

# CHAPTER

# 17

INLAND  
RAIL 

## Economics

CALVERT TO KAGARU ENVIRONMENTAL IMPACT STATEMENT

**ARTC**

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

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# 17. Economics

## 17.1 Scope of chapter

The purpose of this chapter is to assess the economic impacts of the Calvert to Kagaru Project (the Project).

The chapter identifies the economic aspects relevant to the Project by:

- ▶ Establishing the existing economic environment and local context to understand the local economic context and form the basis to measure the economic impacts
- ▶ Identifying potential economic benefits and impacts on affected local and regional communities and businesses
- ▶ Assessing the projected economic benefits of the Project, including the basis for their estimation through a detailed economic benefits assessment
- ▶ Assessing the economic significance of the Project on the regional, state and national economies
- ▶ Evaluating the potential cumulative impacts on local and regional economies resulting from the construction and operation of related projects, including adjacent Inland Rail projects
- ▶ Outlining ARTC’s commitments to enhance economic benefits and to avoid, mitigate or manage adverse economic impacts.

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 Terms of Reference (ToR) and to inform assessments of the Environmental Impact Statement (EIS).

Since the completion of the economic modelling detailed in this report, there have been changes to the Project and the Project environment. These changes include alterations to the Inland Rail construction program and the economic shock associated with the 2020 Quarter 2 market conditions, which are not reflected in the economic analysis or economic impact assessment in this report, at the request of the Australian Rail Track Corporation (ARTC); however, the economic shock associated with the 2020 Quarter 2 market conditions is discussed qualitatively in relation to the economic modelling outputs.

A detailed economic assessment is provided in Appendix S: Economic Impact Assessment Technical Report.

## 17.2 Terms of reference

The ToR describes the matters the proponent must address in the EIS for the Project. The matters relating to economics are contained in ToR 11.153 (refer Table 17.1).

**TABLE 17.1: TERMS OF REFERENCE COMPLIANCE TABLE—ECONOMICS**

Terms of Reference requirements		Where addressed
<b>Economics</b>		
11.153	Identify the economic impacts of the project on the local and regional area and the State. Estimate the costs and benefits and economic impacts of the proposal using both regional impact analysis and cost-benefit analysis. The analysis should be consistent with the Coordinator-General’s Economic impact assessment guideline (April 2017).	Economic impacts are discussed in Section 17.6, and Appendix S: Economic Impact Assessment Technical Report, Sections 4 and 5. Regional cost-impact analysis and cost-benefit analysis is discussed in Sections 17.7.5 and 17.8 and Appendix S: Economic Impact Assessment Technical Report, Sections 4.4 and 4.5.
<b>Other matters</b>		
5.1	The objectives of the EIS are to ensure that all relevant environmental, social and economic impacts of the project are identified and assessed, and to recommend mitigation measures to avoid or minimise adverse impacts. The EIS should demonstrate that the project is based on sound environmental principles and practices.	Economic impacts are discussed in Section 17.6, and Appendix S: Economic Impact Assessment Technical Report, Sections 4 and 5. Mitigation measures are discussed in Section 17.10, and Appendix S: Economic Impact Assessment Technical Report, Section 6. Social impacts are discussed in Chapter 16: Social, Section 16.9, and Appendix R: Social Impact Assessment Technical Report, Section 7. Mitigation measures are discussed In Chapter 16: Social, Section 16.10, and Appendix R: Social Impact Assessment Technical Report, Section 8. Chapter 23: Draft Outline Environment Plan lists the mitigation measures for the Project.

Terms of Reference requirements	Where addressed
<p>11.150 The impact assessment should also evaluate and discuss the potential cumulative social impacts resulting from the proposed project in combination with other existing major projects and/or developments and those which are progressing through planning and approval processes (where public information is available) within the SIA study area. Key issues assessed should include:</p> <ul style="list-style-type: none"> <li>(a) population</li> <li>(b) workforce (construction and operation)</li> <li>(c) workforce accommodation</li> <li>(d) local and regional housing markets</li> <li>(e) use of and access to community infrastructure, services and facilities (including social and health services and facilities).</li> </ul>	<p>Cumulative economic impacts are discussed in Section 17.9.</p> <p>Cumulative social impacts are discussed in Chapter 16: Social, Section 16.4, and Appendix R: Social Impact Assessment Technical Report, Sections 7.6 and 9.</p> <p>Chapter 22: Cumulative Impacts provides a summary of the cumulative impact assessment for the Project.</p>

### 17.3 Legislation, policy and guidelines

The relevant legislation, policies and guidelines that regulate and manage economic impact assessments (EIAs) are outlined in Table 17.2. Further information on relevant Commonwealth, State and local approvals and legislation relevant to the Project is outlined in Chapter 3: Project Approvals.

**TABLE 17.2: ECONOMIC REGULATORY CONTEXT**

Legislation, policy or guideline	Description
<b>Commonwealth</b>	
<i>Australian Infrastructure Plan</i> (Infrastructure Australia, 2016)	<ul style="list-style-type: none"> <li>▶ The <i>Australian Infrastructure Plan</i> was developed by Infrastructure Australia as a long-term plan for infrastructure reform and investment in Australia.</li> <li>▶ It 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.</li> <li>▶ 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. As a greenfield development, the Project will contribute to the realisation of these benefits, including improvements to the productivity and competitiveness of Australia's freight sector.</li> </ul>
<b>State</b>	
<i>Economic Impact Assessment Guideline</i> (Department of State Development, 2017b)	<ul style="list-style-type: none"> <li>▶ Defines the Coordinator-General's requirements for an EIA as part of an EIS process under the <i>State Development and Public Works Organisation Act 1971</i> (Qld) (SDPWO Act)</li> <li>▶ The EIA for the Project has been prepared in accordance with this guideline.</li> </ul>
<i>Queensland Freight Strategy—Advancing Freight in Queensland</i> (Department of Transport and Main Roads, 2019a)	<ul style="list-style-type: none"> <li>▶ The <i>Queensland Freight Strategy</i> sets a shared vision for the State's freight system through a series of commitments that aim to guide policy, planning and investment decision-making over the next ten years.</li> <li>▶ The strategy makes a commitment to optimise existing freight infrastructure and target investment towards creating economic opportunities. As part of the broader Inland Rail Program, the development of the Project supports the strategic intent and direction of the strategy, by improving the efficiency of rail freight and subsequently increasing the productivity of regional and State supply chains and industry.</li> </ul>

Legislation, policy or guideline	Description
<p><i>South East Queensland Regional Plan 2017 (ShapingSEQ)</i> (Department of Infrastructure, Local Government and Planning, 2017a)</p>	<ul style="list-style-type: none"> <li>▶ <i>ShapingSEQ</i> is the Queensland (QLD) Government’s plan to guide the future development of the South East Queensland (SEQ) region. The planning framework for the next 25 years is based off five strategic goals; <i>grow, prosper, connect, sustain</i> and <i>live</i>.</li> <li>▶ In particular, <i>ShapingSEQ</i> addresses the ‘prosper’ goal through a focus on regional economic clusters such as the Western Gateway and South West Industrial Corridor, including Ipswich, which will be further enabled by the development of Inland Rail. <i>ShapingSEQ</i> recognises the role of Inland Rail in unlocking opportunities for the greater intensification and consolidation of industrial activities and rail-dependent industries within the western subregion, including the development of a transport and logistics hub at Ebenezer. It also recognises the role of Inland Rail in facilitating the long-term development of the Bromelton State Development Area (SDA).</li> <li>▶ <i>ShapingSEQ</i> recognises the role of Inland Rail in improving national freight network connections. This will support efficient freight movements, align with the Plan’s goal of ‘connection’ and contribute to economic development throughout SEQ.</li> </ul>
<p>Draft <i>South East Queensland Regional Transport Plans 2018</i></p>	<ul style="list-style-type: none"> <li>▶ The draft <i>South East Queensland Regional Transport Plans</i> (DTMR, 2018b) outlines a shared direction for shaping the region’s transport system over the next 15 years. It sets out regional transport priorities and actions for developing the transport system in a way that supports regional communities, growth and productivity.</li> <li>▶ Inland Rail has been identified as an opportunity to improve the efficiency of SEQ’s east–west freight link, by improving the availability of rail freight. Specifically, the plan highlights the potential for Inland Rail (at the Kagaru extent of the Project) to provide convenient access for freight to the Bromelton SDA and intermodal terminal. Overall, the Project, as part of the broader Inland Rail Program, will increase the attractiveness and competitiveness of rail freight, consistent with the planning intent of the SEQ RTP.</li> </ul>
<p><i>South East Queensland Regional Freight Strategy 2007–2012</i> (Queensland Transport, 2007)</p>	<ul style="list-style-type: none"> <li>▶ The <i>South East Queensland Regional Freight Strategy</i> aims to ‘facilitate freight moving efficiently across the transport network’, enhancing economic development, safety, quality of life and environmental sustainability. While the strategy is no longer current, the document has not been superseded.</li> <li>▶ The strategy acknowledges the potential for Inland Rail to encourage mode shift from road freight to rail freight, in addition to opening up interstate rail freight movements entering SEQ from the west. The Project will play an important role in moving freight into SEQ from the west and is therefore consistent with the strategy’s intent.</li> </ul>
<p><i>Advance Ipswich</i> (Ipswich City Council, 2015)</p>	<ul style="list-style-type: none"> <li>▶ <i>Advance Ipswich</i> provides a shared vision for the future of Ipswich, covering the social, economic and environmental priorities for the area. There are five key themes included in the Plan, two of which align to the outcomes of the Project and the broader Inland Rail Program: ‘<i>Strengthening our [Ipswich’s] Local Economy and Building Prosperity (Jobs)</i>’ and ‘<i>Managing Growth and Delivering Key Infrastructure</i>’.</li> <li>▶ From an economic development perspective, the region is focused on promoting economic activity and employment within the regionally significant business and industry areas at Swanbank/New Chum and Ebenezer/Willowbank. By offering opportunities to better link the rail freight network and the proposed inter-modal freight terminal and industrial area at Ebenezer, the development of the Project is consistent with the plan’s intent to support the region’s transport, logistics and manufacturing industries within these areas. Consistent with the plan’s key themes, improved transport accessibility has the potential to increase the productive output of local industries and business, increasing opportunities for local employment and economic growth.</li> </ul>
<p><i>Ipswich and West Moreton Regional Committee—Regional Roadmap 2016–2020</i> (Regional Development Australia, 2016)</p>	<ul style="list-style-type: none"> <li>▶ The Australian Government and Regional Development Australia established a network of committees to support and broker economic development opportunities for specific regions. One of the committees established was for the Ipswich and West Moreton Region. The committee’s vision is that by ‘2024, the Ipswich and West Moreton Region has been able to successfully negotiate a balance between protection of natural assets and facilitating economic growth’.</li> <li>▶ There are five economic development themes under the Regional Roadmap that will support various projects and initiatives. Investing in critical infrastructure needed to support growth in a large region of rural through to urban areas has been identified as one key theme. The Regional Roadmap recognises that the development of an inland freight rail line will increase the importance of the region with its distribution channels, which will help to attract new businesses to the area on a long-term basis. Subsequently, a key nominated project for growth in the region identified by the committee is Inland Rail.</li> </ul>

Legislation, policy or guideline	Description
<i>City of Ipswich Transport Plan (iGo)</i> (Ipswich City Council, 2016)	<ul style="list-style-type: none"> <li>▶ The <i>City of Ipswich Transport Plan (iGo)</i> outlines the Ipswich City Council's (ICC) aspirations to advance Ipswich's transport system, and guide future investment decision making.</li> <li>▶ iGo recognises the importance of Inland Rail and continuing the planning and development of Inland Rail is listed as one of the key actions of the plan. Specifically, the Project (as part of the broader Inland Rail Program) has the potential to increase the accessibility and efficiency of rail freight, with potential connections to the proposed logistics hubs and industrial developments at Ebenezer (Ipswich) and Bromelton (Scenic Rim) via intermodal freight terminals. Overall, the Project has the potential to support economic development and jobs growth in Ipswich.</li> </ul>
<i>Economic Development Strategy (2016–2021)</i> (Logan City Council, 2016)	<ul style="list-style-type: none"> <li>▶ The <i>Logan Economic Development Strategy</i> provides the overarching direction for achieving economic growth in Logan City Council.</li> <li>▶ The Project's alignment traverses the Logan City Council (LCC) for a distance of approximately 300 m in the unpopulated mountainous area of Undullah. While this footprint is small, the development of Inland Rail, specifically the construction of the Project, will support the strategic intent of the strategy by supporting existing businesses (through the supply of construction labour and materials) and promoting local employment opportunities (for workers within driving distance of the alignment).</li> </ul>
<i>Scenic Rim Planning Scheme 2020</i> (Scenic Rim Regional Council, 2020)	<ul style="list-style-type: none"> <li>▶ The Scenic Rim Planning Scheme is the primary planning document within the Scenic Rim Regional Council (SRRC) LGA. The Scenic Rim Planning Scheme sets out the council's intention for future development within the LGA over the next 20 years.</li> <li>▶ The development of Inland Rail aligns to the theme of 'Growing Economy' under the Scheme, with the Bromelton SDA recognised as a regionally significant industrial area. The Project will support the strategic intent of the scheme's economic growth objectives by directly contributing to the connectivity and access to rail freight networks.</li> </ul>
<i>Bromelton State Development Area Development Scheme</i> (DSD, 2017)	<ul style="list-style-type: none"> <li>▶ The Bromelton SDA was declared in 2008 with an area of approximately 15,610 hectares (ha) and is located within the Scenic Rim area. The purpose of the Bromelton SDA is to promote economic development through providing for the growing demand for greenfield land suitable for medium- to large-scale industrial activities of regional, State and national significance. The location of the Bromelton SDA to the Sydney to Brisbane rail corridor was identified as an ideal location for industries, such as freight and logistic operations, to access intrastate and interstates markets.</li> <li>▶ The Bromelton SDA Development Scheme is the regulatory instrument that controls development to which it applies within the Bromelton SDA.</li> <li>▶ The Project traverses the northern area of the Bromelton SDA at Kagaru. The SFRC is also recognised within the Bromelton SDA Development Scheme.</li> </ul>

## 17.4 Methodology

### 17.4.1 Study area

The Project traverses three local government areas (LGAs): ICC, SRRC and LCC. Together, these LGA boundaries form the economic 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 Greater Brisbane labour market region, which is defined as the regional economic catchment area for this assessment (refer Figure 17.1).

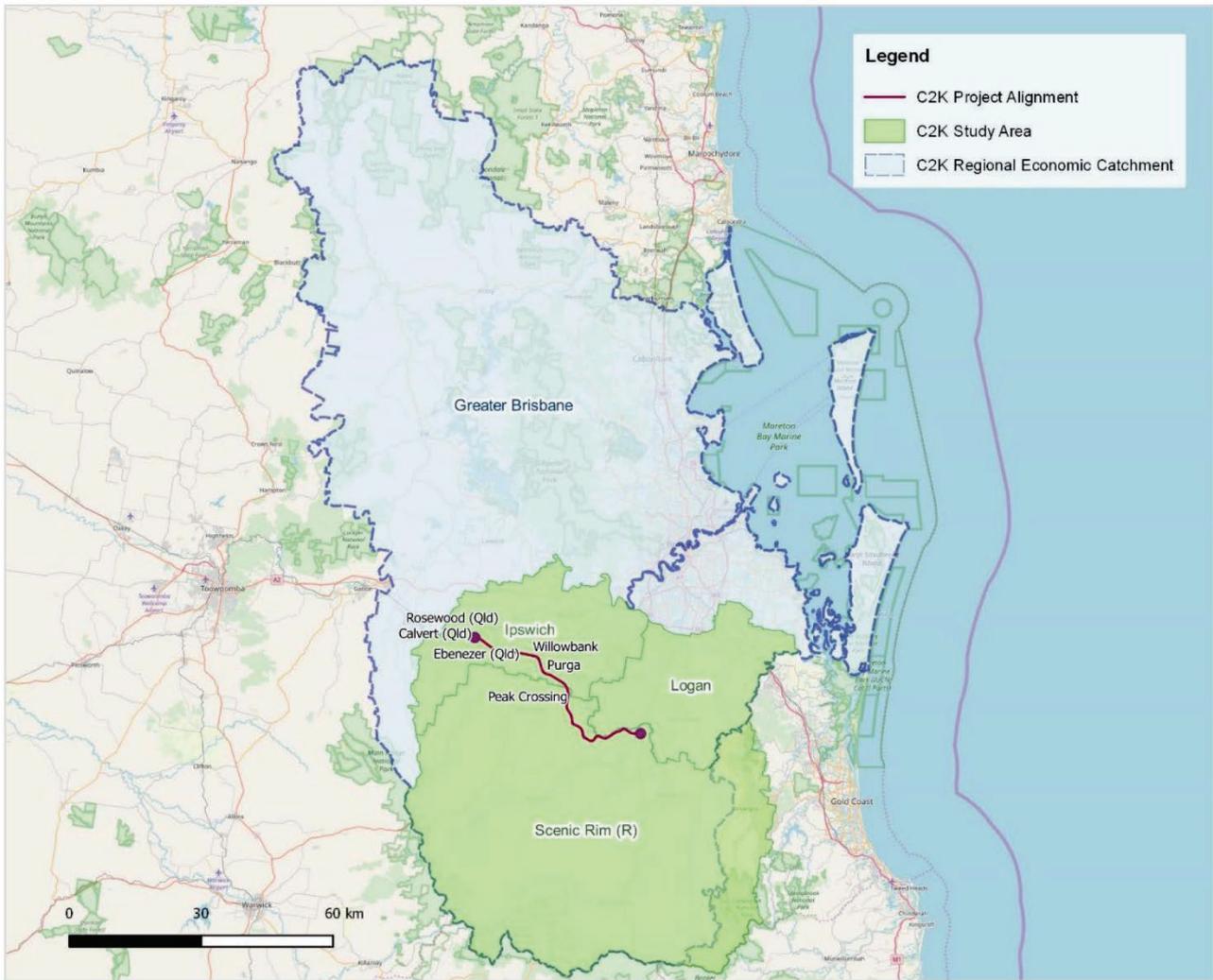


FIGURE 17.1: ECONOMIC STUDY AREA

### 17.4.2 Assessment methodology

The EIA has been developed according to the ToR and Coordinator-General’s *Economic Impact Assessment Guideline*. Accordingly, the approach adopted for this chapter is reflective of 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. Table 17.3 provides a summary of the methodology undertaken for the EIA.

**TABLE 17.3: ASSESSMENT METHODOLOGY**

Assessment	Description of methodology
Existing economic environment	<p>Section 17.5 describes the existing economic profile of the economic study area, and provides a baseline for assessment of the potential economic impacts of the Project. The economic baseline includes key socio-economic characteristics and identifies existing economic activities in the economic study area.</p> <p>This section has been developed based on data and information sourced from:</p> <ul style="list-style-type: none"> <li>▶ Relevant plans and strategies identified in Table 17.2</li> <li>▶ Data from ABS (ABS, 2016a; ABS, 2016b; ABS, 2019b; ABS, 2019c)</li> <li>▶ Queensland Government Statisticians Office (QGSO) <i>Population Projections, 2018 edition</i> (last reviewed 2019) (QGSO, 2019)</li> <li>▶ Australian Government’s <i>Small Area Labour Markets</i> publication (Department of Employment, Skills, Small and Family Business, 2019b)</li> <li>▶ Consultation with local businesses and the community undertaken by ARTC.</li> </ul>
Local economic impact assessment	<p>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:</p> <ul style="list-style-type: none"> <li>▶ Consultation with the local community undertaken by ARTC</li> <li>▶ The outcomes of the Social Impact Assessment (refer Chapter 16: Social and Appendix R: Social Impact Assessment Technical Report) process to identify local and regional business capacity, aspirations and initiatives</li> <li>▶ The outcomes of the land use and tenure assessment (refer Chapter 8: Land Use and Tenure) to identify local and regional impacts on industry resulting from land use changes.</li> </ul>
Economic benefits assessment	<p>An incremental cost–benefit analysis (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 on completion of the Inland Rail Program. 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. It is expected that the benefits of Inland Rail will outweigh the sum of the individual projects (i.e. undertaking a CBA purely for the Calvert to Kagaru section).</p> <p>For the purposes of the EIA, there are two components of the CBA:</p> <ol style="list-style-type: none"> <li>1. Evaluation of the likely benefits of the discrete Calvert to Kagaru Project (economic benefits assessment, refer Section 17.7.4). This analysis assesses only those impacts that would be likely if freight operators were to respond to the completion of the individual Project</li> <li>2. Description of the CBA economic performance measures calculated for the Inland Rail Program as a whole (as per the <i>Inland Rail Program Business Case</i>) (ARTC, 2015a) (refer Section 17.7.5).</li> </ol> <p>Critically, the key difference between a 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.</p> <p>The approach to the economic benefits assessment draws from the existing literature and guidelines surrounding the use of CBA in the economic appraisal of infrastructure projects, including, but not limited to:</p> <ul style="list-style-type: none"> <li>▶ Infrastructure Australia’s (IA) <i>Assessment Framework</i> (Infrastructure Australia, 2018)</li> <li>▶ <i>Project Assessment Framework (PAF) guidance material</i> (Queensland Treasury, 2019)</li> <li>▶ <i>Principles and Guidelines for Economic Appraisal of Transport Investment and Initiatives</i> (Transport for New South Wales, 2018b)</li> <li>▶ The <i>Australian Transport Assessment and Planning (ATAP) guidelines</i> (ATAP, 2019).</li> </ul>

Assessment	Description of methodology
Regional impact analysis	<p>A regional impact analysis has been undertaken to highlight the economic impacts of the Project on the regional, State and national economies using an equilibrium modelling framework. The regional economy is represented by the Greater Brisbane labour market region.</p> <p>As part of this analysis, a Computable General Equilibrium (CGE) model has been developed to examine the flow-on impacts arising from the Project 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.</p> <p>KPMG-SD is ideally suited to quantifying the industry, regional and economy-wide impacts of major projects like Inland Rail, because it can capture the upstream and downstream linkages between a project's activities and the rest of the economy. KPMG-SD also provides estimates of employment supported through these investment shocks, noting that estimates of employment produced by the model reflect the direct and indirect jobs generated across the economy.</p>
Cumulative impact assessment	<p>The cumulative economic impact assessment refers to the potential impact of cumulative stimulus to the economy resulting from the construction of a set of existing or planned projects within or adjacent to the economic study area. Cumulative impacts may result from the spatial or temporal interaction between these projects.</p> <p>This cumulative impact assessment has two components:</p> <ul style="list-style-type: none"> <li>▶ Quantitative regional impact analysis of the cumulative impact of the construction of the QLD portion of the Inland Rail Program on the regional, state and national economies using an equilibrium modelling framework (using KPMG-SD)</li> <li>▶ Qualitative assessment of cumulative impact of the construction of state significant projects (that have been identified by ARTC as having a relationship to the Project—refer Chapter 22: Cumulative Impacts) on labour markets, the supply chain and local businesses.</li> </ul>

It is noted that the analysis was largely completed before the economic shock associated with the 2020 Q2 market conditions. In particular, the baseline representation of the economy does not account for the 2020 Q2 market conditions.

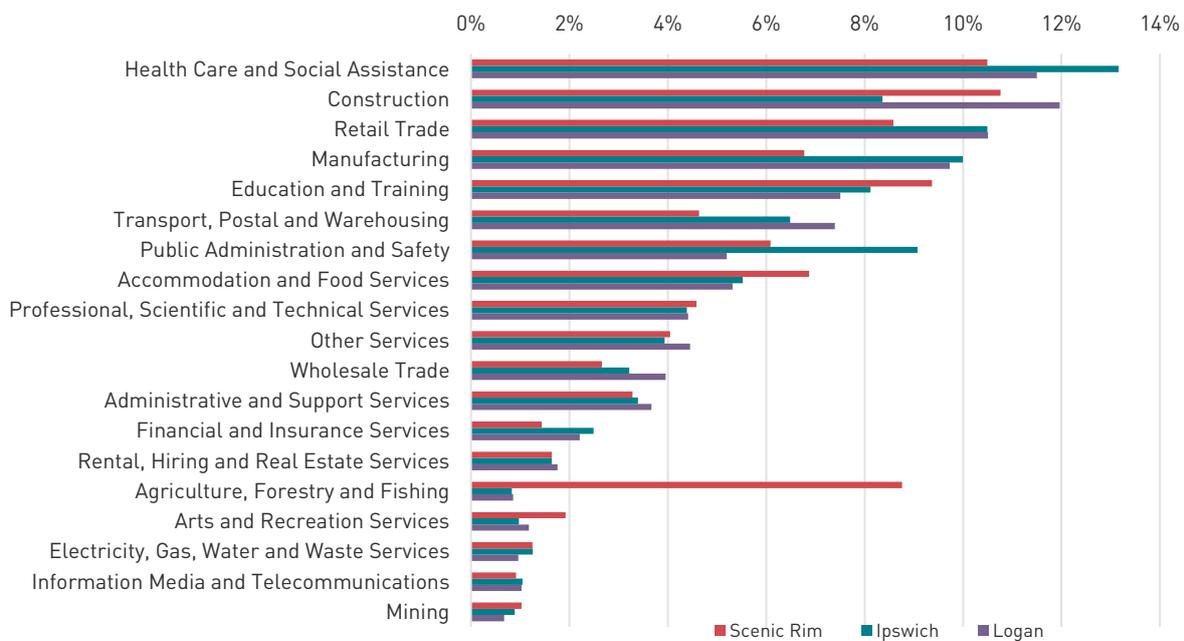
## 17.5 Existing environment

The following section describes the key demographic and socio-economic characteristics of the economic 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 2016 Census data (ABS, 2016a; ABS, 2016b). This information may not reflect recent changes in demographic and employment outcomes resulting from the 2020 Q2 market conditions. Further details of socio-demographics can be found in Chapter 16: Social and Appendix S: Economic Impact Assessment.

### 17.5.1 Labour market and employment characteristics

#### 17.5.1.1 Employment by industry

As shown in Figure 17.2, the sectoral distribution of employment for local residents is diverse, reflecting the economic study area's land use and the geographic distribution of the population.



**FIGURE 17.2: EMPLOYMENT BY INDUSTRY, ECONOMIC STUDY AREA, 2016**

Source: ABS, 2016a

In Ipswich, the largest proportion of workers are employed in service-based industries such as Health Care and Social Assistance (13.2 per cent) and Retail Trade (10.5 per cent). A significant proportion of the population is also employed in secondary industries such as Manufacturing (10.0 per cent) or Construction (8.4 per cent).

In the Scenic Rim, the highest number of residents are employed in Construction (10.8 per cent), followed by Health Care and Social Assistance (10.5 per cent) and Agriculture, Forestry and Fishing (8.8 per cent).

In Logan, the largest proportion of workers are employed in service based industries such as Health Care and Social Assistance (11.5 per cent) and Retail Trade (10.5 per cent). A significant proportion of the population are also employed in secondary industries, such as Construction (12.0 per cent) or Manufacturing (9.7 per cent).

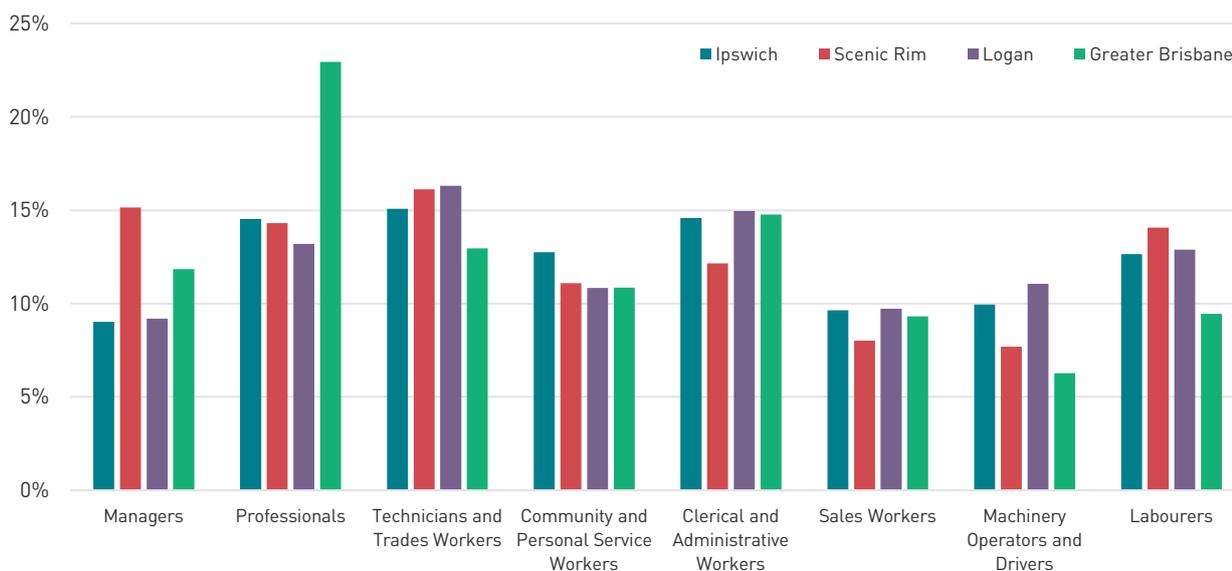
Many residents within the economic study area are employed in directly relevant industry sectors to support the construction of the Project. According to the 2016 Census, 10.6 per cent of the total workforce are employed in the Construction industry (24,161 workers), with the largest proportion of workers residing in Logan (15,784 workers). Within the Construction industry, 8.7 per cent of local workers are employed in Heavy and Civil Engineering Construction (2,085 workers) and 61.4 per cent in Construction Services (15,143 workers). Across the broader Greater Brisbane region, 92,556 workers are employed in the Construction industry, with 9.5 per cent of the region's workers in Heavy and Civil Engineering Construction (8,769 workers) and 57.4 per cent in Construction Services (53,105 workers).

### 17.5.1.2 Occupation

The economic study area's primary occupations of employment are reflective of the economic study area's strong resident employment in secondary industries. At the broadest level, the economic study area has a higher proportion of Technicians and Trade Workers, Community and Personal Service Workers, and Labourers than the QLD average (refer Figure 17.3).

To complement the identification of workers employed in directly relevant industry sectors, workers are employed in a range of occupations relevant to the construction of the Project. Within Ipswich, the largest proportion of workers are employed as Technicians and Trade Workers (15.1 per cent), of which 19.1 per cent are represented by Construction Trade Workers (2,420 workers). Technicians and Trade Workers also represent the highest number of workers in Logan and the Scenic Rim (15.9 per cent and 16.1 per cent respectively). Construction trade workers comprise over a quarter of these workers in Logan (25.6 per cent), and close to fifth in the Scenic Rim (19.1 per cent).

A significant proportion of workers are also employed as Labourers (12.9 per cent across the economic study area), of which 18.0 per cent of these workers are Construction and Mining Labourers (3,064 workers).



**FIGURE 17.3: LOCAL WORKERS OCCUPATION, ECONOMIC STUDY AREA, 2016**

Source: ABS, 2016a

### 17.5.1.3 Construction labour availability

A *Railway Skills Capability Study* was undertaken by the Australasian Railway Association in 2018, which evaluated workforce capability for the rail industry based on planned and forecast rail infrastructure development in Australia and New Zealand over the next 10 years. The results of the analysis found that, in QLD, workforce gaps are present in rail infrastructure construction sectors, in particular among specialist managers and professionals, such as engineers. The analysis also found that there is currently a slight oversupply of labourers (Australasian Railway Association, 2018).

These trends are also reflected at a national level. 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 (Australian Industry Group and Australian Constructors Association, 2018).

Construction companies are forecasting strong growth in major project work, led by a strong pipeline of transport infrastructure projects. The results of the *Australian Industry Group Construction Outlook* indicate that 69.2 per cent of respondents (up from 66.7 per cent 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 (Australian Industry Group and Australian Constructors Association, 2018). It is most likely that these shortages in labour availability are for specific, specialist trades.

### 17.5.1.4 Labour force

According to the Australian Government's quarterly regional estimates of unemployment, as at December 2019 there were a total of 22,886 unemployed persons in the economic study area and 82,236 in Greater Brisbane (Department of Employment, Skills, Small and Family Business (2019b)). Within the economic study area, the unemployment rate is highest in Logan and Ipswich, 7.9 percent and 7.5 percent respectively. This is compared to 6.0 percent in the Scenic Rim, 6.1 percent in the regional economic catchment and 6.1 percent in QLD.

For the December 2019 quarter, the labour force participation rate across the economic study area was lower than the average for the regional economic catchment and QLD (refer Table 17.4).

**TABLE 17.4: SUMMARY OF LABOUR FORCE CHARACTERISTICS, DECEMBER 2019**

	Labour force	Participation rate*	Unemployed persons	Unemployment rate	12 month average unemployment rate
Ipswich	113,863	71.2%	8,523	7.5%	7.1%
Logan	164,853	70.8%	13,071	7.9%	7.8%
Scenic Rim	21,414	68.6%	1,292	6.0%	5.9%
Greater Brisbane	1,355,270	78.6%	82,236	6.1%	6.2%
QLD	2,717,291	78.7%	142,928	6.1%	6.1%

Source: ABS, 2016a; ABS, 2016b; Department of Employment, Skills, Small and Family Business, 2019b.

\*Participation rate for working age population 15 to 64 years

Due to the economic study area's land uses and geospatial distribution of the population, a significant proportion of the local labour force is located north-east of the Project alignment, within the urbanised eastern portion of Ipswich and north western portion of Logan, and south of the alignment in the Scenic Rim.

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

The Indigenous and youth labour market profiles, described in the following section, also indicate there may be some latent capacity in the Indigenous and youth labour force, and current job seekers may have the skills, or ability to be up-skilled to be engaged in the Project.

#### 17.5.1.5 Indigenous labour force

According to the 2016 Census, the Indigenous population is inadequately represented in the economic study area's workforce, which is reflected in the high rates of Indigenous unemployment and low labour force participation. Across the economic study area, approximately one fifth of the Indigenous population is unemployed (18.7 per cent). In Greater Brisbane, 16.8 per cent of the Indigenous population is unemployed.

The labour force participation rate for the Indigenous population in the economic study area was 58.2 per cent, compared to a total labour participation rate of 70.8 per cent. Within the regional economic catchment, Indigenous labour force participation was marginally higher than the economic study area at 59.2 per cent, compared to a total labour participation rate of 78.3 per cent.

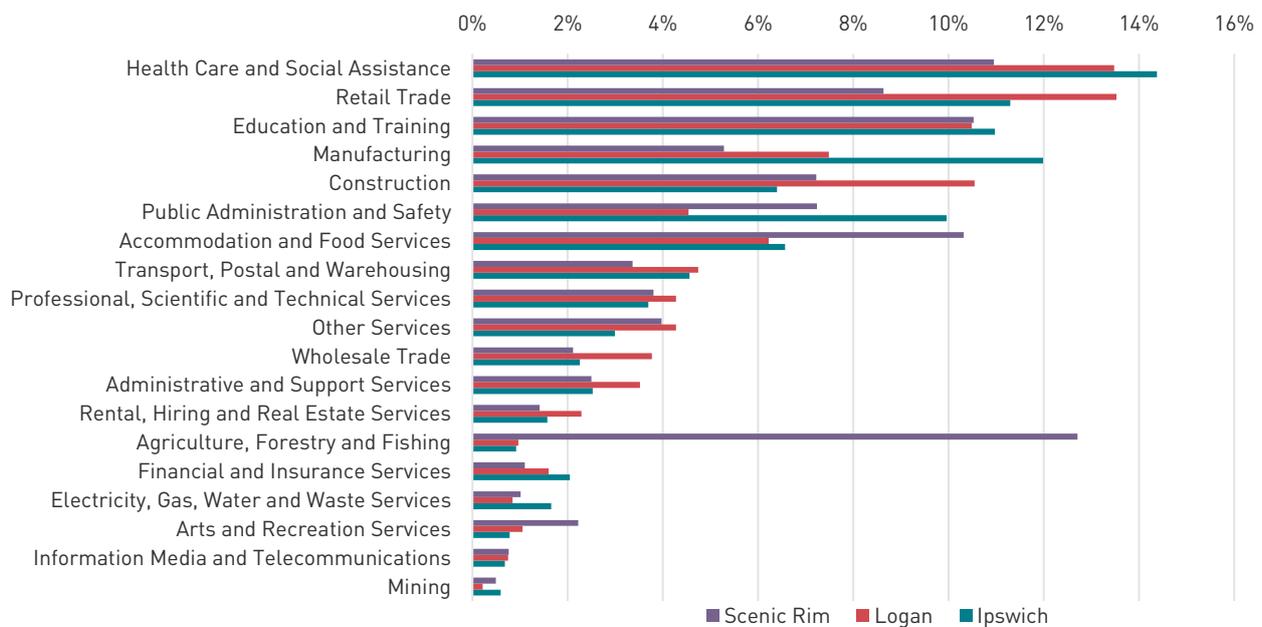
#### 17.5.1.6 Youth labour force

Youth (15 to 24 years) unemployment rates are high across the economic study area and regional economic catchment, more than double the total unemployment rate. In Ipswich, the youth unemployment rate is nearly three times the total unemployment rate (19.3 per cent compared to a total unemployment rate of 7.1 per cent). In Greater Brisbane, the youth unemployment rate is 15.8 per cent, compared to a total unemployment rate of 6.2 per cent.

The youth labour force participation rate within the economic study area and across the regional economic catchment is lower than the total participation rate. Youth labour force participation is highest across Greater Brisbane at 64.4 per cent, compared to 63.7 per cent in Ipswich, 62.3 per cent in Logan and 60.1 per cent in the Scenic Rim. 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 economic study area and regional economic catchment, over two-thirds of young persons who are not in the labour force are studying full time (65.8 per cent in Ipswich, 69.1 per cent in Logan and 73.5 per cent in the Scenic Rim).

#### 17.5.1.7 Industry by employment

The economic study area is a place of work for approximately 163,771 persons (who live both within and outside the catchment area). Industry by employment in the economic study area is shown in Figure 17.4. Industry by employment is used to analyse the sectoral distribution of jobs located within a defined geographic area, capturing all jobs located within an area that may be occupied by residents or workers who travel to the area for employment.



**FIGURE 17.4: INDUSTRY BY EMPLOYMENT, ECONOMIC STUDY AREA**

Source: ABS, 2016a

Consistent with the economic study area’s employment by industry, the sectoral distribution of jobs is diverse and focused on service-based industries such as Health Care and Social Assistance (13.6 per cent), Retail Trade (12.3 per cent) and Education and Training (10.7 per cent). These sectors are important in meeting the demand for local services from the local population. A further 9.0 per cent of jobs are in the Manufacturing industry, and the Construction industry represents 8.7 per cent of jobs.

Within the Scenic Rim region, Agriculture, Forestry and Fishing is the largest industry of employment, accounting for 12.7 per cent of all jobs in the area (1,571 jobs). Within this industry, most workers are employed in the Sheep, Beef Cattle and Grain Farming sector (485 persons), which is reflected in the local business and industry profile in Section 17.5.2. The strength of the Scenic Rim’s agricultural sector highlights the importance of supply chain efficiency in supporting the area’s economy. There are opportunities offered by the Project to improve the productivity of the local industry by reducing the distance between dispersed agricultural activities to processing facilities and markets. These impacts are outlined in the economic benefits assessment (Section 17.7).

## 17.5.2 Local business and industry

### 17.5.2.1 Tourism

Tourism is a significant industry in both the Scenic Rim and Ipswich LGAs, recognised as a popular tourist destination for visitors seeking to explore SEQ’s natural landscapes and scenic amenity. Due to the location of the Project alignment, there are unlikely to be any impacts to the tourism industry within Logan, and accordingly it is not captured in this baseline.

The Scenic Rim is home to a number of national parks, dams and World Heritage listed rainforests, offering a wide range of outdoor activities, walking trails and food and wine experiences. Ipswich is also regarded for its nature-based recreation, in addition to its heritage and history. Located within driving distance of Brisbane, tourism in the Scenic Rim and Ipswich is primarily comprised of daytrip tourism.

According to Tourism Research Australia, the Scenic Rim receives approximately 1.5 million visitors per year, with tourism expenditure totalling approximately \$171 million annually (Tourism Research Australia, 2018a). Of these visitors, 1.2 million are domestic daytrip visitors. Ipswich receives a further 1.2 million visitors per year (925,000 domestic daytrip visitors), with tourism expenditure totalling approximately \$217 million annually (Tourism Research Australia, 2018b). Overall, there are a total of 1,731 recorded tourism businesses within the economic study area, 520 located in the Scenic Rim and 1,211 located in Ipswich (Tourism Research Australia, 2018c).

There are a number of natural attractions and recreation areas across the economic study area that support the local character and the area’s attraction as a tourism destination. A number of these areas are within close proximity to the Project, supporting active outdoor recreation (e.g. bike riding, horse riding and trail walking), ecotourism, and food and wine experiences. There are also a number of local business in close proximity to the Project alignment, which are supported by tourists and visitors:

- ▶ Ipswich Motorsport Precinct
- ▶ Ivory’s Rock Conventions and Events Centre
- ▶ Flinders Peak Winery.

### 17.5.2.2 Agriculture

According to the Queensland Agricultural Land Audit (DAFF, 2013) (the audit), the Project is located within the SEQ agricultural region, with agricultural activities accounting for approximately 57 per cent (1,221,193 ha) of the total land area of the region. The audit outlines that the dominant agricultural industries in the SEQ region are horticulture, poultry, cattle, dairy and cultivated turf.

The Agricultural Land Class approach classifies a particular agricultural area based on land and soil information and is used for land audit purposes. The approach comprises a four-tier hierarchy ranging from Class A (arable land) through to Class D (land that is unsuitable for agriculture). Class A land is suitable for a wide range of current and potential crops with little limitations to production; Class B land is suitable for a narrow range of current and potential crops but is highly suitable for pastures. In addition, the audit identifies 'important agricultural areas' (IAAs). IAAs are defined by the audit as land that has all of the requirements for agriculture to be successful and sustainable, is part of a critical mass of land with similar characteristics and is strategically significant to the region or the State (Department of Agriculture and Fisheries (DAF), 2019).

Land classified by the Audit located within the disturbance footprint is summarised in Table 17.5. Further detail is discussed in Chapter 8: Land Use and Tenure.

**TABLE 17.5: AGRICULTURAL LAND IDENTIFIED BY THE AUDIT**

Agricultural Land Audit Theme	Permanent disturbance footprint		Temporary disturbance footprint	
	Area (ha)	% of land within permanent disturbance footprint	Area (ha)	% of land within temporary disturbance footprint
Land Class A	62.48	8.3	27.82	12.5
Land Class B	17.19	2.3	7.19	3.2
IAA	88.06	11.7	33.55	15.1

Source: Agricultural Land Audit layers, Queensland Globe, 2018a

At a local government level, the Scenic Rim LGA supports a diverse range of horticultural crops, extensive poultry production, dairy and grazing. The biophysical potential of the region indicates opportunities to expand the production areas for perennial horticulture, cropping, annual horticulture and grazing. The development of the Bromelton SDA will further enhance agricultural opportunities in the Scenic Rim by providing increased market, transportation and support service access.

On the 30 April 2019, the Coordinator-General declared the *Scenic Rim Agricultural Industrial Precinct* a coordinated project. The proposed precinct will offer opportunities to further enhance the region's agricultural sector through food processing and value-add. The precinct will support food processing, production and manufacturing businesses to be located together.

According to the audit, land under agriculture production is declining within the Ipswich LGA. However, it is recognised that Ipswich has the established capacity to provide services such as transport and manufacturing to support and expand agriculture in surrounding areas. This may be enhanced by the development of the Ebenezer Regional Industrial Area (RIA), which has the potential to provide capacity for food processing and other value-adding/supply chain industries to locate businesses in the area.

As at June 2018, there were a total of 177 employing businesses within the Agriculture, Forestry and Fishing Industry in the Scenic Rim (a further 950 were non-employing), and 33 employing businesses in Ipswich (318 non-employing) (ABS, 2019a). There are a number of agricultural/farming businesses located along the alignment.

### 17.5.2.3 Mineral resources and extractive industries

There are a number of operations in the mineral resources and extractive industries sector located within close proximity to the Project. Further detail is provided in Chapter 8: Land Use and Tenure.

#### Mineral resource interests

The disturbance footprint is adjacent to one mining lease (ML 4712) held by Zedemar Holdings Pty Ltd at approximately chainage (Ch) 12.4 km to Ch 13.1 km. The mining lease is associated with the Ebenezer Coal Mine and the disturbance footprint runs adjacent to the southern boundary of the lease area. The Ebenezer Coal Mine is currently not operational, and the land is planned to be rehabilitated. As of January 2020, there is a proposal to transform the disused site into the 'Wanless Recycling Park', a resource recovery hub.

## Coal resource area

Coal resource areas depict the extent of identified coal resource estimates in QLD as presented in the publication *Queensland Coals—Physical and Chemical Properties Colliery and Company Information, 14th Edition* (Mutton, 2003). The disturbance footprint traverses a coal resource area located at Ebenezer—the Bremer View East coal resource area—which is identified to have the potential to contain small to medium size deposits of thermal coal.

There are no granted coal or mineral exploration permits, or applications for mining permits within the disturbance footprint.

## Petroleum and gas resource interests

The disturbance footprint crosses two authority to prospect (ATP) permits for petroleum exploration. Both permits (ATP 641 and ATP 644) are held by B.N.G. Pty Ltd. There are two current applications for potential commercial areas (PCA) for petroleum (PCA 223 and PCA 198), held by B.N.G. Pty Ltd, located over the ATP permits. These petroleum and gas resource interests are traversed by the disturbance footprint.

There is one petroleum licence (associated with the Moonie to Brisbane pipeline) that traverses the alignment at approximately Chainage 4.00 km.

Chapter 8: Land Use and Tenure provides further details relating to the specific location of these interests.

## Mineral resource operations

There are three mineral resource operations within close proximity of the Project:

- ▶ SEQ Sand and Soil Quarry: a commercial operation that produces sand and soil products
- ▶ JNJ Resources—Bentonite product production: JNJ Resources is a commercial operation that produces bentonite products
- ▶ Purga Quarry: a quarry rock resource that provides a substantial proportion of the aggregate production for the Ipswich and Fassifern Valley districts.

Material, such as ballast material, may be sourced from these local quarries to supply the construction of the Project.

## Key Resource Area

The Purga Quarry is a key resource area (KRA) located in close proximity to the Project. KRAs are identified locations containing important extractive resources of state or regional significance, worthy of protection for future use (Department of Infrastructure, Local Government and Planning (DILGP) 2016a, 2016b, 2016c, 2017b). KRAs are included in the State Planning Policy and are supported by the *State interest guideline*—

*Mining and extractive resources*. KRAs are designed to maintain adequate separation distances between sensitive uses and any future extractive industry.

The permanent disturbance footprint traverses south of the separation area associated with the Purga Quarry KRA; however, it avoids the resource processing area. The separation area does not form part of the operational area of the quarry but is implemented to maintain separation from people who may be affected by impacts such as noise, dust and vibrations from existing or future operations.

## 17.5.2.4 Local construction businesses

There are a number of construction business located within the economic study area, with a total of 3,316 employing businesses and a further 4,943 non-employing businesses across Ipswich, Logan and the Scenic Rim (ABS, 2019a). These businesses are likely to be a significant source of services and equipment during the Project's construction, including:

- ▶ Civil construction companies
- ▶ Earthmoving services
- ▶ Diesel and petrol suppliers
- ▶ Plumbers, electricians, mechanics and building contractors
- ▶ Engineering and machining services
- ▶ Steel fabrication companies
- ▶ A range of accommodation and retail businesses.

## 17.5.2.5 Local industrial areas

There are a number of key industrial and logistic areas in close proximity to the Project.

### Ebenezer Regional Industrial Area

The Ebenezer RIA is located east of the Project alignment, approximately 15 km south-west of Ipswich on a 5,000 ha site. The area was declared under the QLD Government's *SEQ Regional Plan 2009–2031* as a regional development area and proposed manufacturing hub. It offers the opportunity to accommodate manufacturing and logistics businesses as well as difficult-to-locate, large footprint industries. The Project may act as a significant catalyst for development of the Ebenezer RIA, particularly in relation to rail dependent industries and support industries associated with transport, freight handling, warehousing and logistics. An intermodal freight terminal is also proposed for the RIA.

### **Willowbank Industrial Park**

Economic Development Queensland (EDQ) has identified a parcel of land (adjacent to the Cunningham Highway west of Ipswich within the Western Corridor Precinct) as ideally suited to establish an industrial precinct. The Willowbank Industrial Park will support local and regional industrial land requirements.

### **Bromelton State Development Area**

The Bromelton SDA is located south of the Project alignment and was declared in 2008, with industries already established in the industrial precinct. The Bromelton SDA includes an intermodal rail freight facility and warehouses on land situated adjacent to the Sydney–Brisbane rail line. The SDA also includes the Beaudesert Town Centre Bypass and Bromelton North South Arterial Road. Accordingly, the SDA is a well-suited location for freight and logistics operations, with the potential to promote and support the development of medium to large-scale industrial activities.

## **17.6 Potential impacts**

### **17.6.1 Inland Rail Program impacts**

This EIA has focused on the specific economic impacts resulting from the construction and operation of the Project. 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. The *Inland Rail Program Business Case* (ARTC, 2015a) notes the key economic benefits of the Inland Rail Program include:

- ▶ Lower prices for consumers as a result of lower intercapital freight transport costs, which reduces the cost of living for households
- ▶ Positive direct net economic benefits, driven by improvements in freight productivity, reliability and availability, and benefits to the community from reduced environmental externalities, reduced road congestion and improved safety benefits. The Program is stated to be economically viable with a benefit–cost ratio of 1.02 at a 7 per cent discount rate (2.62 at a 4 per cent discount rate). This point is discussed in greater detail in Section 17.7.5.

- ▶ The Program is anticipated to deliver a net positive impact of \$16 billion on Gross Domestic Product (\$2015) over its 10-year construction period and 50 years of operation
- ▶ Nationally, the Program is also expected to deliver an additional 16,000 jobs at the peak of construction, and an average of 700 additional jobs per annum during operation
- ▶ Enhanced competition between rail and road freight, by providing a credible transport alternative, which will drive further innovation and efficiencies
- ▶ 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).

## **17.6.2 Project impacts**

### **17.6.2.1 Workforce**

#### **Direct employment**

The Project will result in a number of direct employment opportunities across the pre-construction, construction and operational phases of the Project. These jobs have been estimated based on the indicative construction schedule and component activities. Anticipated direct employment outcomes are provided in Table 17.6.

**TABLE 17.6: DIRECT EMPLOYMENT**

Project phase	Anticipated workforce numbers	Workforce composition
Pre-construction	Up to 20 personnel	Staff to complete activities including land access, land surveys, geological and geotechnical investigations, ecological investigations, securing access to borrow material, cultural heritage surveys, and establishment of site compounds, fencing and access tracks.
Construction	Peak of 620 full time equivalents (FTE). The average number of FTE workforce on site across the full construction period is planned to be 271 personnel	The core construction workforce will consist of professional staff, supervisors, trade workers and plant operators, with earthworks crews, bridge structure teams, capping and track-works crews working at different periods through the construction phase.
Operation	Approximately 20 FTE	Occupational groups required will include: <ul style="list-style-type: none"> <li>▶ Train drivers</li> <li>▶ Maintenance staff, including for the track, associated infrastructure, and maintenance of the tunnel ventilation and safety system</li> <li>▶ Signallers.</li> </ul>

**Table notes:**

The Initial Advice Statement (ARTC, 2017b) for the Project estimated the workforce to be 1,600 FTEs—a proportional figure based on the overall capital cost for a 10-year program-wide delivery period. As a result of further detailed assessment and design advancement, the Project now estimates an onsite construction workforce of 620 FTEs (peak) with an annual average of 271 FTEs may be required. Over the estimated construction period of 205 weeks, this equates to approximately 1,000–1,100 FTEs. The Project’s construction workforce estimate excludes Project planning delivery personnel, the Inland Rail support function, pre-construction design personnel, technical support services and review/verification of labour efforts.

**Local employment**

The Project has the potential to be a significant opportunity to support local employment; however, this 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 economic study area and regional economic catchment to support the construction and operation of the Project. The construction workforce is expected to be drawn from within a safe daily (one-hour) driving radius including communities within the Ipswich, Scenic Rim, Brisbane, Gold Coast, Beaudesert, Logan and Toowoomba LGAs. It is likely that a portion of the construction workforce will be sourced from nearby communities.

The Project represents a source of potential training and career pathway development for young people in the economic study area. As detailed in Chapter 16: Social, consultation with local stakeholders highlighted an opportunity for training programs to facilitate access to the Project. There are potential opportunities for ARTC to work with local secondary schools to formalise these pathways.

ARTC is establishing the Inland Rail Academy, which is a collection of projects and partnerships with the aim to facilitate local employment and procurement opportunities and build Inland Rail’s social licence to operate the Inland Rail Program.

**Indigenous participation**

As identified Chapter 16: Social and Appendix R: Social Impact Assessment Technical Report, the Project offers the potential to increase Indigenous employment and business opportunities. ARTC has a strong commitment to work closely with Indigenous communities to strengthen community members’ capacity for employment, encourage applications and increase the number of Indigenous people applying for Project-related jobs.

**Changes to housing and accommodation**

Most of the workforce are anticipated to be drawn from the local region, within safe driving distance to the Project. Accordingly, it is anticipated that the workforce will return to their place of residence at night, minimising demands for local workforce accommodation. There is a possibility that some construction workers will be recruited from the broader region and will be required to reside locally whilst they are on roster. These numbers are likely to be small, and within the capacity of existing short-term accommodation facilities in the Ipswich, Scenic Rim and Logan LGAs. An accommodation camp is not considered necessary due to the reasonably close proximity of population centres that will offer both workforce and accommodation options.

Refer Chapter 16: Social for further detail on the nature of changes to housing and accommodation.

## 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 17.8.2) 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 the Project will not only provide employment opportunities in local construction activities but create indirect employment in occupations such as engineering and consulting (e.g. feasibility assessment) during Project planning, and in the supply chain for construction materials during Project construction.

### 17.6.2.2 Business and industry

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

#### Tourism

The Project has the potential to change local amenity and service capacity within the economic study area, during both construction (temporary) and operation (permanent). Chapter 16: Social discusses these changes in detail.

During construction, there is potential for road works, bridge construction and the visual impact of laydown areas to affect tourists' experience and travel times. Some visitors may be deterred from visiting during the construction period, which has the potential to impact tourism-based businesses within the area. This impact is anticipated to be low and will be temporary while construction activities are undertaken.

The Project alignment will not have a direct impact on tourism businesses; however, local businesses have raised concerns regarding the Project such as noise and vibration, dust and air quality and changes in property values. Refer Appendix C: Consultation Report for further details relating to the nature of these concerns.

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 is elevated with bridge structures. The impact of the Project on the landscape and visual amenity has been assessed in Chapter 10: Landscape and Visual Amenity. Visual impacts are typically contained by the presence of vegetation, including along creek lines,

and localised undulations in landform. Elevated and panoramic views over the alignment are also available from the Forested Uplands, particularly from walking trails around Flinders Peak. Elsewhere, there are fairly open views across the rural landscape from the network of local roads and highways, including the Cunningham Highway, Rosewood-Laidley Road and Ipswich-Boonah Road. It is expected that some visitors will find interest in the Project structure. As a result, the assessment concludes that a significant decrease in visitation as a result of this impact is unlikely.

Further, as detailed in Chapter 16: Social, the Project is not anticipated to result in the displacement of tourists from accommodation attributable to workforce housing demand.

#### Agriculture

The construction and operation of the Project has the potential to impact farming operations and general agricultural uses within the disturbance footprint. These impacts include:

- ▶ Loss of agricultural land
- ▶ Land fragmentation and disruption to access and infrastructure
- ▶ Disruption to stock and product movement
- ▶ 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 Appendix C: Consultation Report.

#### Loss of agricultural land

As detailed in Chapter 8: Land use and Tenure, the Project will result in the sterilisation of productive agricultural land within the permanent disturbance footprint.

The scale of the total loss (within the permanent disturbance footprint) of Class A and Class B agricultural land is anticipated to be low. At a local government level, within Ipswich the permanent disturbance footprint traverses approximately 51 ha of Class A land (0.5 per cent of total Class A land in Ipswich) and 21 ha of Class B (0.3 per cent of total Class B land in Ipswich). Within the Scenic Rim, the permanent disturbance footprint traverses approximately 12 ha of Class A land (less than 0.1 per cent of total Class A land in the Scenic Rim) and 3 ha of Class B land (less than 0.1 per cent of total Class B land in the Scenic Rim).

Overall, the permanent disturbance footprint will traverse 0.002 per cent of total productive agricultural land in the economic study area (168 ha impacted out of a total productive area of 9.433 million ha). This proportion can be used to estimate, at a high level, the potential foregone value of agricultural production resulting from the Project.

In 2017–18, the gross value of agricultural production in the Ipswich and Scenic Rim LGAs was \$323 million (Queensland Government, 2019e). Accordingly, it is estimated that the Project could result in a loss of approximately \$5,745 (value foregone) in gross agricultural production per year. This value is an indicative estimate only—it does not consider the value of individual commodities produced per lot or the value-add activities, which contribute to the gross value of agricultural production in the region. An assessment of the composition of agricultural production by lot and commodity may be undertaken following detailed design once a more accurate depiction of the lot-specific impacts are able to be quantified.

#### **Land fragmentation and disruption to access and infrastructure**

The Project may result in impacts to agricultural land outside the permanent disturbance footprint. The fragmentation or alienation of properties may cause a disruption in farm operations due to impacts to essential farming infrastructure, services or access routes. Impacts include:

- ▶ **Water access and infrastructure:** The Project has the potential to impede essential access to water through impacts to drainage lines, diversions, or cutting off water input to and from dams. This potential fragmentation and alienation of properties may impact the economic viability of farming operations associated with agricultural land directly impacted by the permanent disturbance footprint.
- ▶ **Transport access and infrastructure:** During construction, roadworks, re-alignments and changes to travel distances may affect farming businesses through increases in travel times, resulting in increased operating costs and a reduction in productivity.
- ▶ **Changes to transport access and infrastructure** may impact the operations of Yackatoo Grazing Co., Purga Breeder Farm and local farms.

The extent of these impacts will be confirmed during detailed design.

#### **Disruption to stock and product movement**

Stock routes are corridors on roads, reserves, pastoral leases and unallocated state land along which stock are driven on foot and are designated for travelling stock purposes under the relevant State legislation. The disturbance footprint does not traverse any known stock routes.

Chapter 8: Land Use and Tenure identifies that there may be informal stock routes used to transfer stock to various grazing paddocks and holding yards. Consultation is ongoing with landholders to identify impacts, if any, to these informal stock routes.

#### **Improvements in supply chain efficiency**

Efficient supply chains support the regional and national capacity to enhance economic opportunities within local communities. The Project is a critical link in the broader Inland Rail Program, 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 improve the productivity of local export industries (such as agriculture)
- ▶ Has the potential to unlock the construction of ancillary and complementary infrastructure, industrial development and logistics operations within the local area. Specifically, the Project may act as a significant catalyst for development in the planned and existing industrial areas at the Ebenezer Regional Industrial Area (RIA), Willowbank Industrial Estate and Bromelton SDA. Key activities will likely relate to rail dependent industries and support industries associated with transport, freight handling, warehousing and logistics.

#### **Mineral resources and extractive industries**

##### **Sterilisation of mineral and petroleum resources**

The permanent disturbance footprint does not cross any operational mines or areas of mineral resource interest. Accordingly, no resources identified, inferred or implied, related to the activities currently carried out within the existing mining leases are expected to be impacted by the Project.

The permanent disturbance footprint traverses approximately 23.3 ha, less than 0.1 per cent of the total 1,717 ha area of the Bremer View East Coal Resource Area between approximate Ch 7.0 km to Ch 9.0 km (refer Chapter 8: Land Use and Tenure). Where the permanent disturbance footprint traverses the coal resource area, the Project may potentially impact the extraction of this land identified to contain deposits of coal.

The permanent disturbance footprint traverses through two ATP permits for petroleum activities and two current applications for PCAs for petroleum activities at approximate Ch 6.0 km to Ch 34.0 km and at Ch 54.0 km. The Project may impact petroleum resources within these tenements as the amount of land within these areas that is available for production will be reduced.

## Key resource area

The permanent disturbance footprint traverses south of the separation area associated with the Purga KRA, avoiding the resource processing area. The separation area does not form part of the operational area of the quarry but is implemented to maintain separation from people who may be affected by impacts such as noise, dust and vibrations from existing or future operations.

The Project does not propose a sensitive use and will not be adversely impacted by noise or dust generated by the Purga KRA. With respect to ground vibrations, geotechnical assessments of the Purga KRA operations on the permanent disturbance footprint have found that there will be negligible impacts. The closest point of the permanent disturbance footprint (approximate Ch 26.3 km) is approximately 420 m from the south-western corner of the existing quarry pit. Geotechnical assessments have determined the quarry will have negligible influence on the stability of the permanent disturbance footprint, and vice versa.

In assessing potential impacts of the Project on the Purga KRA, the permanent disturbance footprint will not impact the quarry resources as the permanent disturbance footprint is not proposed to traverse the resource processing area. It is noted that a laydown area is proposed adjoining the quarry.

## Local business

### Construction materials

The Project will require a range of construction supplies, including borrow material (spoil, gravel or sand) and ballast material (crushed stone), precast concrete, concrete sleepers and turnout panels, steel, fencing, electrical components, fuel and consumables. Precast concrete may be sourced from Ipswich and it is likely that ballast materials may be accessed from local quarries and borrow pits. Other major components such as fencing may be sourced within the economic study area, with several suppliers based at nearby Amberley and Ipswich. It is likely that concrete sleepers will be sourced from outside the economic study area.

The Project will have significant construction material and services requirements that may provide local businesses with the opportunity to supply the Project. ARTC has developed a *Sustainable Procurement Policy*, which will ensure that local, regional and Indigenous businesses will have opportunities to supply the Project.

## Transportation

The Project may provide opportunities for local transport or logistics businesses during construction to transport materials to laydown areas and remove waste materials and recyclables from construction compounds. These benefits have the potential to accrue over the long term, particularly if the Project acts as a catalyst for the development of freight and logistics operations within close proximity to the alignment, such as at the Ebenezer RIA, Willowbank Industrial Estate or Bromelton SDA.

During operation, the anticipated mode shift from road freight to rail freight is likely to reduce the number of heavy vehicles travelling on the road network with the potential to impact levels of trade for local transportation businesses. These impacts may be partially offset by the aforementioned opportunities to increase investment and activity in freight/logistics operations adjacent to Inland Rail.

## 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 Project. The expansion in construction activity would support additional flow-on demand and additional spending by the construction workforce in the local community, such as in the Logan and Ipswich areas where a portion of the construction workforce are likely to be sourced. This may lead to increased trading levels for small businesses, such as food and beverage businesses in the economic study area.

## 17.7 Economic benefit assessment

### 17.7.1 Methodology

The following approach reflects the benefit assessment modelling process adopted:

- ▶ **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
- ▶ **Identify benefits:** identification of relevant economic, social and environmental benefits that can be measured for the Project
- ▶ **Monetise benefits:** quantification, monetisation and assessment of benefits over the Project appraisal period.

## 17.7.2 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 the Calvert to Kagaru Project. 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 17.7.

**TABLE 17.7: ECONOMIC BENEFITS ASSESSMENT ASSUMPTIONS**

Parameter	Value	Source
Discount rate	A 7% real discount rate is used for the central case with sensitivity tests conducted at 4% and 10%	<i>Business Case Assessment Template</i> (Infrastructure Australia, 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)*	<i>Australian Transport Assessment and Planning (ATAP) Guidelines</i> (Category 4, Section 2.4) (ATAP, 2019)
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	<i>Inland Rail Program Business Case</i> (ARTC, 2015a) 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	<i>Inland Rail Program Business Case</i> (ARTC, 2015a)

**Table notes:**

\* 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 (ATAP, 2019).

Freight 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* (ARTC, 2015a). The assumptions underpinning these demand projections are documented in Chapter 7 of the *Inland Rail Program Business Case* (ARTC, 2015a). Refer EIS Appendix S: Economic Impact Assessment Technical Report for further detail on the demand inputs and assumptions that underpin this assessment.

## 17.7.3 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
- ▶ **Community benefits:** these benefits include the changes in costs to the community resulting from a reduction in delays on the road network, and other externalities such as crash reductions and reduced environmental impacts.

A description of each of the benefits included in the assessment are provided in Table 17.8, with further detail provided In Appendix S: Economic Impact Assessment Technical Report.

**TABLE 17.8 BENEFIT CATEGORY DESCRIPTIONS**

<b>Benefit category</b>	<b>Description</b>
<b>Freight benefits</b>	
Travel time savings	The value to the economy associated with freight arriving at its destination more efficiently as a result of improvements to the rail network than enable shorter distances, faster travel and subsequently, increased capacity.
Operating cost savings	Reduction in costs associated with fuel, crew, maintenance and depreciation to both road and rail freight operators making use of the Project.
Improved service availability	Increased flexibility in arrival and departure times afforded to the rail freight network as a result of the Project. This is due to fewer restrictions on freight service times provided by the increased network capacity.
Improved service reliability	Certainty in transit time and subsequent economic efficiency gains in 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.
<b>Community benefits</b>	
Crash reduction	Reduced costs associated with fatal and serious injuries resulting from both road and rail incidents.
Environmental externalities	Reductions in air pollution and greenhouse gas emissions. The majority of these benefits can be attributed to the mode shift from road to rail.
Road decongestion benefits	Reductions in truck movements that are projected on completion of the Project result in reduced congestion in urban areas.

#### 17.7.4 Economic benefit assessment results

Appendix S: Economic Impact Assessment Technical Report provides details on the detailed assumptions, parameter values and sources for undertaking the economic benefits assessment.

The results of the economic benefits assessment estimate that the Project is expected to provide a total of \$166.22 million (\$2019 present value terms) in incremental benefits at a 7 per cent discount rate. This consists of \$126.76 million in freight benefits and \$39.46 million in community benefits.

Observing the composition of benefits, the largest share of benefits for the Project is freight operating cost savings, representing approximately 49 per cent of the total benefits at a 7 per cent discount rate. Freight benefits more broadly (including freight time travel savings, operating cost savings, as well as improved reliability and availability) represent approximately 76 per cent of the total projected benefits for the Project.

Reductions in environmental externalities (i.e. air pollution and greenhouse gas emissions) from reduced heavy vehicle kilometres travelled represents approximately 9 per cent of the total benefits at a 7 per cent discount rate.

The results of the economic benefits assessment are presented in Table 17.9.

**TABLE 17.9 RESULTS OF THE ECONOMIC BENEFITS ASSESSMENT, PRESENT VALUE TERMS (\$2019)**

<b>Benefit</b>	<b>Discount rate</b>		
	<b>4%</b>	<b>7%</b>	<b>10%</b>
<b>Total freight benefits</b>	<b>\$248.34 m</b>	<b>\$126.76 m</b>	<b>\$74.87 m</b>
Travel time savings	\$17.09 m	\$8.92 m	\$5.35 m
Operating cost savings	\$150.74 m	\$81.59 m	\$50.48 m
Improved availability	\$62.68 m	\$27.88 m	\$14.44 m
Improved reliability	\$17.82 m	\$8.37 m	\$4.61 m
<b>Total community benefits</b>	<b>\$72.69 m</b>	<b>\$39.46 m</b>	<b>\$24.45 m</b>
Crash reduction	\$9.97 m	\$5.41 m	\$3.35 m
Environmental externalities	\$29.00 m	\$15.74 m	\$9.75 m
Road decongestion benefits	\$33.73 m	\$18.31 m	\$11.35 m
<b>Total benefits</b>	<b>\$321.03 m</b>	<b>\$166.22 m</b>	<b>\$99.32 m</b>

Source: KPMG, Appendix S: Economic Impact Assessment Technical Report

## 17.7.5 Cost-benefit analysis—Inland Rail Program Business Case

As discussed in Section 17.4, due to the nature of the incremental assessment approach adopted for this EIS, a Project-specific CBA has not been undertaken as the results will not capture the full impact that is expected to be delivered on completion of the Inland Rail Program. Instead, the results of the economic analysis undertaken for the *Inland Rail Program Business Case* (ARTC, 2015a) are provided to illustrate the anticipated net economic impact of Inland Rail to the community as a whole.

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

The results of this analysis are in Table 17.10.

**TABLE 17.10 ECONOMIC APPRAISAL RESULTS FOR INLAND RAIL PROGRAM (\$2015)**

	Net present value	Benefit-cost ratio
Present value at 4% discount rate	\$13,928 m	2.62
Present value at 7% discount rate	\$116.1 m	1.02

Source: ARTC, 2015a

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 per cent discount rate (2.62 BCR at a 4 per cent discount rate). By beneficiary, intercapital freight users account for 68 per cent of total benefits, followed by regional freight (16 per cent). A further 13 per cent of benefits accrue to the broader community.

Chapter 2: Project Rationale provides further discussion on general long-term benefits of the Project and Inland Rail Program.

## 17.8 Regional economic impact analysis

A regional impact analysis has been undertaken to highlight the impacts of the Calvert to Kagaru section of the Inland Rail Program on the regional, state and national economies using a computable general equilibrium modelling framework. For the purposes of this analysis, a CGE model (KPMG-SD) has been applied to examine the flow-on effects arising from the Project on the broader economy. The regional economy is represented by the Greater Brisbane labour market region.

### 17.8.1 Key considerations

The direct and indirect economic impacts of the Project during its construction phase are modelled using a comparative-static version of KPMG-SD. In comparative static mode, KPMG-SD does not trace out the dynamics of how the economy adjusts through time to accommodate the construction of the Project. Rather, in comparative static mode, KPMG-SD provides estimates of how the economy is impacted over the construction phase period, during which the Project'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 that underpin the regional economic assessment results are provided in Appendix S: Economic Impact Assessment Technical Report. It is noted that the analysis was largely completed before the economic shock associated with the 2020 Q2 market conditions. In particular, the baseline representation of the economy does not account for 2020 Q2 market conditions.

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

## Construction phase

The CAPEX program associated with the development and construction of the Project is modelled in KPMG-SD as a transitory expenditure shock to the economy. Accordingly, modelling the construction phases of the 13 individual projects that comprise the Inland Rail Program in isolation is reasonable. If there is significant overlap in the timing of the construction phases of the other links in the Inland Rail Program, 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 assessment models the construction phase of each link under two labour market scenarios:

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

## Operational phase

Due to the nature of the Project, the operational economic impacts of the Project will only be fully realised when all components of the Inland Rail Program are completed. Assessing each Inland Rail project individually, and in isolation of the whole Program, will not capture the full impact that is expected to be delivered on completion of the entire Melbourne to Brisbane connection.

In the context of the regional impact analysis, the challenge in modelling the operational phase of the Project 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 over-investment in rail infrastructure for the Greater Brisbane 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.

### 17.8.2 Regional economic impact analysis results

The key impacts of the Project on the Greater Brisbane region during the construction phase are summarised in Table 17.11.

**TABLE 17.11: SUMMARY OF THE DIRECT AND INDIRECT ECONOMIC IMPACTS OF THE PROJECT**

Measure	Greater Brisbane	
	Slack labour markets	Tight labour markets
Additional real Gross Regional Product (\$2018–19)	\$355 m	\$125 m
Average annual additional direct and indirect employment (persons)	482	96

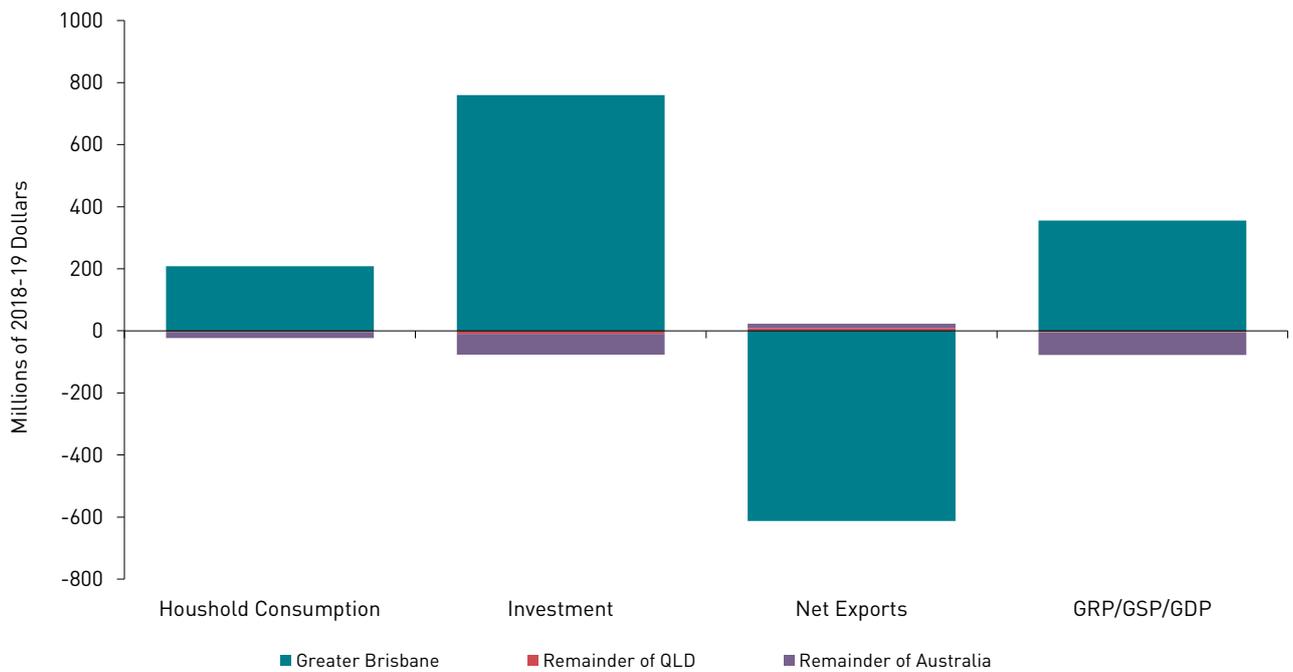
**Source:** KPMG, Appendix S: Economic Impact Assessment Technical Report

Note: The average annual additional jobs listed in the table reflect jobs generated in the Greater Brisbane area; the Project will also generate jobs in adjacent labour markets (refer Figure 17.7).

During the construction phase, real Gross Regional Product (GRP) for the Greater Brisbane region is projected to be \$355 million higher than the baseline level under the assumption of slack labour markets. This increase is more than halved if labour markets are assumed to be tight (\$125 million).

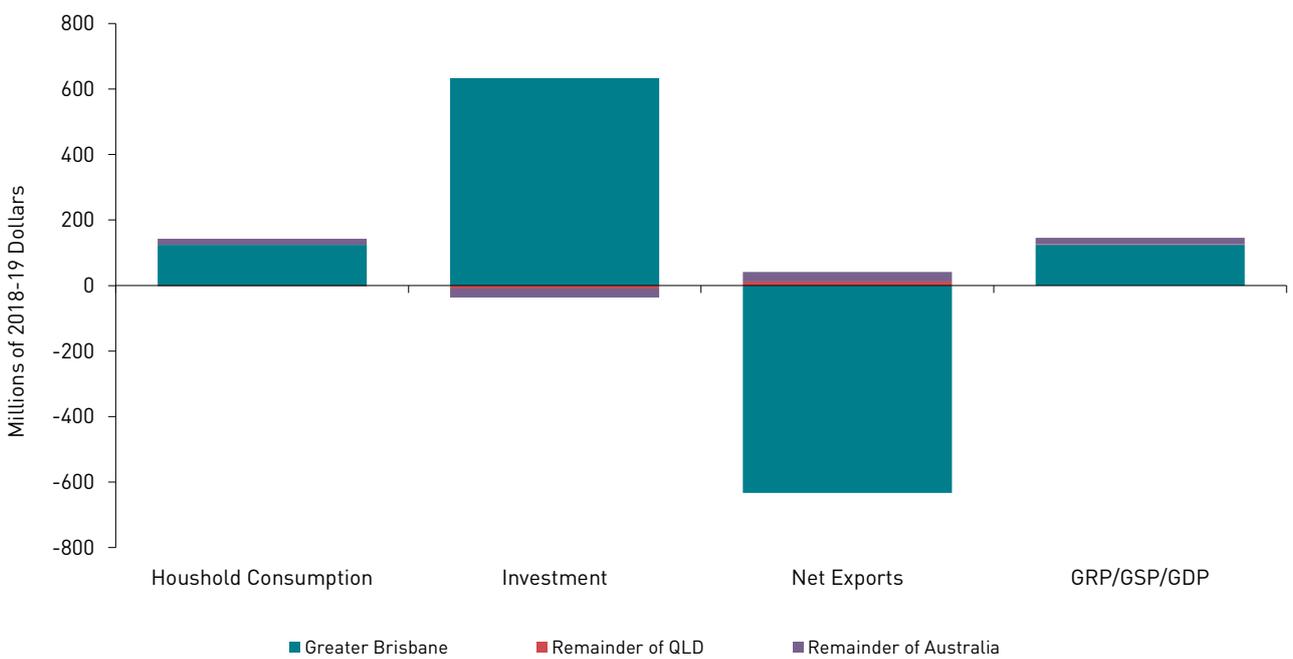
The importance of the labour market assumption is reflected in the employment results. In the slack labour market scenario, it is estimated that an additional 482 direct and indirect jobs are generated. With tight labour markets the increase in jobs is significantly less at 96 jobs. Under tight labour markets, wages are bid up to attract currently employed workers to the businesses contracted to construct the Project. That is, the labour market response is dominated by workers moving from their current job to a higher paying job. With slack labour markets, there are sufficient unemployed and under-employed workers to accommodate the increase in demand for labour without increasing real wages.

Figure 17.5 and Figure 17.6 summarise the macroeconomic results for the Greater Brisbane region in the context of the rest of the QLD and Australian economies. The results indicate that the economic impacts of the Project during the construction phase are concentrated in the Greater Brisbane region. Net exports, which include inter-regional and international exports and imports, are negatively impacted. The resources required to complete the construction of the Project are sourced locally and from interstate and overseas suppliers. At the local level, higher costs induce the cost-sensitive, trade-exposed sectors to release resources to accommodate the investment demands of the Project.



**FIGURE 17.5: MACROECONOMIC RESULTS: CONSTRUCTION PHASE, SLACK LABOUR MARKETS**

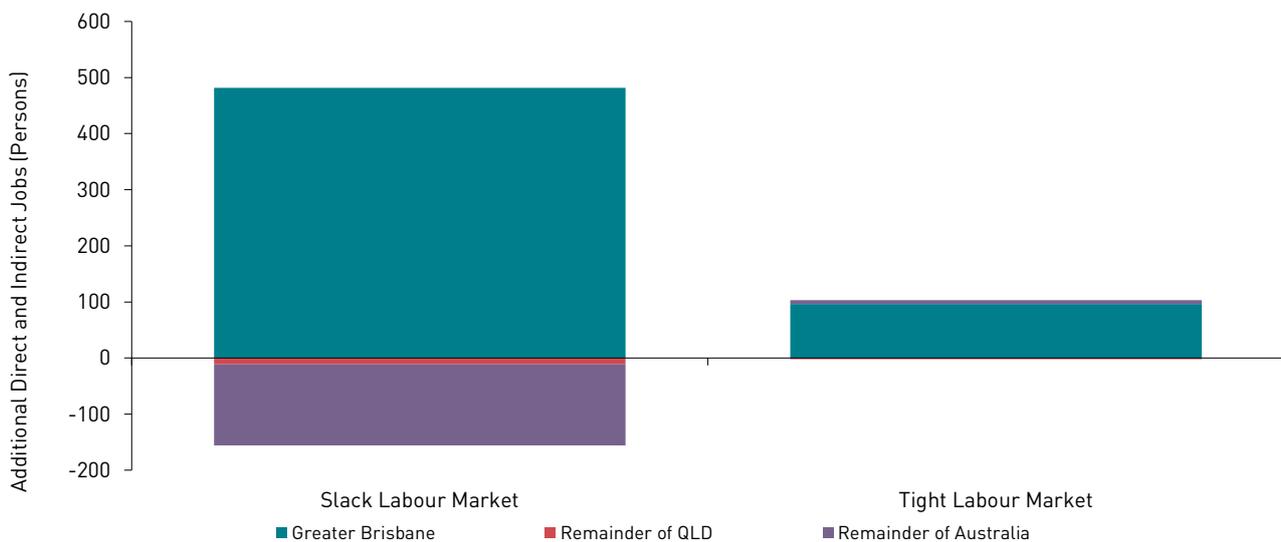
Source: KPMG, Appendix S: Economic Impact Assessment Technical Report



**FIGURE 17.6: MACROECONOMIC RESULTS: CONSTRUCTION PHASE, TIGHT LABOUR MARKETS**

Source: KPMG, Appendix S: Economic Impact Assessment Technical Report

The modelled direct and indirect impacts of the Project on employment are presented in Figure 17.7.



**FIGURE 17.7: DIRECT AND INDIRECT EMPLOYMENT RESULTS**

Source: KPMG, Appendix S: Economic Impact Assessment Technical Report

The labour market conditions that are likely to prevail during the construction phase of the Project 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 (refer Section 17.5). In Greater Brisbane, over the four quarters ending in 2019 Q4, the unemployment rate averaged 6.1 per cent (Department of Employment, Skills, Small and Family Business, 2019b), and the participation rate averaged 78.7 per cent over the 12 months ending in December 2019 (ABS, 2019b). Labour market conditions in Greater Brisbane appear to have been stable since the December quarter 2018. Sustained high unemployment rates coupled with an upward trend in participation rates suggests that the labour market in the Greater Brisbane area is not stretched. However, it is important to consider these statistics in a broader context, including with regard to labour market conditions at the state and national levels.

At the time of writing, the latest available regional labour market statistics in the Small Area Labour Markets (SALM) publication contained data to December 2019. More recent macro-economic data suggest that labour market conditions may have deteriorated further and the economic shock associated with the 2020 Q2 market conditions has added considerable downside risks to the broader economy in the short to medium term. The National Accounts data for 2019 Q4 shows domestic demand has remained soft, even before recent natural disaster events (i.e., bushfires and floods) and the global coronavirus outbreak. Economic conditions are anticipated to deteriorate markedly in the short to medium run, increasing the likelihood that the national and regional labour markets will be consistent with the slack labour market scenario during the construction phase.

Looking specifically at skilled labour capacity, recent Labour Force Survey results indicate that a relatively high proportion of unemployed workers were last employed in the Construction sector (ABS, 2019b). In QLD, during the reference week in the quarter ended November 2019, 12,900 unemployed persons (approximately 8.5 per cent) reported that their last job was in Construction, representing a 45.5 per cent increase from the corresponding quarter in the previous year. Nationally, over the same period, 15.1 per cent of unemployed persons who reported losing their job last worked in the Construction industry. The ABS estimates that job vacancies in the Construction sector have fallen sharply as at November 2019 (around 14.0 per cent) from their peak in the quarter ended February 2019 (ABS, 2020). These indicators suggest a degree of softness in the Construction sector. The industry and occupational profile of the Greater Brisbane workforce, together with evidence that the Construction sector is not currently stretched means that it is reasonable to assume that the regional labour market has the capacity to supply a significant portion of the workforce requirements of the Project without major disruption. Workers with specialist skills may be sourced from outside of the local region.

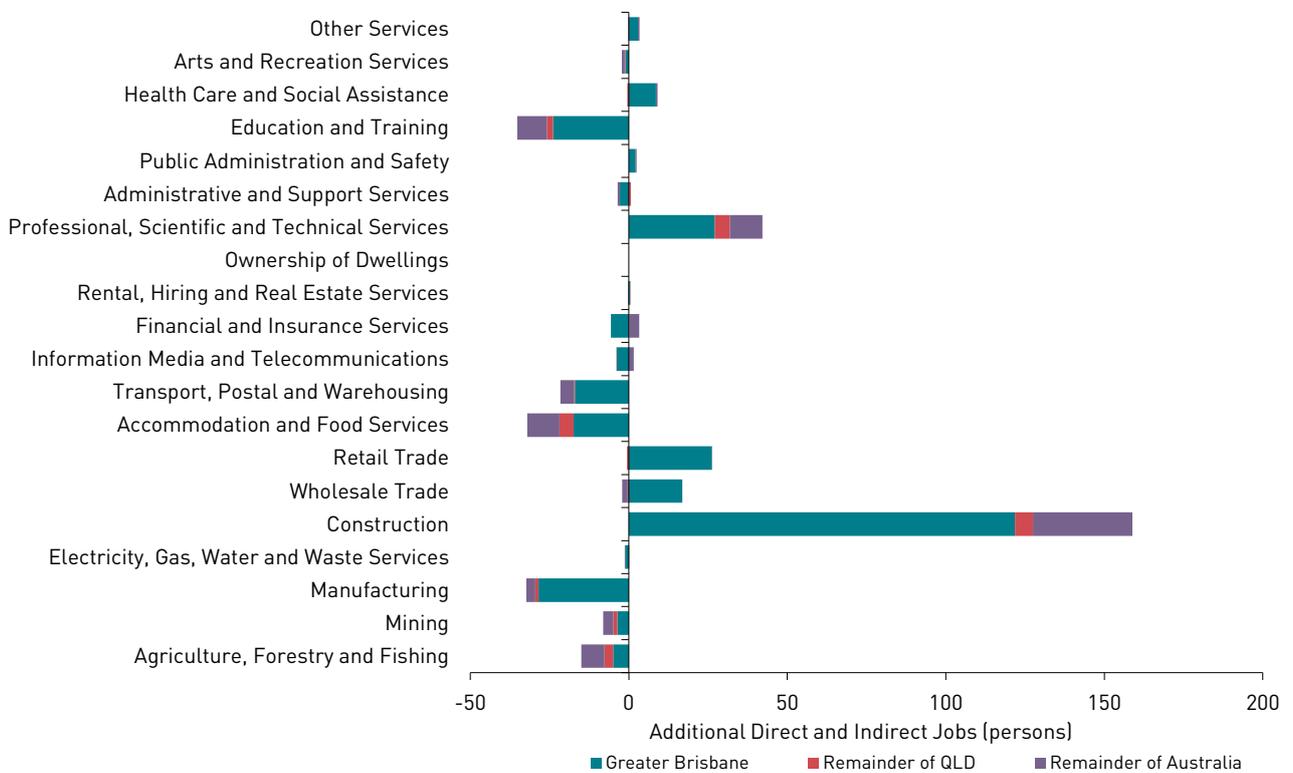
The possibility of some tightness in the labour market cannot be completely dismissed. If the governments' policy responses to the 2020 Q2 market conditions are highly effective, the economy may grow much faster than expected, resulting in significantly more activity in the construction sector than anticipated. For example, the government may seek to bring forward projects to stimulate the economy. If this transpires then labour market conditions may tend towards somewhere between the slack and tight scenarios.

Employment results at the industry level are presented in Figure 17.8 and Figure 17.9. Although the patterns are the same under the two labour market scenarios, it is evident that under the tight labour market assumption there is greater displacement of workers.



**FIGURE 17.8: INDUSTRY EMPLOYMENT RESULTS: CONSTRUCTION PHASE, SLACK LABOUR MARKETS**

Source: KPMG, Appendix S: Economic Impact Assessment Technical Report



**FIGURE 17.9: INDUSTRY EMPLOYMENT RESULTS: CONSTRUCTION PHASE, TIGHT LABOUR MARKETS**

Source: KPMG, Appendix S: Economic Impact Assessment Technical Report

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

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

## 17.9 Cumulative impacts

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 economic study area. Cumulative impacts may result from the spatial and/or temporal interaction between these projects.

For the purposes of this EIA, the cumulative impact assessment has two components:

- ▶ Inland Rail Program in QLD:
  - ▶ A quantitative assessment of the cumulative macroeconomic impact of the Inland Rail Program on the economy, resulting from the construction of the QLD sections of the Inland Rail Program.

There are five sections of the Inland Rail Program that fall in QLD, including Border to Gowrie (B2G), Gowrie to Helidon (G2H), Helidon to Calvert (H2C), Calvert to Kagaru (the Project) and Kagaru to Acacia Ridge and Bromelton (K2ARB).

- ▶ Broader cumulative assessment:
  - ▶ A qualitative assessment of the cumulative impact of relevant state significant projects on local and regional labour markets, the supply chain and local businesses. The projects considered in the cumulative assessment include:
    - H2C
    - K2ARB
    - Greater Flagstone Priority Development Area
    - Bromelton SDA
    - Ripley Valley Priority Development Area
    - South West Pipeline
    - RAAF Base Amberley future works
    - Cross River Rail
    - Remondis Waste to Energy Facility.

Further details on these projects are provided in Chapter 22: Cumulative Impacts.

### 17.9.1 Inland Rail Program in Queensland

The construction phases of the QLD sections of the Inland Rail Program have been jointly simulated to analyse the cumulative economic impacts of these projects. Table 17.11 and Table 17.12 summarise the cumulative macroeconomic impacts of the QLD sections of the Inland Rail Program. Under the assumption of slack labour markets, the incremental economic impacts of the QLD sections include an increase in real Gross State Product (GSP) of \$1.75 billion (measured in \$2019) and an increase in the average number of jobs over the period 2020 to 2025 of 2,059 jobs per year. If labour markets are tight, then the incremental benefits are smaller with real GSP increasing by \$0.83 billion and the average annual number of jobs increasing by 485 over the same period.

The sections of the Inland Rail Program that are located in the Greater Brisbane Region include the Project, K2ARB and part of H2C. Construction activities related to these sections will directly impact the Greater Brisbane economy. The remaining QLD sections of the Inland Rail Program, which are located in the Toowoomba and Darling Downs and Maranoa regions, will impact Greater Brisbane indirectly.

When all the QLD projects are considered jointly, the analogous increment to jobs (direct and indirect) in Greater Brisbane increase to 703 per year (under a slack labour market scenario) and 153 per year (under a tight labour market scenario). The increment to jobs in Greater Brisbane peaks in 2022 at 1,610 and 370 jobs under slack and tight labour market conditions respectively. As discussed in the regional impact assessment, the labour market conditions expected to prevail in the Greater Brisbane economy over the period 2020 to 2025 will be most consistent with those assumed in the slack labour market scenarios that have been simulated.

**TABLE 17.12: SUMMARY OF QUEENSLAND WIDE ECONOMIC IMPACTS (SLACK LABOUR MARKET)**

	GRP/GSP/GDP (\$m 2019)	Jobs (persons)		
		Average (annual)	Peak	Year of peak
Greater Brisbane	\$595	703	1,610	2022
Darling Downs–Maranoa	\$314	290	722	2022
Toowoomba	\$821	1,071	2,106	2022
Remainder of QLD	\$24	-5	16	2022
<b>Queensland</b>	<b>\$1,754</b>	<b>2,059</b>	<b>4,455</b>	<b>2022</b>
Remainder of Australia	\$23	-335	-39	2020
Australia	\$1,777	1,724	3,835	2022

**TABLE 17.13: SUMMARY OF QUEENSLAND-WIDE ECONOMIC IMPACTS (TIGHT LABOUR MARKET)**

	GRP/GSP/GDP (\$m 2019)	Jobs (persons)		
		Average (annual)	Peak	Year of peak
Greater Brisbane	\$285	153	370	2022
Darling Downs–Maranoa	\$147	69	175	2022
Toowoomba	\$370	258	523	2022
Remainder of QLD	\$31	5	23	2022
<b>Queensland</b>	<b>\$832</b>	<b>485</b>	<b>1,090</b>	<b>2022</b>
Remainder of Australia	\$277	86	249	2022
Australia	\$1,109	572	1,339	2022

Table 17.14 has been included to outline the CAPEX figures across the Queensland Inland Rail Projects. The CAPEX for the five Queensland Inland Rail Projects are outlined.

**TABLE 17.14: TOTAL CAPEX FOR QUEENSLAND INLAND RAIL PROJECTS**

	\$2015 <sup>a, c</sup>	\$2019 <sup>b, c</sup>
NSW/Qld Border to Gowrie	\$1,042,245,408	\$1,114,757,844
Gowrie to Helidon	\$1,016,149,084	\$1,086,845,913
Helidon to Calvert	\$528,227,194	\$564,977,695
Calvert to Kagaru	\$606,030,854	\$648,194,410 <sup>d</sup>
Kagaru to Acacia Ridge and Bromelton	\$47,751,792	\$51,074,041
<b>Total</b>	<b>\$3,240,404,332</b>	<b>\$3,465,849,903</b>

Source: KPMG

**Table notes:**

- The CAPEX figures are incurred over the construction phase and have been derived from the capital cost plan and construction programming provided to KPMG by ARTC. Pre-construction costs are not included because these costs are incurred outside the indicative construction period (prior to 2020).
- Conversion to 2019 dollars is based on the Producer Price Index growth from Dec 2015 to Mar 2019. The Producer Price Index used specifically relates to output of the Heavy and Civil Engineering Construction industry.
- These figures reflect capital costs and do not include other provisions such as insurances, Advanced Train Management Systems, utilities and property and site remediation.
- The EIS includes an estimated capital cost profile of approximately \$648 million, consistent with the Inland Rail Programme Business Case (ARTC, 2015a) and is an estimate of direct construction costs—including, but not limited to: delivering environmental and heritage commitments; fencing and earthworks; tunnels and tunnel services; formation and roadworks; structures; track works (loops and crossings); delivery works (incidentals and utilities); and supply of track, sleepers and turnouts.

The Project is expected to represent an investment of up to \$1.2 billion—this figure includes both direct construction costs and indirect costs. Indirect costs include items such as: design services, Contractor overhead and margins, contingency, and escalation.

The total investment figure also includes ARTC Program costs such as project management, train control systems, property requirements and insurances.

The total investment figure makes provision for expected Project contingency and risk.

## 17.9.2 Broader cumulative impacts

### 17.9.2.1 Cumulative regional labour market impacts

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

The results of the regional economic impact assessment indicate that it is reasonable to assume that the regional labour market will have the capacity to supply a portion of the workforce requirements of the Project, without major disruption. However, these conditions may change in the context of cumulative labour market demand. Prior to the change in 2020 Q2 market conditions, the major infrastructure projects in the adjacent and surrounding areas, including those associated with Inland Rail, had the potential to put some pressure on labour markets if inopportune scheduling resulted in cumulative and competing demand for trades and construction labour. However, the overall labour demands of the interacting projects were modest and scheduling could be optimised to minimise market impact.

The prevailing trends in the Greater Brisbane labour market, and the ability of workers to mobilise to Project locations, suggested that the risks of labour market disruption were limited. In the current environment, this risk has now been further reduced.

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

### 17.9.2.2 Cumulative impacts on local businesses

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

### 17.9.2.3 Cumulative supply chain impacts

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

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

## 17.10 Mitigation measures

The Project 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 identified within the Social Impact Management Plan (SIMP) (refer Chapter 16: Social and Appendix R: Social Impact Assessment Technical Report). The SIMP includes five action plans, of which two are directly relevant to the economic impacts identified and assessed in this EIA—Workforce Management and Local Business and Industry Participation. These action plans are detailed in Appendix R: Social Impact Assessment Technical Report. A summary of the relevant ARTC commitments is provided in Table 17.15.

**TABLE 17.15: ARTC COMMITMENTS—WORKFORCE MANAGEMENT AND LOCAL BUSINESS AND INDUSTRY PARTICIPATION ACTION PLANS**

Impact/benefit	ARTC commitment
<p><b>Project employment</b></p> <p>The Project has the potential to be a significant opportunity to support local employment, including Indigenous and youth employment opportunities</p>	<ul style="list-style-type: none"> <li>▶ ARTC will develop strategies to promote engagement of local workers</li> <li>▶ Minimum local employment targets will be negotiated and agreed between ARTC and the contractor</li> <li>▶ Contractors will be required to seek workers from the Ipswich and Scenic Rim LGAs where possible</li> <li>▶ Develop strategies to promote engagement of local workers from the Ipswich and Scenic Rim LGAs</li> <li>▶ Endeavour to ensure that contractors seek to encourage employment, training and skills development opportunities by:               <ul style="list-style-type: none"> <li>▶ Identifying the skills required in the building, construction, equipment and services fabrication and supply, maintenance, operation and support to the Inland Rail Program, for its design, construction, operational and maintenance phases</li> <li>▶ Arranging timely training, and qualification arrangements to meet the needs of skills development to support all phases of the Inland Rail Program</li> <li>▶ Ensuring that training and qualification systems meet the requirements of the National Standards Framework</li> </ul> </li> <li>▶ Establishment of the Inland Rail Skills Academy</li> <li>▶ Implement ARTC’s Code of Conduct</li> <li>▶ Provide a clear and efficient process for people to seek information about employment opportunities and register their interest</li> <li>▶ Work closely with Indigenous communities to strengthen community members’ capacity for employment, support the design and delivery of training and development programs, encourage applications and increase the number of Indigenous people applying for Project-related jobs</li> <li>▶ Work with key partners to link training and development programs with other projects and local industries to provide the greatest regional benefit</li> <li>▶ Work with schools and local training providers to provide appropriate training</li> <li>▶ Work with the Australian Government and QLD State Government to provide long-term outcomes through training, mentoring and other support programs</li> <li>▶ Provide a workplace that is inclusive and values the contributions of Aboriginal and Torres Strait Islander employees</li> </ul>
<p><b>Local business and industry participation</b></p> <p>The Project will have significant construction materials and services requirements, which may provide local businesses with the opportunity to supply the Project</p>	<ul style="list-style-type: none"> <li>▶ Inland Rail’s Australian Industry Participation Plan (AIPP) and Sustainable Procurement Policy will be implemented for the Project</li> <li>▶ Access to services and businesses during construction will be maintained. Where alternative access arrangements are required, these will be developed in consultation with relevant property owners/occupants</li> <li>▶ Indigenous participation and local participation will be included as key elements of construction tender assessments and ARTC work closely with contractors to achieve agreed outcomes.</li> <li>▶ A clear and efficient process for businesses to seek information about opportunities and register their interest in Project supply is provided</li> <li>▶ ARTC will work with Department of Employment, Small Business and Training (DESBT), Department of Infrastructure, Transport, Regional Development and Communications (DITRDC) and local and Indigenous businesses to:               <ul style="list-style-type: none"> <li>▶ Build businesses’ capacity to participate in the Project’s supply chain through business development, mentoring and pre-qualification projects</li> <li>▶ Support Indigenous businesses to ensure they are prepared for and provided with opportunities to participate</li> </ul> </li> </ul>

There are a number of potential economic impacts identified within Section 17.6 that relate to agricultural properties and businesses. Where these impacts cannot be avoided, a range of measures have been proposed by ARTC to carefully manage and mitigate these impacts (refer Table 17.16). Further details are provided in Chapter 8: Land Use and Tenure and Chapter 16: Social.

**TABLE 17.16: PROPOSED MITIGATION MEASURES**

Impact	Proposed mitigation measure
<b>Agriculture</b>	
<p>Disruption to agricultural landholders from loss of agricultural land, disruption to access, land fragmentation and Infrastructure and alterations to stock routes</p>	<ul style="list-style-type: none"> <li>▶ Communicate with affected agricultural landholders to explain the land resumption process and/or the result of EIS studies on noise and dust, as relevant</li> <li>▶ Consult with agricultural landholders within the EIS investigation corridor and ensure an appropriate level of access is maintained for agricultural businesses across and between properties directly affected by the Project, the minimise impacts of the movement of stock, water, produce and equipment</li> <li>▶ Work with directly affected property owners to develop cooperative strategies, which will reduce impacts on grazing, cropping businesses or other agribusinesses, which may include, as relevant:               <ul style="list-style-type: none"> <li>▶ property access and communication protocols</li> <li>▶ design measures to mitigate impacts on groundwater bores, fences, stock/product movements or water access</li> <li>▶ surface and/or groundwater management</li> <li>▶ erosion control</li> <li>▶ noise and vibration mitigation</li> <li>▶ weed and pest management</li> </ul> </li> </ul>
<b>Tourism</b>	
<p>Disruption to local tourism businesses and industry from changes in amenity and rural character</p>	<ul style="list-style-type: none"> <li>▶ Continue engagement with the Ivory’s Rock Conventions and Events Centre and Flinders Peak Winery to communicate EIS findings, and if necessary and feasible, refine strategies to mitigate noise or visual amenity impacts on these properties during construction</li> <li>▶ Consult with tourism-related businesses (wineries, accommodation facilities, farm stays, restaurants, cafes and specialty shops) located within 5 km of the Project to:               <ul style="list-style-type: none"> <li>▶ Explain the Draft Outline Environmental Management Plan, Traffic Management Plan and Construction Environmental Management Plan provisions and accept feedback on measures of relevance to tourism and related businesses</li> <li>▶ Identify any additional, feasible strategies that would reduce or offset impacts on connectivity or businesses’ amenity during construction and/or operation</li> </ul> </li> <li>▶ Discuss local marketing and/or business development initiatives that ARTC could support to offset impacts on tourism during construction</li> <li>▶ Consult with ICC (and if advised by ICC, other stakeholders) to forecast the Ipswich Motorsport Precinct’s event schedule during the construction phase, and identify feasible measures such as scheduling of noisy works or works which would disrupt access to the Precinct during major events</li> <li>▶ Consult with ICC and DTMR regarding use of Champion’s Way and the Cunningham Highway to inform the Project’s Traffic Management Plan</li> </ul>
<b>Mineral resources and extractive industries</b>	
<p>Potential impacts on existing mineral resources and extractive resources in the vicinity of the Project</p>	<ul style="list-style-type: none"> <li>▶ Once the proponent becomes the landholder of the rail corridor, it will consult with petroleum tenure holders, in accordance with relevant aspects of the Land Access Code 2016</li> <li>▶ Negotiation agreements with mineral and petroleum resource interest holders to be finalised prior to construction activities commencing. This includes consultation with the resource holders of the authority to prospects, pipeline licences and potential commercial areas within the disturbance footprint</li> </ul>

## 17.11 Conclusions

This chapter provides a summary of the EIA undertaken for the Project (refer Appendix S: Economic Impact Assessment Technical Report). This chapter has addressed the ToR requirements of identifying economic impacts of the Project on the local, regional and State economies. A regional impact analysis and CBA have been undertaken.

As per the requirements of the ToR, this EIA has focused on the specific economic impacts resulting from the construction and operation of the Project. 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.

The economic benefits assessment estimate that the Project is expected to provide a of \$166.22 million total (\$2019 present value terms) in incremental benefits (at a 7 per cent discount rate). These benefits result from improvements in freight productivity, reliability and availability, and benefits to the community from crash reductions, reduced environmental externalities and road decongestion benefits.

The Project will promote regional economic growth across the Greater Brisbane region. Using recent labour market trends and projected construction sector activity 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 the Project will most likely be closer to those characterised by the slack labour market scenario. Under this scenario, over the construction phase, real Gross Regional Product is projected to be \$355 million higher than the baseline level.

The results of the regional economic impact assessment indicate that it is reasonable to assume that the regional labour market will have the capacity to supply a portion of the workforce requirements of the Project, without major disruption.

The Project alignment has been designed to minimise impacts to local business and industry; however, the Project may result in the disruption of the tourism and agriculture business. The implementation of the SIMP (refer Chapter 16: Social and Appendix R: Social Impact Assessment Technical Report), in particular the Workforce Management Action Plan and Local Business and Industry Participation Action Plan provides mitigation measures.