the purposes of this incremental benefit assessment. The values calculated by ARTC have been escalated to a 2019 price year using PPI Rail Freight Transport.
Community Benefits	
Crash reduction	Crash cost savings represent the reduced costs associated with fatal and serious injuries resulting from both road and rail incidents.

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

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

Freight Benefits

The freight benefits have been quantified and monetised using demand assumptions from the Inland Rail Program Business Case (2015) and the parameters set out in Table 10.

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

The analysis estimated a range of rail operating costs for both the Base Case and Project Case. The rates provided in the table demonstrate the efficiency improvements gained in rail operations through the completion of the Project, with higher capacity trains and improved transit times resulting in lower rail operating parameters (unit rates drop from $0.033 – $0.027 per NTK in the Base Case down to $0.026 – $0.025 NTK in the Project Case). These parameters have been estimated based on the outputs from the Inland Rail Program Business Case (2015) and TfNSW's Principles and Guidelines for Economic Appraisal of Transport Investment and Initiatives (2018).

The freight service improvements utilise the previous analysis completed for the Inland Rail Program Business Case (2015) and have been escalated to current year prices and apportioned to NS2B.

Table 10: Freight benefit parameter values ($2019)

Parameter Value	Variable/s	Source/s
Freight Travel Time		
Value of Freight (Rail)	$1.69 tonne hour	ATAP, Inland Rail Program Business Case (2015), PPI Rail Freight Transport (A2314067L)
Value of Freight (Road)	$1.45 tonne hour	ATAP, Inland Rail Program Business Case, PPI Road Freight Transport (A2314058K)
Operating Cost		
Rail Operating Cost – Base Case	2024: 0.033 $/ntk 2054: 0.029 $/ntk 2074: 0.027 $/ntk	TfNSW (2018), Inland Rail Program Business Case (2015), PPI Rail Freight Transport (A2314067L)
Rail Operating Cost – Project Case	2024: 0.026 $/ntk 2054: 0.022 $/ntk 2074: 0.025 $/ntk	TfNSW (2018), Inland Rail Program Business Case (2015), PPI Rail Freight Transport (A2314067L)
Road Operating Costs	0.063 $/ntk	ATAP, Inland Rail Program Business Case (2015), PPI Road Freight Transport (A2314058K)

Parameter Value	Variable/s	Source/s
Road Driver Costs	29.95 $/h	Austroads, Inland Rail Program Business Case (2015), CPI
Freight Service[28]		
Freight Service Availability	2024: $16.75 m 2054: $182.69 m 2074: $299.23 m	Inland Rail Program Business Case (2015), PPI Rail Freight Transport (A2314067L)
Freight Service Reliability	2024: $11.17 m 2054: $45.35 m 2074: $81.07 m	Inland Rail Program Business Case (2015), PPI Rail Freight Transport (A2314067L)

The total freight demand for the Project consists of agricultural freight travelling from Northern NSW regions (consisting of North Star, Narrabri and North Moree) through to Brisbane. As within the Inland Rail Program Business Case (2015), induced freight demand has only been modelled for the entire extents of Inland Rail (e.g. Melbourne to Brisbane and Brisbane to Melbourne), as such no induced demand has been included in the analysis for NS2B.[29]

Consistent with the assumption contained within the Inland Rail Program Business Case (2015), the construction of NS2B is expected to result in all future contestable freight carried by rail. Under these demand projections, freight users will benefit from a significant reduction in average travel times by rail in the Project Case (from 9.88 hours in the Base Case to 6.38 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 mode shift to rail freight, and longer average trip distances, the total net tonne kilometres (NTK) travelled increases in the Project Case (in 2054 the Base Case 598.18 mNTK increases to 604.44 mNTK in the Project Case). Table 11 includes the estimated freight demand inputs for both road and rail modes.

Table 11: Freight demand assumptions – NS2B

	Base Case			Project Case		
	2024	**2054**	**2074**	**2024**	**2054**	**2074**
Trips						
Rail	156	216	269	838	1,164	1,448
Road	27,687	38,443	47,845	-	-	-
Total Tonnes ('000s)						
Rail	164	228	283	881	1,223	1,522
Road	717	996	1,239	-	-	-
Average Trip Time (hours)						
Rail	8.25	9.88	11.09	6.17	6.38	7.17

[28] 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.
[29] 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).

	Base Case			Project Case		
	2024	2054	2074	2024	2054	2074
Road	8.02	8.51	8.86	-	-	-
Million Net Tonne Kilometres (mNTK)						
Rail	70.06	97.27	121.06	435.33	604.44	752.28
Road	360.76	500.91	623.42	-	-	-
TOTAL mTK	**430.82**	**598.18**	**744.48**	**435.33**	**604.44**	**752.28**

Source: Inland Rail Program Business Case (2015)

Freight benefits have been estimated using the appropriate change in freight demand (such as mNTK) by mode type by the relevant parameter unit. The estimated freight benefits for NS2B are provided over a 50 year analysis period in the table below. Overall, the Project's freight benefits represent an incremental $49.40 million in present value ($2019) terms over the Base Case.

Table 12: Estimated freight benefits ($2019)

Benefit	Undiscounted - $m	Present Value (7%) - $m
Freight Time Savings	10.49	1.79
Operating Cost Savings	126.20	22.31
Freight Service Availability	169.39	19.46
Freight Service Reliability	45.88	5.84
TOTAL	**351.96**	**49.40**

Operating cost savings represent ~45 percent the of freight benefits with $22.31 million in present value terms as freight shifts from road to rail. This is representative of the significant efficiency benefits gained from lower transit (the average rail freight journey time in 2054 drops from 9.88 hours in the Base Case to 6.38 hours in the Project Case) and higher capacity freight trains.

Freight service availability and reliability represent a combined $25.30 million in present value terms to freight benefits (~51 percent). This is apportioned to NS2B on the basis of the combined service improvements from the broader Inland Rail Program and represent the expected benefit from improved freight service within the project area.

Freight time savings provide the remaining $1.79 million in present value terms to freight benefits (~4 percent). As with operating cost savings this is largely representative of the combined efficiency improvements and the resulting mode shift of road freight trips to rail.

Community Benefits

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

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

The environmental externalities cost saving per kilometre travelled parameters have been adapted from Austroads Guide to Project Evaluation Part 4 Section 5 (2012) and are consistent with the parameters applied

within the Inland Rail Program Business Case (2015). The values presented in the table below have been escalated by CPI.

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

Table 13: Community benefit parameter values ($2019)

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

The shift of road freight to rail results in a significant reduction in road 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 outlines the assumed freight demand by kilometres travelled as per the modelling completed for the Inland Rail Program Business Case (2015).

Table 14: Total kilometres travelled ('000s) - NS2B

Mode	2024	2054	2074
Base Case			
Rail	67	93	115
Road	13,930	19,341	24,072
Project Case			
Rail	414	575	716
Road	-	-	-

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 NS2B are provided over a 50 year analysis period in the table below. Overall, the Project's community benefits represent an incremental $13.22 million (present value terms) over the Base Case.

Table 15: Estimated community benefits ($2019)

Benefit	Undiscounted - $m	Present Value (7%) - $m
Crash Cost Savings	10.07	1.81
Environmental Externalities	29.27	5.27
Road Decongestion Benefits	34.05	6.13
TOTAL	**73.39**	**13.22**

Crash cost savings represent ~14 percent the of community benefits ($1.81 million in present value terms) as freight traffic is removed from the road network.

The reduction in heavy freight traffic within the Project 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 Project has been estimated to provide $5.27 million (present value terms) in benefits to the community (~40 percent of community benefits).

Road decongestion benefits provided the greatest share of community benefits (~46 percent), with an estimated $6.13 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.

5.4.6 Economic benefits assessment results

The results of the economic benefits assessment estimate that the Project is expected to provide a total ($2019) of $65.72 million in incremental benefits (at a 7 percent discount rate). This consists of $52.51 million in freight benefits and $13.21 million in community benefits.

Observing the composition of benefits, the largest share of benefits for NS2B is freight operating cost savings, representing ~37 percent of the total benefits (at a 7 percent discount rate). This is consistent with the analysis for Inland Rail Program Business Case (2015), where freight operating cost savings were ~39 percent of the total benefits.[30] Freight benefits more broadly (including freight time travel savings, operating cost savings, as well as improved reliability and availability) represent ~80 percent of the total projected benefits for NS2B.

Reductions in environmental externalities (i.e. air pollution and greenhouse gas emissions) from reduced heavy vehicle kilometres travelled represents ~8 percent of the total benefits (at the 7 percent discount rate).

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

[30] $2015 PV at 7 percent discount rate; assumes Western Line upgrades.

Table 16: Results of the economic benefits assessment ($2019)

BENEFITS	Discount Rate		
	4%	7%	10%
Freight Benefits	**$108.11 m**	**$52.51 m**	**$29.72 m**
Travel Time Savings	*$6.80 m*	*$3.20 m*	*$1.76 m*
Operating Cost Savings	*$45.11 m*	*$24.01 m*	*$14.66 m*
Improved Availability	*$43.76 m*	*$19.46 m*	*$10.08 m*
Improved Reliability	*$12.44 m*	*$5.84 m*	*$3.22 m*
Community Benefits	**$24.35 m**	**$13.21 m**	**$8.19 m**
Crash Reduction	*$3.34 m*	*$1.81 m*	*$1.12 m*
Environmental Externalities	*$9.71 m*	*$5.27 m*	*$3.27 m*
Road Decongestion Benefits	*$11.30 m*	*$6.13 m*	*$3.80 m*
TOTAL BENEFITS	**$132.46 m**	**$65.72 m**	**$37.91 m**

Source: KPMG

5.4.7 Cost Benefit Analysis: Inland Rail Program Business Case

As detailed above, 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 total 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 full Inland Rail Program, as presented in the Inland Rail Program Business Case (2015), are provided in the table below. As shown, the construction and operation of Inland Rail estimated to deliver positive net economic benefits.

Table 17: 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).

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

5.5 Regional impact analysis

A regional impact analysis has been undertaken to highlight the economic impacts of NS2B on the regional, state and national economy using an equilibrium modelling framework.

5.5.1 Key considerations

The direct and indirect economic impacts of NS2B 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 NS2B. Rather, in comparative static mode, KPMG-SD provides estimates of how the economy is impacted over the construction phase period, during which NS2B's capital expenditure (CAPEX) program is completed.

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

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

The key modelling assumptions and inputs which underpin the regional economic assessment results are provided in Appendix A.

5.5.2 Limitations

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

Construction phase

The capital expenditure program associated with the development and construction of NS2B is modelled in KPMG-SD as a transitory expenditure shock to the economy. Accordingly, modelling each of the construction phases of the 13 projects of Inland Rail in isolation is reasonable. If there is significant overlap in the timing of the construction phases of the projects, modelling each link in isolation may result in an underestimation 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 analysis 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 Project, the operational economic impacts of NS2B will only be fully realised once all components of Inland Rail are completed. As detailed above, assessing each link of the Inland Rail Program individually and in isolation of the whole Program will not capture the full impact that is expected to be delivered upon completion of the entire Melbourne to Brisbane connection. Accordingly, modelling the long-term benefits generated by NS2B in isolation of other components of Inland Rail is unlikely to be informative.

In the context of the regional impact analysis, the challenge in modelling the operational phase of NS2B in isolation is that the investment made in developing the new infrastructure (during the construction phase) is disproportionate to the benefits directly attributable to that section of Inland Rail. An operational phase shock generates results consistent with a significant overinvestment in rail infrastructure for the NewEngNthWst region, with consequent distortionary effects on the local economy as the demand and supply of rail services is rebalanced. Accordingly, the operational phase modelling results are not included in this EIA.

5.5.3 Regional impact analysis results

The key economic impacts of NS2B on the NewEngNthWst region during the construction phase are summarised in Table 18.

Table 18: Summary of the direct and indirect economic impacts of NS2B on the NewEngNthWst region over the construction phase

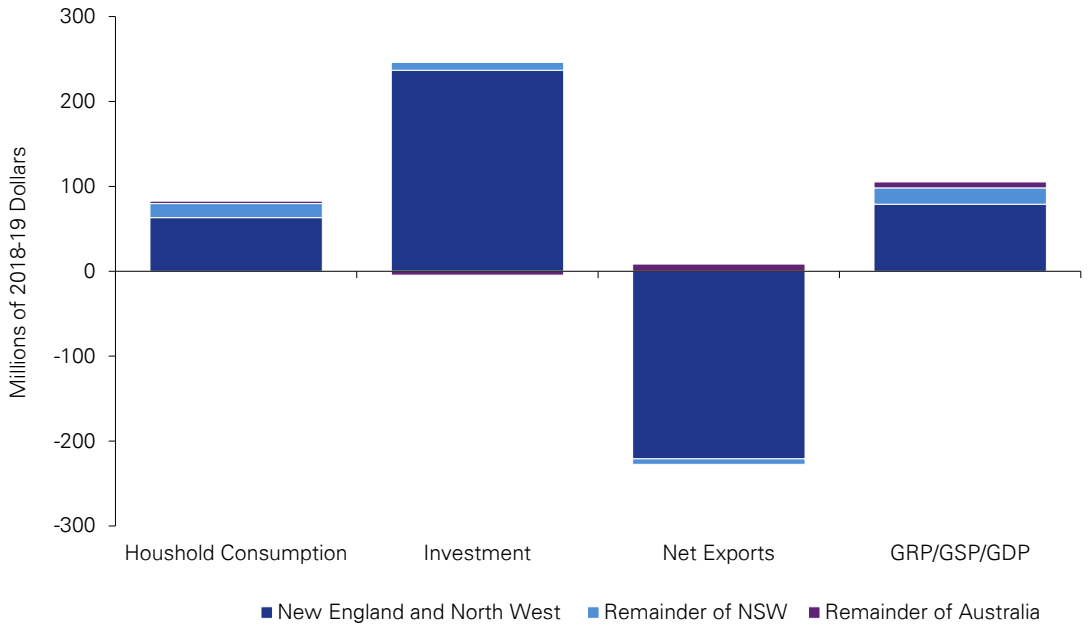
Measure	Slack Labour Markets	Tight Labour Markets
Additional Real Gross Regional Product ($2018-19)	$79 m	$41 m
Additional Employment (persons)	448	75

Source: KPMG

At the end of the construction phase, real Gross Regional Product (GRP) for the NewEngNthWst region is projected to be $79 million higher than the baseline level under the assumption of slack labour markets. This increase is almost halved if labour markets are assumed to be tight ($41 million) as a redistribution of employed workers to higher value adding jobs is less beneficial is GSP (value adding) terms than an increase in the number of workers employed.

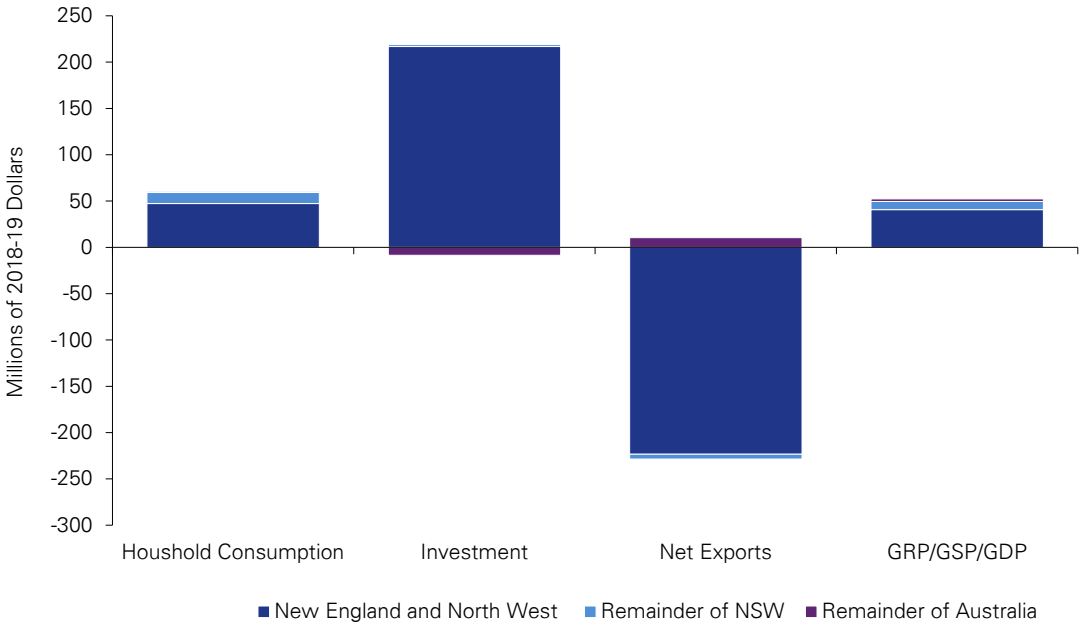
The figures below summarise the macroeconomic results for the NewEngNthWst region in the context of the rest of the NSW and Australian economies. The simulation results indicate that the economic impacts of NS2B during the construction phase are concentrated in the NewEngNthWst region. Net exports, which include inter-regional and international exports and imports, are negatively impacted. The resources required to complete the construction of NS2B 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 NS2B.

Figure 7: Macroeconomic results: construction phase, slack labour markets



Source: KPMG

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



Source: KPMG

The importance of the labour market assumption is reflected in the employment results, shown in Figure 9. In the scenario with slack labour markets, the construction phase of NS2B generates an additional 448 jobs per annum in the NewEngNthWst region (direct and indirect employment).[31] With tight labour markets, the increase in jobs is significantly less at just 75 jobs per annum. Under tight labour markets wages are bid up to attract currently employed workers to the construction businesses contracted to construct NS2B. 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 underemployed workers to accommodate the increase in demand for labour without increasing real wages.

The labour market conditions that are likely to prevail during the construction phase of NS2B 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. Over the four quarters ending September quarter 2019, the unemployment rate in NewEngNthWst averaged 4.5 percent[32], and the participation rate averaged 76.6.[33] We note that the official labour force data at this level of regional granularity is quite volatile and it is important to consider these statistics in a broader context, including with regards to labour market conditions at the state and national levels.

Looking specifically at skilled labour capacity, recent Labour Force Survey results indicate that relatively high proportion of unemployed workers were last employed in the Construction sector.[34] In New South Wales, during the reference week in the quarter ending November 2019, 20,300 unemployed persons (approximately 11 percent) reported that their last job was in Construction. Nationally, over the same period, 15.1 percent of unemployed persons who reported losing their job last worked in the Construction industry. The ABS estimates that in the quarter ending November 2019 job vacancies in the Construction sector have fallen sharply by 4 percent from the corresponding period in 2018.[35] These indicators suggest a degree of softness in the Construction sector.

It is expected that labour market conditions in NewEngNthWst will deteriorate from current levels, in line with softness in the broader economy. The degree of under-employment in NewEngNthWst is likely to be similar to

[31] To put this in context, the planned workforce requirements of the NS2B project during the construction phase peak at approximately 350 personnel.

[32] Australian Government's Small Area Labour Markets publication, September 2019

[33] Participation rate for working age population 15 to 64 years; ABS, *Labour Force Survey 2019*, cat. no. 6291.0, released 24 October 2019

[34] Based on ABS, Labour Force Survey, Quarterly, November 2019, cat no. 6291.0.55.003, released 23 December 2019.

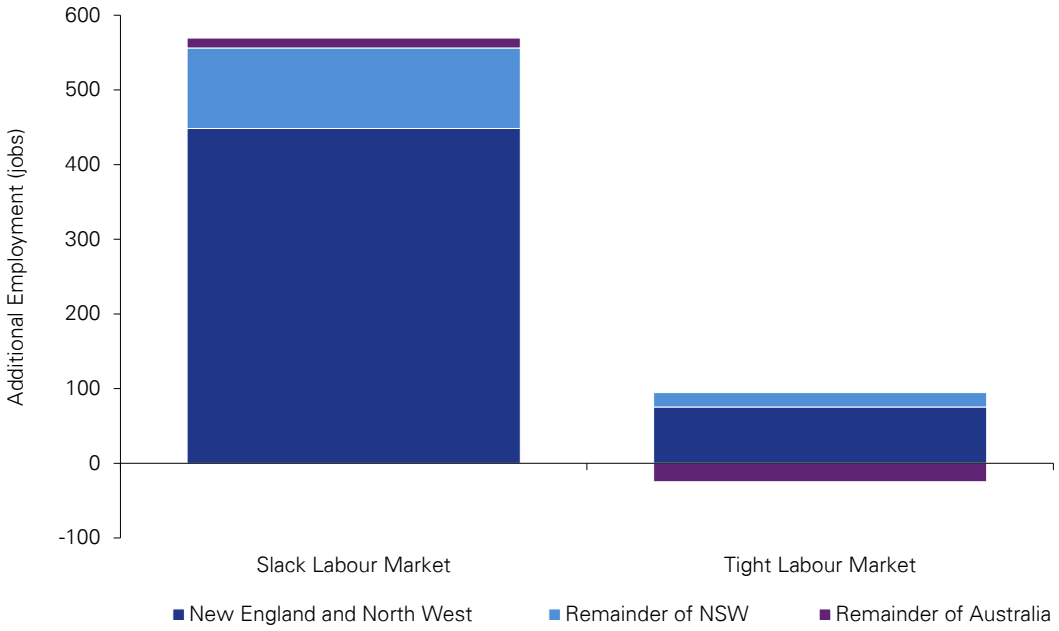
[35] Based on ABS Job Vacancies, November 2019, cat no. 6354.0, released 8 January 2020.

that for NSW as a whole (underemployment ratio of 8.4 percent of total employed persons as at September 2019).[36] Under these conditions it is reasonable to assume that the regional labour market has the capacity to supply a significant portion of the workforce requirements of the Project without major disruption.

The possibility of some tightness in the labour market cannot be completely dismissed. If the economy grows much faster than we are expecting and there is significantly more activity in the construction sector than we are anticipating then labour market conditions may tend towards somewhere between the "slack" and "tight" scenarios. The major infrastructure projects that we are aware of 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. However, demands of the various infrastructure projects expected to be constructed are modest and that scheduling can be optimised to minimise market impact. The prevailing trends in the NewEngNthWst labour market and the ability of workers to mobilise to project locations suggests that the risks of labour market disruption are limited.

In addition, further benefits may be generated when other infrastructure projects are in the adjacent and surrounding areas. 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 NS2B's construction phase.

Figure 9: Direct and indirect employment results: construction phase



Source: KPMG

Employment results at the industry level (movement of workers between industries and regions) are presented in the figures below. 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.

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 net displacement of workers from existing jobs is less pronounced.[37] Under tight labour markets, as businesses compete for workers

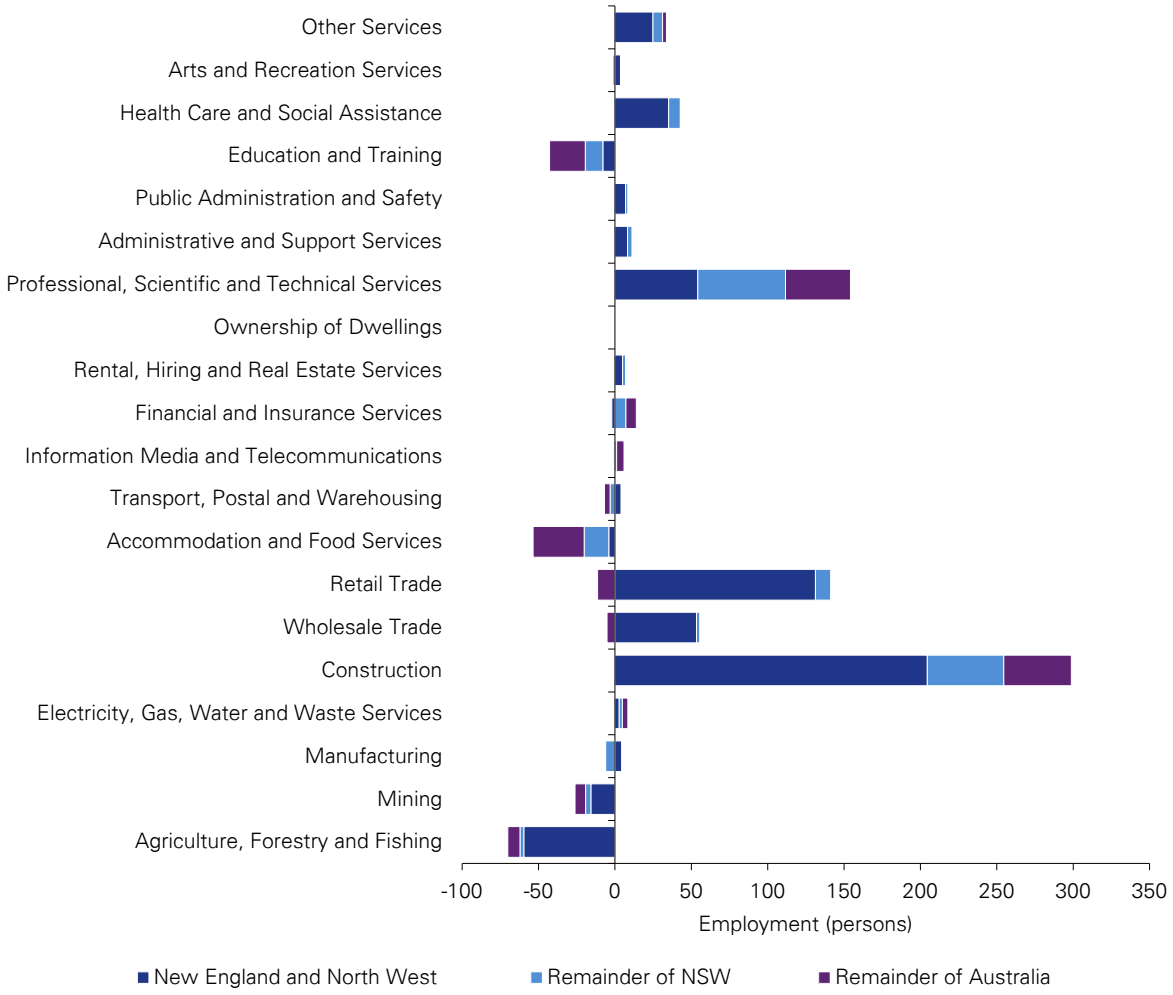
[36] Trend estimate of underemployment ratio (proportion of employed) in New South Wales, September 2019; ABS, Labour Force Survey 2020, cat. no. 6202.0, released February 2020.

[37] In this context, drawing on unemployed or underemployed resources to satisfy labour demands applies at the economy-wide level. Businesses directly engaged in the construction of NS2B may hire workers already employed in other jobs or they may hire workers that are unemployed or underemployed. A vacancy created by a worker moving from their current job to a

that are already employed, the benefits from increased labour demand are primarily in the form of higher real wages resulting in greater displacement of workers.

The Construction sector, which benefits directly from the NS2B 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 NS2B tends to increase resource costs. This has negative impacts on cost-sensitive trade-exposed sectors, such as Agriculture, Forestry and Fishing, Mining, and Manufacturing. As a result, these sectors contract and release resources to the construction-related sectors.

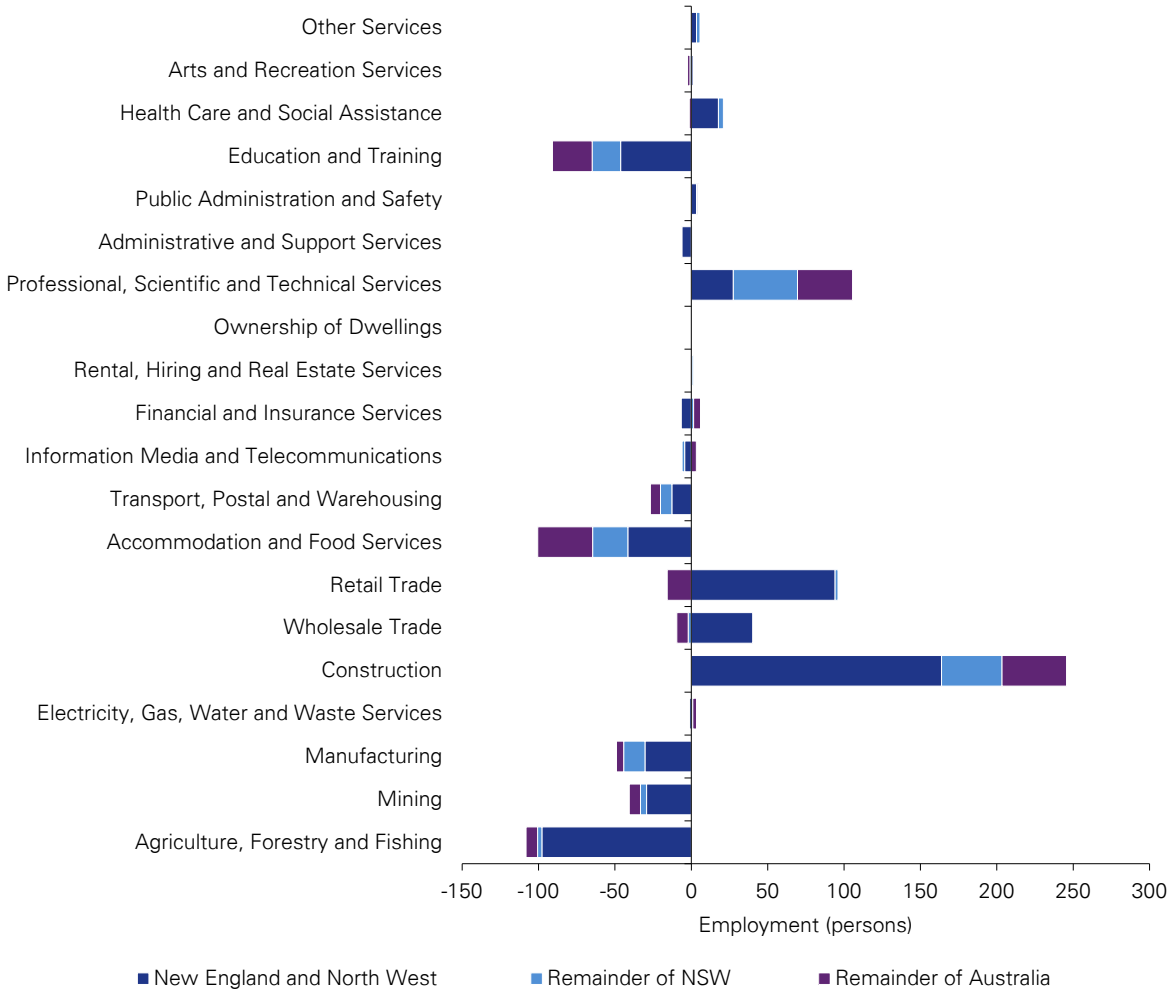
Figure 10: Industry employment results: construction phase, slack labour markets



Source: KPMG

job with a business contracted to construct NS2B may be filled by workers already employed in other jobs or by workers that are unemployed or underemployed and so on.

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



Source: KPMG

6 Cumulative impacts

6.1 Interacting projects

In considering the cumulative impacts of NS2B 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 the projects.

A brief description of the interacting projects identified by ARTC are provided in Table 19 below. These projects include Inland Rail's adjacent N2NS and B2G projects, and those State Significant projects which were planned, or in construction within the Gwydir and Moree Plains LGAs, at the time the SEARs were finalised.

Due to the availability and completeness of relevant information the potential cumulative impacts resulting from interacting projects are assessed qualitatively in this EIS.

Table 19: Projects with the potential to interact with the construction and operation of NS2B

Project and Location	Description	Construction Dates	Jobs
Border to Gowrie (Inland Rail)	Inland Rail project comprising 146km of new dual gauge track and 78km of upgraded track from the NSW / QLD border, near Yelarbon, to Gowrie Junction.	2021 – 2024	Construction: 1,600 Operations: tbc
Narrabri to North Star (Inland Rail)	Inland Rail project comprising an upgrade to approximately 188 km of track within the existing rail corridor and construction of approximately 1.6 km of new rail corridor.	2018 – 2020	Construction: 180 Operations: tbc
Moree Solar Farm	Construction of a 56MWac / 70.1MWdc single axis tracking solar PV facility.	2018 – 2022	Construction: 1,050 Operation: 10-12
Newell Highway Moree Town Centre Bypass	Construction of a 4.4 km two-lane bypass of the Moree town centre.	tbc	tbc
Bindaree Beef Abattoir – Rendering Plant and Bio-digester Plant	Installation of a wastewater treatment system and new render plant facility at the existing abattoir site.	tbc	Construction: 60 Operation: tbc
Queensland – Hunter Gas Pipeline	A 420 km gas pipeline from the Narrabri Gas Project to Newcastle via, Gunnedah, Quirindi, Scone, Muswellbrook, Singleton and Maitland.	tbc	Construction: 600 Operation: 150
White Rock Solar Farm	Establishment of a 20 megawatt solar farm and associated infrastructure	tbc	Construction: 50 Operation: TBA

Project and Location	Description	Construction Dates	Jobs
White Rock Wind Farm	Stage 2 of White Rock Wind Farm upgrades will consist of up to 48 turbines.	Late 2018	Construction: 100 Operation: 20
Sundown Solar Farm	A large-scale solar photovoltaic generation facility, including battery storage and associated infrastructure.	2019 – 2023	tbc
Bonshaw Solar Farm	A large scale solar photovoltaic generation facility and associated infrastructure.	2019 –2021	tbc
Sapphire Solar Farm	A c 200 MW hybrid solar and battery power facility	2019 – 2020	Construction: 200 Operation: 150
Sapphire Wind Farm	A 238 - 425 megawatt capacity wind farm (between 125 and 159 turbines)	tbc	tbc

Source: ARTC

6.1.1 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.

For NS2B, given current labour market conditions (deteriorating over the past 12 months and characterised by high under-employment), the labour market is likely to reflect a "slack" labour market and will have the capacity to supply a portion of the workforce requirements of the Project. The prevailing trends in the New England and North West labour market, and the ability of construction workers to mobilise to project locations, suggests that the risks of labour market disruption are limited.

6.1.2 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, child care, and education. Further, spending on consumer orientated products by the construction workforce has the potential to benefit local businesses by increasing their trading levels. Notably, this impact is likely to be temporary in nature for the duration of construction.

6.1.3 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 NS2B may increase (due to increased prices of materials) driving up the total construction cost, negatively impacting on the economic return of the Project.

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

7 Impact management

NS2B 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 Project, 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.

A SIMP has been developed which outlines the objectives, outcomes and performance measures required to manage the social and socio-economic impacts of NS2B, and enhance Project benefits and opportunities.

There are two sub-plans which are directly relevant to the economic impacts identified and assessed in this EIA – Workforce Management and Local Business and Industry Participation. A summary of the impacts and benefits identified in this EIA and the relevant ARTC commitments within the SIMP sub-plans is provided in the table below. Further details of these plans can be found in the Social Impact Assessment (Appendix O).

Table 20: Social Impact Management Sub-Plans

Impact / Benefit	ARTC Commitment
Project Employment The Project has the potential to be a significant opportunity to support local employment, including Indigenous and youth employment opportunities.	Workforce management measures: • Contractors and operators will be required to seek local workers for the Project workforce • A clear and efficient process for people to seek information about employment opportunities and register their interest in Inland Rail will be provided • Working with Indigenous communities, industry and government agencies to support the design and delivery of training and development programs to improve local capacity where this is needed • Working with key partners to link training and development programs with other projects and local industries to provide the greatest regional benefit • Working with schools and local training providers to provide appropriate training • Working with the Australian Government to provide long term outcomes through training, mentoring and other support programs • Working closely with Aboriginal community to strengthen community members' capacity for employment, encourage applications and increase the number of Indigenous people applying for Project -related jobs • Providing a workplace that is inclusive and values the contributions of Aboriginal and Torres Strait Islander employees.

Local Business and Industry Participation The Project will have significant construction materials and services requirements which may provide local businesses with the opportunity to supply the Project.	Local business and industry participation measures: • Develop and implement Inland Rail's Local Content Policy and Strategy for the Project • Communicate with local and regional businesses to ensure they have access to current information about Inland Rail • Have a clear and efficient process through ARTC for businesses to seek information about opportunities and to register their interest • Work with Government stakeholders to build businesses' capacity through business development, mentoring and other support. • Work with local businesses (including Indigenous businesses) to strengthen the capacity of the local supply chain to participate • Support Indigenous businesses to ensure they are prepared for and provided with opportunities to participate • Work with key partners to link training and development programs with other projects and local industries to provide the greatest regional benefit • Ensure Indigenous participation is included as a key element of all tender assessments • Include Indigenous Participation targets in construction contracts and work closely with contractors to achieve agreed outcomes.

Source: Appendix O - Social Impact Assessment

8 Conclusions

A detailed EIA has been undertaken for the NS2B link of the Inland Rail Program, in accordance with the requirements under Section 15 of the SEARs.

A per the requirements of the SEARs, this EIA has focussed on the specific economic impacts resulting from the construction and operation of NS2B. However, the assessment acknowledges the role of the Project, and the remaining project 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 percent discount rate (2.62 at a 4 percent discount rate).
- Economic growth as increased profits (for industries and producers where intercapital freight is an input or output) and incomes are multiplied through the economy. The Program is anticipated to deliver a net positive impact of $16 billion ($2015) on Gross Domestic Product over its 10 year construction period and 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 over the construction 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 results 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).

At a local level, the economic impact of the NS2B Project will promote community development by supporting local and regional employment, businesses and industries. The findings of this EIA suggests:

- NS2B will support regional development through:
    - Opportunities to encourage, develop and grow Indigenous, local, and regional businesses through the supply of resources and materials for the construction and operation of the Project (e.g. borrow and ballast materials, fencing, electrical installation (excluding rail systems) and instrumentation, rehabilitation and landscaping, cleaning and maintenance of construction and accommodation facilities)
    - Opportunities in secondary service and supply industries (such as retail, hospitality and other support services) for businesses in close proximity to the construction footprint and the proposed accommodation camp at North Star. The expansion in construction activity is also likely support additional flow-on demand and additional spending by the construction workforce in the local community.
- The Project alignment has been designed to minimise impacts to local business and industry, however the Project may result in disruption to agricultural, transportation and tourism 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. ARTC will work

with individual land owners to develop suitable management solutions based on individual farm management practices to mitigate and manage these impacts.

- Once the Project is operational, enhanced competition between rail and road freight modes may decrease the total demand for road freight, impacting on levels of trade for local transportation businesses.

- NS2B will impact on local amenity, with the potential to impact the attractiveness of the area for tourists. The Social Impact Assessment (Appendix O) assessment concludes that it is unlikely that this impact will result in a significant decrease in visitation.

- NS2B is a critical link in the broader Inland Rail Program, combining greenfield with brownfield development to create a more direct rail freight corridor for freight operators. NS2B offers opportunities to support the local agricultural industry, by driving savings in freight costs, improving market access, and reducing the volume of freight vehicles on the region's road network.

- NS2B has the potential to acts as a catalyst for development around intermodal terminals at Narrabri and Moree, particularly in relation to rail dependent industries and support industries associated with transport, freight handling, warehousing and logistics.

- The economic benefits assessment estimate that the Project is expected to provide a total of $65.72 million in incremental benefits (at a 7 percent discount rate). These benefits result from improvements in freight productivity, reliability and availability, and benefits to the community from crash reductions, reduced environmental externalities and road decongestion benefits.

- The Project will promote regional economic growth across the NewEngNthWst region. Using recent labour market trends to inform workforce capacity and capability within the local region, it has been concluded that it is likely that the labour market conditions that will prevail during the construction phase of NS2B will be closer to those characterised by the "slack" labour market scenario. Under this scenario, at the end of the construction phase, real Gross Regional Product for the region is projected to be $79 million higher than the baseline level.

- Under a "slack" labour market scenario, NS2B is also expected to deliver an additional 448 jobs per year over the construction period.

ARTC are committed to enhancing the economic benefits of the Project while avoiding, mitigating or managing any adverse economic impacts. Accordingly, they have developed a Social Impact Management Plan which outlines the objectives, outcomes and performance measures for, and the actions that ARTC will undertake and / or require its contractor to undertake to manage the social and socio-economic impacts of NS2B, and enhance Project benefits and opportunities.

APPENDIX

INLAND RAIL

Economic Assessment Technical Report

Appendix A Regional Economic Assessment— Assumptions

NORTH STAR TO NSW/QUEENSLAND BORDER ENVIRONMENTAL IMPACT STATEMENT

ARTC

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

Appendix A: Regional economic assessment - Assumptions

Construction phase

The choice of exogenous variables (i.e., those that are determined outside of the model) determines the economic environment in which the construction of NS2B will be assessed. The construction phase CAPEX required to construct NS2B 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 NS2B are directly related to the stimulus that is provided to the economy through the boost to expenditure required to construct NS2B. Analysis of the construction phase of NS2B is best done in the context of a short run economic environment to recognise the temporary nature of the stimulus that this phase of the Project 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 NS2B CAPEX assumptions whilst investment in the remaining sectors responds to sector-specific rates of return;

iv. the labour market is assumed to have sufficient slackness in the short term that increases in demand do not impact real wages;

v. the number of working-age people in the nation is held fixed at the number in the baseline;

vi. the average propensity to consume out of household disposable income is held fixed at its baseline value; and

vii. consumer preferences and technical change parameters are held fixed at their baseline values.

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

In this report the sensitivity of the labour market assumption is calculated by simulating the construction phase of NS2B under the two approaches described above (i.e. slack or tight labour markets).

Model inputs

The numerical inputs (or shocks) imposed on KPMG-SD in the construction phase simulation are provided below.

Construction phase shocks

The shocks imposed on KPMG-SD are designed to capture the direct impacts of the construction phase of NS2B on the economy. KPMG-SD then estimates the flow-on effects of these shocks on the economy.

The table below reports the projected CAPEX for NS2B. Over the construction phase[38], total CAPEX is projected to be $220.2 m ($2018-19), with the majority of this expenditure occurring over the first two years.

Table 21: Modelling inputs - construction phase

Year	$2015[a]	$2019[b]
2021	$113,529,721	$121,428,357
2022	$70,063,068	$74,937,586
2023	$21,983,229	$23,512,675
2024	$300,000	$320,872
Total	**$205,876,019**	**$220,199,490**

Notes:
a) Derived from capital cost plan and construction programming provided to KPMG by ARTC.
b) Conversion to 2018 dollars based on the Producer Price Index growth from Dec 2015 to Mar 2019. The Producer Price Indices used covers output of the Heavy and Civil Engineering Construction industry specifically.

[38] The assessment assumes a capital expenditure profile consistent with the Inland Rail Program Business Case (2015), using parameters and inputs based on the state of the economy projected for those years. Pre-construction costs prior to 2021 are not included because they are spent outside of the indicative construction period. Total spending in the construction phase (including pre-construction costs) is $232,097,193 ($2015) and $248,244,957 ($2019).

APPENDIX

INLAND RAIL

Economic Assessment Technical Report

Appendix B Treatment of Coal Demand for the Inland Rail EIS

NORTH STAR TO NSW/QUEENSLAND BORDER ENVIRONMENTAL IMPACT STATEMENT

ARTC

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

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 benefit 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 Program Business Case (2015). With specific reference to the CBA results for the scenarios **"No Western Line Upgrade"** (see table below, extracted from the Inland Rail Business Case Chapter 9. Economic Analysis), where coal benefits are equal to zero (0).

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

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

Source: Inland Rail Program Business Case 2015

On this basis, it is the understanding of KPMG that in the absence of the Western Line upgrade to the existing Queensland Rail network[39], 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 the Inland Rail Program. 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 the Inland Rail Program with complementary investment in Western Line Upgrades, which do not form part of the scope of the Inland Rail Program as it stands currently, and are not funded.

On this basis, KPMG has ensured consistency with the assumptions contained within the ARTC Inland Rail Business Case 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 Project would require additional validation of the demand assessment undertaken as part of the business case.

[39] 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"