

Central Queensland Coal Project

Appendix 10a – Economic Technical Report

Environmental Impact Statement

Styx Coal Project: Economic Study

Final Report

July 2017



ECONOMIC ASSOCIATES

Styx Coal Project: Economic Study

Final Report

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EXECUTIVE SUMMARY

Project Overview

Styx Coal Proprietary Limited (Styx Coal) and Fairway Coal Proprietary Limited (Fairway Coal) (the joint Proponents), both wholly owned subsidiaries of Mineralogy Proprietary Limited (Pty Ltd) propose to develop the Styx Coal Mine Project (the project). As Styx Coal is the senior proponent, Styx Coal is referred to throughout this report. The Project comprises the Styx mine where coal mining and processing activities will occur along with a train loadout facility (TLF).

The project is anticipated to reach peak production at 10 million tonnes per annum of run-of-mine (ROM) coal, averaging 2.7 million tonnes per annum over the life of the project. The coal will primarily be processed to produce semi-soft coking coal (SSCC), though it is anticipated that approximately 9 million tonnes of high grade thermal coal (HGTC) will also be produced in the peak of the operations.

Scope of Assessment

The purpose of this economic study is to establish the context and description of the economic environment within which the project is located and to assess the project's anticipated economic contribution.

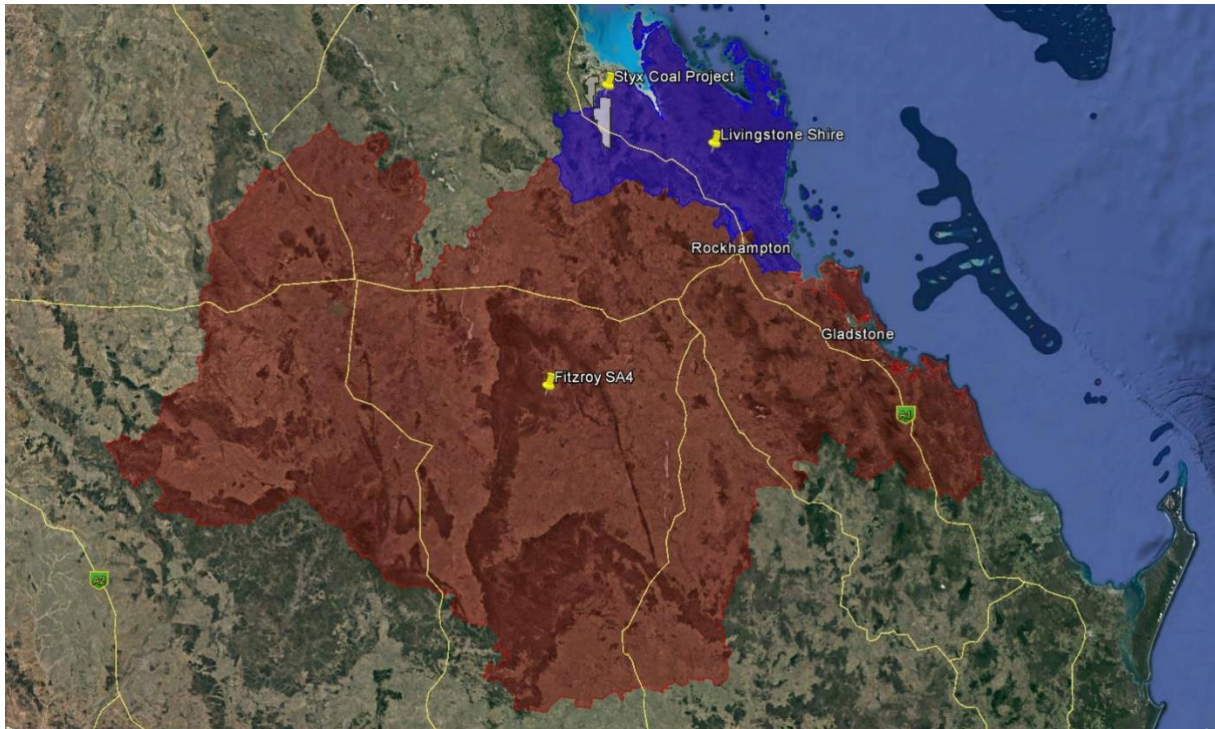
The geographic scope of local and regional economies is defined as:

- Local economy: Livingstone Shire; and
- Regional economy: Fitzroy SA4.

The geographic scope of this study is outlined in Figure E.1 below with the local economy - defined as Livingstone Shire - shown in blue and the regional economy - defined as Fitzroy SA4 - shown in red.

It should be noted that Livingstone Shire is an amalgamation of the (2011) Rockhampton – Livingstone Pt A SLA and Rockhampton – Livingstone Pt B SLA, which are wholly contained within Fitzroy SA4.

Figure E.1: Geographic Scope of Relevant Economic Areas, Styx Coal Project, 2017



Existing Economic Environment

The assessment of the economic environment of the local region of the project identified a number of underlying future or cross-sectional trends, including:

Population Projections

- Livingstone Shire: Population anticipated to increase at an average rate of 2.1% per annum between 2016 and 2036; and
- Projected average growth rate of population is higher than Fitzroy SA4 (1.5% per annum) and Queensland (1.7% per annum).

Demographic Analysis

Average Age of Residents

- 40.5 years in Livingstone Shire as of the 2011 census; and
- 37.2 years in Fitzroy SA4 as of the 2011 census.

Age Profile

- Livingstone Shire has a higher proportion of the population aged over 55 years compared to Queensland; and
- Livingstone Shire consistently recorded an average age higher than that of Fitzroy SA4 and Queensland.

Family Structure

- Livingstone Shire is characterised by a lower incidence of couple families with children.

Household Income

- Average household income in Livingstone Shire was lower than that of Fitzroy SA4 and Queensland as of the 2001, 2006 and 2011 census.

Industry Analysis

Labour Market Trends

- Unemployment has been increasing in Livingstone Shire, Fitzroy SA4 and Queensland, though the unemployment rate in Livingstone Shire is marginally lower than that of the Fitzroy SA4 and Queensland; and
- The participation rate in Livingstone Shire has been consistently lower than that of Fitzroy SA4 and Queensland.

Employment by Industry

- Livingstone Shire and Fitzroy SA4 both have a higher incidence of the workforce employed in the mining sector than Queensland; and
- Livingstone Shire has a higher incidence of the workforce employed in construction and education and training than both Fitzroy SA4 and Queensland.

Occupation Type

- Livingstone Shire has a higher proportion of the workforce employed in lower and upper white collar occupations than Fitzroy SA4 but a similar proportion to Queensland.

Qualifications

- The proportion of the population with a bachelor degree or higher and a diploma is significantly lower in Livingstone Shire and Fitzroy SA4 than that of Queensland; and
- The proportion of the population with a certificate is significantly higher in Livingstone Shire and Fitzroy SA4 than that of Queensland.

Enterprise Activity

- Livingstone Shire recorded a significantly higher proportion of businesses in the construction sector compared to Fitzroy SA4 and Queensland;
- Fitzroy SA4 had a significantly higher proportion of registered businesses within the agriculture, forestry and fishing sector compared to Livingstone Shire and Queensland; and
- Livingstone Shire had significantly lower proportions of registered businesses within the retail trade and health care and social assistance sectors relative to Fitzroy SA4 and Queensland.

Development Pipeline

- There were 17 coal, mineral and gas projects identified in the development pipeline within Fitzroy SA4.

Gross Regional Product

- Between 2000-01 and 2010-11, the nominal Gross Regional Product (GRP) at current prices within Fitzroy SA4 increased by 10.3% per annum; and

- Fitzroy SA4 recorded significantly higher rates of GRP growth than Queensland, at 8.8% per annum over the same period.

Agricultural Production

In 2010-11, the key agricultural commodities produced in Livingstone Shire were:

- Sugar cane: 27,980 tonnes at a total value of approximately \$1.1 million;
- Pineapples: 10,466 tonnes at a total value of approximately \$6.3 million; and
- Meat cattle: 163,189 head at a total value of approximately \$46.3 million.

Economic Impact Assessment

Construction Phase Contribution

The impacts of the construction phase of the project are expected to peak in year 1, with the total contribution (both direct and indirect) to the central Queensland, state and national economy (in this year) anticipated to be the following:

- Output: \$229.36 million;
- Household Income: \$48.73 million;
- Employment: 475 Full Time Equivalents (FTEs); and
- Value Added: \$84.76 million.

An in depth breakdown of regional, state and national impacts over the life of the construction phase of the project is discussed in section 3.

Operational Phase Contribution

The impacts of the operational phase of the project are expected to peak in year 12, with the total contribution (both direct and indirect) to the central Queensland, state and national economy (in this year) anticipated to be the following:

- Output: \$1.6 billion;
- Household Income: \$384.78 million;
- Employment: 4,609 FTEs; and
- Value Added: \$684.44 million.

An in depth breakdown of regional, state and national impacts over the life of the project is discussed in section 3.

Value of Coal Produced

The project is anticipated to produce a total of 36.93 million tonnes of semi-soft coking and high-grade thermal coal over the life of the project. Approximately 28.11 million tonnes of the production (~76%) will be semi-soft coking coal and 8.82 million tonnes will be high-grade thermal coal – anticipated to only be produced in years 9 and 10 of the project.

The exchange rate outlook for Australia is anticipated to remain, at least in the medium term, at approximately ~US\$0.76. The price of semi-soft coking coal is anticipated to decrease from its current high of US\$160 per tonne to approximately US\$125 per tonne in the short to medium

term. The price of high grade thermal coal is anticipated to remain at approximately US\$95 per tonne for the medium term.

Thus, based on these anticipated prices and exchange rate, the total export value of the coal produced is estimated to be in the order of AUD\$4.41 billion of the life of the project. Assuming Queensland coal mining royalty rates remain unchanged, this will yield royalties of approximately \$525.26 million over the life of the project.

It is pertinent to note that both coal prices and exchange rates are subject to fluctuations and shocks, so these estimates are intended to be indicative only, based on the current trade environment.

Assessment of Impacts

Qualitative measures of development impacts from the Queensland Treasury and their relevant descriptors (eg. Minor, Moderate) have been utilised in conjunction with the probability of these impacts occurring to determine the extent of the impact. Table E.1 and E.2 below outline the positive and negative impacts that may occur as a result of the project, and the respective likelihood, consequence and impact descriptors.

Table E.1: Assessment of Positive (+ve) Impacts

Description of Impact	Likelihood	Consequence	Impact
Economic stimulus to the regional economy during construction and operation <ul style="list-style-type: none"> Regionally based project expenditures during the construction phase are estimated to make contributions to GRP at an average of \$4.02 million per year over years 1 to 16, including \$2.05 million of direct value added (table 3.12); and Regionally based project expenditures during the operation phase are estimated to make contributions to GRP at an average of \$94.22 million per year over the life of the project, including \$54.74 million of direct value added (table 3.18). 	Almost Certain	Moderate	High (+ve)
Economic stimulus to the state economy during construction and operation <ul style="list-style-type: none"> State based project expenditures during the construction phase are estimated to make contributions to GRP at an average of \$2.17 million per year over years 1 to 16, including \$1.11 million of direct value added (table 3.13); and State based project expenditures during the operation phase are estimated to make contributions to GRP at an average of \$22.19 million per year over the life of the project, including \$13.69 million of direct value added. 	Almost certain	Minor	Low (+ve)
Economic stimulus to the national economy during construction and operation <ul style="list-style-type: none"> Project expenditures incurred interstate during the construction phase are estimated to make contributions to GRP at an average of \$2.06 million per year over years 1 to 16, including \$15.58 million of direct value added (table 3.15); and Project expenditures incurred interstate during the operation phase are estimated to make contributions to GRP of \$464.84 million over the life of the project, including \$273.72 million of direct value added. 	Almost Certain	Minor	Low (+ve)
Increased regional supply chain and employment opportunities throughout construction and operation The project is anticipated to generate additional regional supply chain activity. The volume of this activity is represented by the output measure. During the operational phase of the mine, total output impacts, pertaining to the central Queensland region, are estimated at an average of \$223.7 million per annum, including \$122.5 million in direct impacts (table 3.15).	Almost certain	Moderate	High (+ve)

Description of Impact	Likelihood	Consequence	Impact
<p>The employment support generated by this local supply chain activity is estimated at an average of 617 FTEs per annum, including 390 direct FTEs per annum (table 3.17).</p> <p>Operational employment on-site is estimated by Styx Coal to be approximately 500 workers at full production.</p>			

Table E.2: Assessment of Adverse (-ve) Impacts

Description of Impact	Likelihood	Consequence	Impact
<p>Opportunity Cost of the Project The opportunity cost of the project in terms of alternative economic uses (ie. beef cattle) estimated in terms of forgone output is estimated to be approximately \$3.03 million, which represents an average annual gross margin of approximately \$0.45 million respectively.</p>	Almost Certain	Minor	Medium (-ve)
<p>Loss of Ecosystem Services Based on a total area of 1,231.61 hectares of directly impacted forestry and grassland habitat, the project is anticipated to have adverse ecosystem service impacts of \$0.84 million per annum, which would have a capitalised value in the order of \$13.95 million and \$20.92 million per annum based on test discount rates of 6% and 4% respectively.</p>	Almost Certain	Minor	Medium (-ve)
<p>Increased inflationary pressure in regional labour markets The project is anticipated to generate a significant amount of employment demand throughout its construction and operational phases. In the event that the regional economy was facing an employment constraint this additional employment would have the potential to create inflationary pressure in the labour market. However, labour market conditions have been deteriorating at both the regional and state levels. As such, the potential for the project to materially add to wage inflation at a regional or state level is considered low.</p>	Unlikely	Minor	Low (-ve)
<p>Potential for skills shortage The project is anticipated to generate a significant amount of employment demand throughout its construction and operational phases. However, the potential impact of the project to create or contribute to a skills shortage is considered low.</p>	Unlikely	Minor	Low (-ve)
<p>Potential for inflationary pressure in local housing, commercial and industrial property markets Projects that generate significant employment and supply chain demand can have impacts on local and regional property markets in the form of inflationary pressure. It is considered that the potential impact of the project to cause significant inflationary pressure in the local property market is low.</p>	Rare	Minor	Very Low (-ve)
<p>Increased burden on local and regional infrastructure The project is likely to impact on local and regional transport infrastructure throughout its development and operation. The project will likely contribute to increased traffic volumes on the road network, as well as increased utilisation of the North Coast Railway Line for the haulage of coal to Dalrymple Bay coal terminal or coal terminals in Gladstone.</p>	Likely	Minor	Medium (-ve)

Impacts Requiring Mitigation

Increased labour costs and skills shortages

The project has the potential to increase labour costs within the region, particularly during the construction phase. To mitigate this potential impact the following actions are recommended:

- Work with Queensland government agencies, Queensland Resource Council, local government and other proponents to develop programs that assist local businesses retain workers and back fill any vacancies that may be created as a result of the project. Principally, these programs should seek to encourage local residents to re-enter the workforce, upskill the unemployed or underemployed and assist local businesses to retain staff;
- Engage with Construction Skills Queensland to identify potential measures to increase the capacity of local job seekers to develop relevant skills for construction and mining; and
- Identify potential funding opportunities and training programs that local training providers can access to increase the available pool of skilled labour in the region.

Localised inflation in the housing market

The project has some potential to result in increased housing costs within its host region, particularly during the construction phase.

It is understood that the project will include accommodation facilities if required, thus the potential for inflationary pressures in the housing market will be mitigated to some degree.

Increased burden on local and regional infrastructure

The project will be providing its own electricity, sewerage treatment, water treatment (potable and contaminated sources), stormwater infrastructure and immediate site access road. Therefore, the only state and local infrastructure that is likely to be directly impacted by project activities is the road networks for construction haulage and operational use (primarily construction).

1 INTRODUCTION

1.1 The Project

Styx Coal Proprietary Limited (Styx Coal) and Fairway Coal Proprietary Limited (Fairway Coal) (the joint Proponents), both wholly owned subsidiaries of Mineralogy Proprietary Limited (Pty Ltd) propose to develop the Styx Coal Mine Project (the project). As Styx Coal is the senior proponent, Styx Coal is referred to throughout this report. The Project comprises the Styx mine where coal mining and processing activities will occur along with a train loadout facility (TLF).

The project is anticipated to reach peak production at 10 million tonnes per annum of run-of-mine (ROM) coal, averaging 2.7 million tonnes per annum over the life of the project. The coal will primarily be processed to produce semi-soft coking coal (SSCC), though it is anticipated that approximately 9 million tonnes of high grade thermal coal (HGTC) will also be produced in the peak of the operations.

1.2 Scope of Assessment

The purpose of the economic study is to establish the context and description of the economic environment within which the project is located and to assess the project's anticipated economic contribution.

The geographic scope of local and regional economies is defined as:

- Local economy: Livingstone Shire; and
- Regional economy: Fitzroy SA4.

1.3 Methodology

1.3.1 Existing Economic Environment

The existing economic environment section (also referred to as the baseline assessment) provides an overview of the existing economic profile of the local and regional economies likely to be affected by the project, and provides a baseline to assess the significance of potential project related impacts. The baseline economic data collected during this stage of the assessment is used to develop a regional impact model to assess project impacts.

In preparing the existing economic environment section (or baseline assessment), data was sourced from:

- Various Australian Bureau of Statistics (ABS) catalogues, including the Census of Population and Housing, Labour Force Survey, Regional Population Growth, Australian Business Register and Agricultural Commodities publications;
- Office of Economic and Statistical Research (OESR);
- Various local and Queensland Government agencies; and
- Proprietary Economic Associates models.

1.3.2 Economic Impact Assessment

The economic impact assessment utilises a regional input-output approach, which provides indicative results relating to the total demand generated by the project during construction and operational phases in terms of output, household incomes, employment and value added.

The total economic impact of a particular stimulus or activity comprises the following effects:

- Direct or initial effect: being the stimulus for the economic impact, typically described as the change in sales or contribution to final demand by the stimulus or activity.
- Flow on effects, comprising production-induced effects and consumption-induced effects, these being:
 - First-round production effects: purchases of inputs required from other industry sectors in the economy to produce the additional output generated by the stimulus or activity;
 - Industrial support production effects: second, third and subsequent-round industrial flow on effects stimulated by the purchases made in the first round; and
 - Consumption induced effects: purchases made by households upon receiving additional income from labour payments stemming from the production of additional output generated by the stimulus or activity under assessment.

The extent of these impacts can be represented by multipliers calculated in aggregate for various regional, state or national economies. As stated above, there are commonly four multipliers used to measure economic contribution - output, household income, employment and value added (refer to Table 1.1 below for additional detail).

Two sets of the above multipliers can be generated, namely:

- Type 1 Multipliers, which estimate the direct and production induced impacts of a stimulus or activity; and
- Type 2 Multipliers, which estimate the direct, production induced and consumption induced impacts of a stimulus or activity.

Type 1 Multipliers are used in the analysis of this project. Queensland Treasury's preference is for use of only Type 1 Multipliers, given that Type 2 Multipliers typically overstate the extent of consumption-induced contribution of any given stimulus or activity (reference?).

Table 1.1 below provides a discussion of the different measures of economic impact.

Table 1.1: Measures of Economic Impact

Impact Measure	Description
Output	The output impact measures the increase in gross sales throughout the entire economy by aggregating all individual transactions (direct and indirect) resulting from the economic stimulus. The output impact provides an indication of the degree of structural dependence between sectors of the economy. However, output impacts are regarded as overstating the impact on the economy as they count all goods and services used in one stage of production as an input to later stages of production, hence counting their contribution more than once.
Household income	The household income impact measures the additional wages, salaries and supplements paid to households associated with the industry under consideration and with other industries benefiting from the stimulus to the economy.

Impact Measure	Description
Employment	The employment impact measures the number of full-time equivalent (FTE) positions for one year created directly and indirectly by the stimulus ¹ . However, the short-term response to increased demand may be that existing employees work overtime. Consequently, actual levels of employment generated (in terms of persons employed) will tend to be lower than those estimated by the input-output analysis. This short-term employment response (of working additional overtime) will be more prevalent where the demand stimulus is likely to be temporary and short lived, or where there is limited spare capacity in the economy (that is, when the economy is at or near full employment).
Value added	The value added or Gross Regional Product (GRP) impact measures only the net activity at each stage of production resulting from a stimulus. GRP is defined as the addition of consumption, investment and government expenditure, plus net exports (exports minus imports) from a region. The value added (or GRP) impact is the preferred measure for the assessment of contribution to the economy from a stimulus or impact, and as such should be used to describe the net impact of the event. Value added is the measure of economic impact resulting from a stimulus that is preferred by economists

Source: Jensen, R. & West, G. (2001) Community Economic Analysis, Department of Primary Industries: Brisbane, Qld

Disaggregated project expenditures (either capital or operating) are allocated to industry sectors within the regional or state economic contribution model depending on which region those expenditures are anticipated to be made. These expenditures are then applied to the relevant multipliers to generate estimates of economic contribution at a regional or state level.

Limitations of the Input Output Approach

As with most analytical frameworks, the input-output approach has a number of limitations which should be considered when interpreting the results of the analysis. The relevance of these limitations largely depends on the type of project being assessed; its size relative to the broader sector within which it will operate and the extent to which resources within the host economies are fully employed.

The regional input-output approach has a number of limitations, which may result in overestimation of impacts. These limitations include:

- The absence of capacity constraints such that the supply of each good is perfectly elastic, implying that each industry can supply whatever quantity is demanded of it and there are no budget constraints;
- The assumed linearity and homogeneity of the input function, which implies constant returns to scale and no substitution between inputs. This occurs because the approach assumes inputs purchased by each industry are a function only of the level of output of that industry;
- Each commodity, or type of commodity, is supplied by a single industry sector, implying there is only one method used to produce each commodity and each sector has only a single primary output;
- The assumption that the economy is in equilibrium at given prices and that the economy is not subject to other external influences; and

¹Therefore, if impacts are to be spread over a number of years, the FTE estimate (which relates to the annual equivalent) should be divided by the number of years over which the impact will be spread (in the absence of a clearly defined staging program) to provide an indicative ongoing employment estimate over the life of the impact.

- The additivity assumption suggests the total effect of carrying on several types of production is the sum of the separate effects, which is not a true reflection of economic systems.

The above limitations are typically most relevant when introducing a wholly new economic driver to a state or regional economy that may result in significant structural change, or when the economy is operating at or close to full employment. Thus, the approach adopted is considered appropriate insofar as the host region and Queensland generally have a mature resources sector.

2 ECONOMIC BASELINE ASSESSMENT

2.1 Population Projections

The population of Livingstone Shire is projected to increase from 37,954 persons in 2016, to 57,042 persons in 2036, or by 2.1% per annum. The rate of population growth within Livingstone Shire is anticipated to be higher than in Fitzroy SA4 and in Queensland.

The working age population (i.e. those persons aged between 15 years and 64 years) within Livingstone Shire is projected to increase from 24,116 persons in 2016 to 32,238 persons in 2036, or by 1.5% per annum. The lower rates of growth for the working age population within all regions relative to the rate of growth for the total population indicates that the proportion of persons within the working age cohort is anticipated to decline between 2016 and 2036.

Table 2.1 below reports the population projections for Livingstone Shire, Fitzroy SA4 and Queensland between 2016 and 2036.

Table 2.1: Population projections, Livingstone Shire, Fitzroy SA4 and Queensland, 2016-2036

	2016	2021	2026	2031	2036	Avg Annual Growth, 2016-2036
Total Population						
Livingstone Shire	37,954	41,427	45,994	51,142	57,042	2.1%
Fitzroy SA4	241,858	260,561	281,178	302,583	324,246	1.5%
Queensland	4,853,048	5,250,292	5,730,062	6,240,546	6,763,153	1.7%
Working Age Population (15-64 yrs)						
Livingstone Shire	24,116	25,277	27,231	29,475	32,238	1.5%
Fitzroy SA4	158,755	167,398	177,399	188,044	198,898	1.1%
Queensland	3,180,503	3,371,867	3,619,087	3,887,600	4,159,168	1.4%

Note: Population projection data in this table was the latest available at the time of report preparation (March 2016)
Source: Queensland Government Statistician's Office (2015), Economic Associates estimates

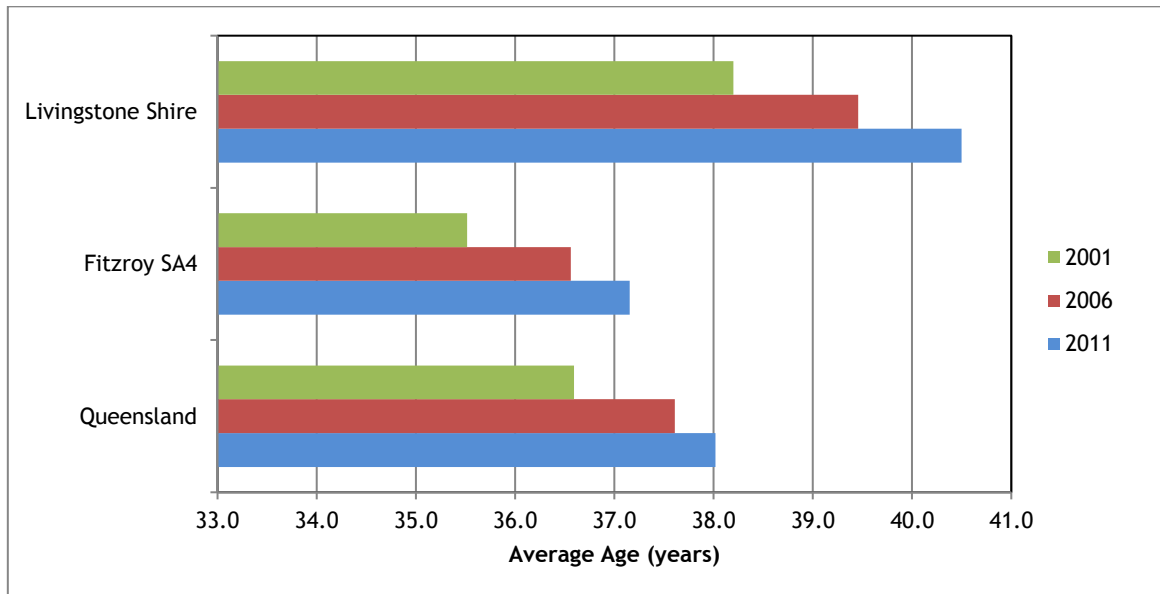
2.2 Demographic Analysis

2.2.1 Average Age of Residents

In Livingstone Shire, the average age of residents increased from 38.2 years in 2001 to 40.5 years in 2011. In Fitzroy SA4, the average age of residents increased from 35.5 years in 2001 to 37.2 years in 2011. At the time of the last three censuses, Livingstone Shire recorded an average age higher than in Fitzroy SA4 and Queensland.

Figure 2.1 below summarises the average age of residents within Livingstone Shire, Fitzroy SA4 and Queensland between 2001 and 2011.

Figure 2.1: Average Age of Residents, Livingstone Shire, Fitzroy SA4 and Queensland, 2001 to 2011



Source: Australian Bureau of Statistics (2012a)

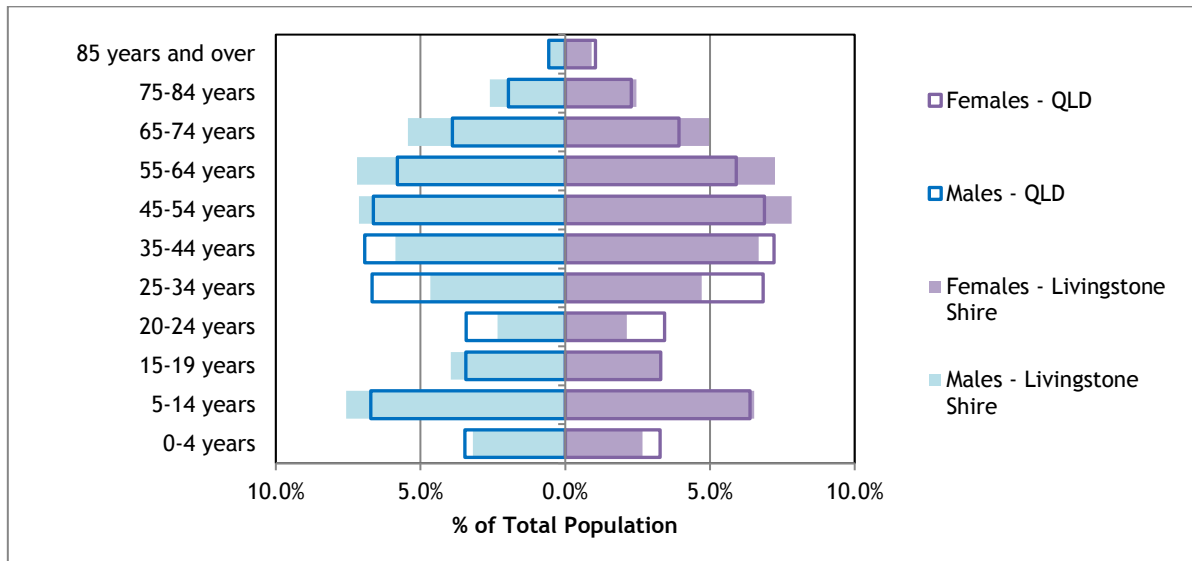
2.2.2 Age Profile

In 2011, Livingstone Shire recorded a lower proportion of working age persons (63.1%) relative to Queensland (66.5%). In 2011, Livingstone Shire recorded:

- A higher proportion of:
 - Males aged 75 to 84 years;
 - Residents aged 65 to 74 years;
 - Residents aged 55 to 64 years;
 - Residents aged 45 to 54 years;
 - Males aged 15 to 19 years and;
 - Males aged 5 to 14 years.
- A lower proportion of:
 - Residents aged 35 to 44 years;
 - Residents aged 25 to 34 years;
 - Residents aged 20 to 24 years; and
 - Residents aged 0 to 4 years.

Figure 2.2 below summarises the age profile of residents within Livingstone Shire as of the 2011 Census, benchmarked to Queensland.

Figure 2.2: Age Profile, Livingstone Shire, 2011 Census



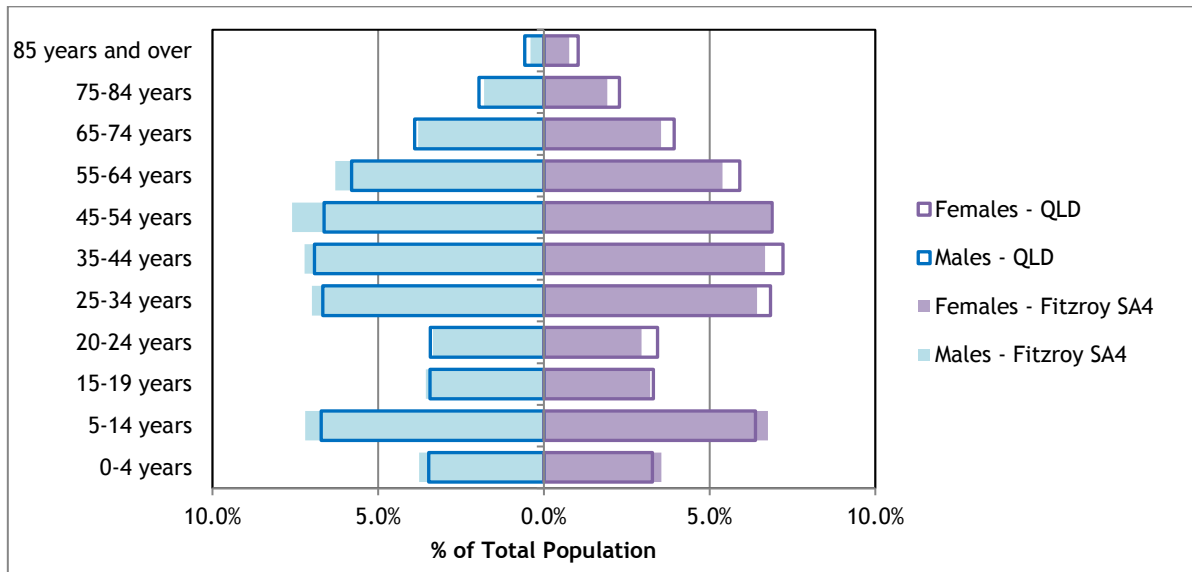
Source: Australian Bureau of Statistics (2012a)

Fitzroy SA4 recorded a similar proportion of working age persons relative to Queensland. In 2011, Fitzroy SA4 recorded:

- A higher proportion of:
 - Males aged 55 to 64 years;
 - Males aged 45 to 54 years;
 - Males aged 35 to 44 years;
 - Males aged 24 to 34 years;
 - Residents aged 5-14 years; and
 - Residents aged 0 to 4 years.
- A lower proportion of:
 - Females aged 85 years and over;
 - Females aged 75 to 84 years;
 - Females aged 65 to 74 years;
 - Females aged 55 to 64 years;
 - Females aged 35 to 44 years;
 - Females aged 25 to 34 years; and
 - Females aged 20 to 24 years.

Figure 2.3 below summarises the age profile of residents within Fitzroy SA4 as of the 2011 Census, benchmarked to Queensland.

Figure 2.3: Age Profile, Fitzroy SA4, 2011 Census



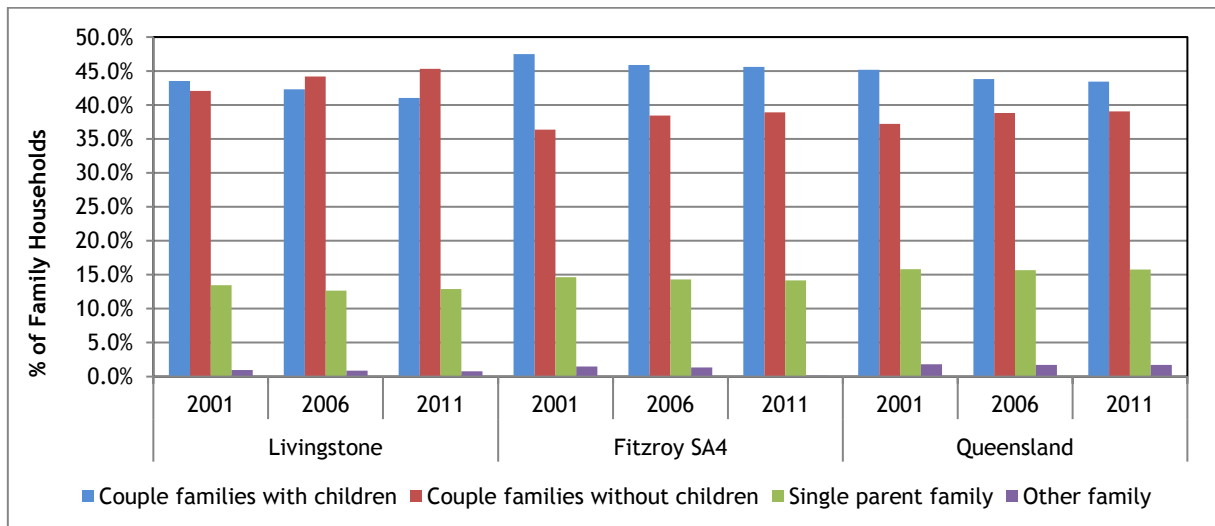
Source: Australian Bureau of Statistics (2012a)

2.2.3 Family Type

Couple families with children were the most prevalent family type in all regions as of the 2001 census. However, as of the 2006 and 2011 censuses, couple families without children households were the most prevalent household type in Livingstone Shire. In Fitzroy SA4 and Queensland, the proportion of couple families without children has increased between 2001 and 2011, but couple families with children remain the dominant family type.

Figure 2.4 below summarises the distribution of family types in Livingstone Shire and Fitzroy SA4 between 2001 and 2011, benchmarked to Queensland.

Figure 2.4: Family Type, Livingstone Shire, Fitzroy SA4 and Queensland, 2001 to 2011



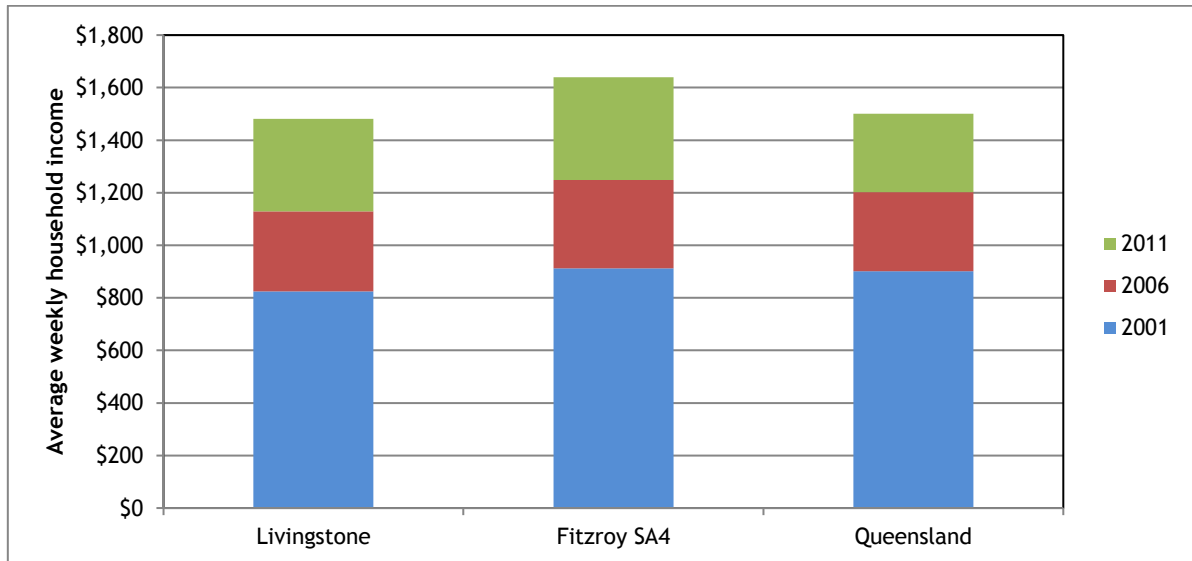
Source: Australian Bureau of Statistics (2012a)

2.2.4 Average Household Income

In Livingstone Shire, the average household income increased from \$825 per week in 2001 to \$1,482 per week in 2011, or by 6% per annum. Average household incomes in Livingstone Shire have been consistently lower than in Fitzroy SA4 and Queensland.

Figure 2.5 below summarises the trend in average household incomes in Livingstone Shire, benchmarked to Fitzroy SA4 and Queensland.

Figure 2.5: Average Household Income, Livingstone Shire, Fitzroy SA4 and Queensland, 2001 to 2011



Source: Australian Bureau of Statistics (various years, b)

The average annual growth rate for the average household income of Livingstone Shire households was:

- 6.5% between 2001 and 2006; and
- 5.6% between 2006 and 2011.

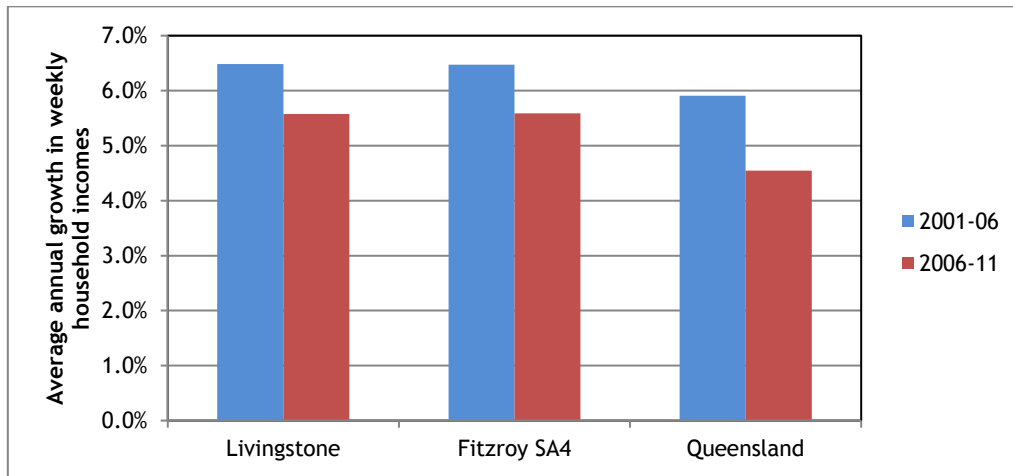
The average annual growth rate for the average household income of Fitzroy SA4 households was:

- 6.5% between 2001 and 2006; and
- 5.6% between 2006 and 2011.

The rate of growth in average household income in all regions decreased in the 2006-11 period relative to the 2001-06 period. Livingstone Shire and Fitzroy SA4 recorded higher rates of growth in average household income relative to Queensland in both the 2001-06 period and 2006-2011 period.

Figure 2.6 summarises the average annual growth in average household incomes in Livingstone Shire, Fitzroy SA4 and Queensland.

Figure 2.6: Average Annual Growth, Average Household Income, Livingstone Shire, Fitzroy SA4 and Queensland, 2001 to 2011



Source: Australian Bureau of Statistics (various years, b)

2.3 Industry Analysis

The industry analysis provides an overview of the labour market characteristics within Livingstone Shire, Fitzroy SA4 and Queensland, based on a number of data sources, including the Australian Government’s Department of Employment (Small Area Labour Market statistics) and the 2011 census (employment by industry and occupation and post-school qualifications).

2.3.1 Workforce Size

The size of the labour force in Livingstone Shire increased from 14,135 persons in 2006-07 to 18,262 persons in 2015-16, representing an average annual growth rate of 2.6%. By comparison, the size of the labour force in Fitzroy SA4 has grown at an average annual rate of 1.6%, whereas the size of the labour force in Queensland has grown at an average annual rate of 1.4%.

A summary of the labour force size in Livingstone Shire, Fitzroy SA4 and Queensland between 2006-07 and 2015-16 is presented in Table 2.2.

Table 2.2: Labour Force Size, Livingstone Shire, Fitzroy SA4 and Queensland, 2006-07 to 2015-16

	Livingstone Shire	Fitzroy SA4	Queensland
2006-07	14,135	105,831	2,189,074
2007-08	14,691	109,997	2,240,974
2008-09	15,602	113,907	2,321,500
2009-10	15,929	113,587	2,389,025
2010-11	17,002	119,799	2,403,615
2011-12	17,067	118,268	2,417,381
2012-13	16,810	116,409	2,430,818
2013-14	17,712	122,253	2,466,888
2014-15	18,048	123,691	2,486,032
2015-16	18,262	124,329	2,517,488
Ave Ann Change, 2006-07 to 2015-16	2.6%	1.6%	1.4%
Ave Ann Change, 2011-12 to 2015-16	1.4%	1.0%	0.8%
Ave Ann Change, 2014-15 to 2015-16	0.6%	0.3%	0.6%

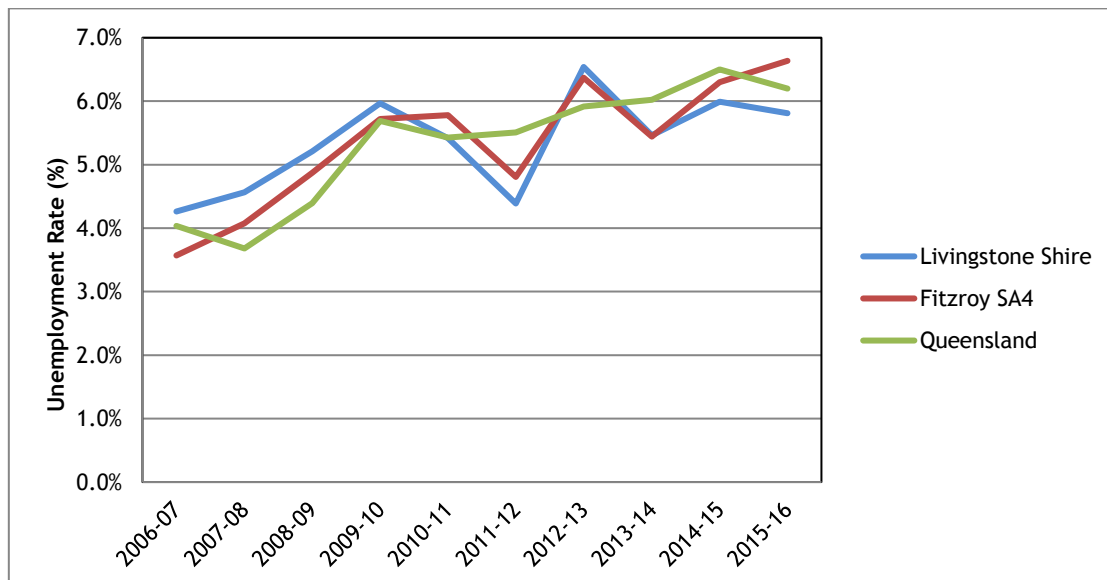
Source: Department of Employment (various years)

2.3.2 Unemployment Rate

The unemployment rate in Livingstone Shire has increased from 4.3% in 2006-07 to 5.8% in 2015-16. However, the unemployment rate in Livingstone Shire in 2015-16 was lower than that of Fitzroy SA4 and Queensland (at 6.6% and 6.2% respectively). Both Livingstone Shire and Fitzroy SA4 have shown a similar trend in unemployment, with the unemployment rate quite volatile between 2009-10 and 2013-14. Since 2013-14 the unemployment rate in Fitzroy SA4 has diverged from Livingstone Shire and increased to 6.6% in 2015-16.

Figure 2.7 and Table 2.3 below summarise the unemployment rate trends in Livingstone Shire, Fitzroy SA4 and Queensland between 2006-07 and 2015-16.

Figure 2.7: Unemployment Rate, Livingstone Shire, Fitzroy SA4 and Queensland, 2006-07 to 2015-16



Source: Department of Employment (various years)

Table 2.3: Unemployment Rate, Livingstone Shire, Fitzroy SA4 and Queensland, 2006-07 to 2015-16

	Livingstone Shire	Fitzroy SA4	Queensland
2006-07	4.3%	3.6%	4.0%
2007-08	4.6%	4.1%	3.7%
2008-09	5.2%	4.9%	4.4%
2009-10	6.0%	5.7%	5.7%
2010-11	5.4%	5.8%	5.4%
2011-12	4.4%	4.8%	5.5%
2012-13	6.5%	6.4%	5.9%
2013-14	5.5%	5.4%	6.0%
2014-15	6.0%	6.3%	6.5%
2015-16	5.8%	6.6%	6.2%
Ave Ann Change, 2006-07 to 2015-16	0.2%	0.3%	0.2%
Ave Ann Change, 2011-12 to 2015-16	0.3%	0.4%	0.1%
Ave Ann Change, 2014-15 to 2015-16	-0.2%	0.3%	-0.3%

Note: The average annual change figures in this table represent the average annual percentage point change in the unemployment rate.

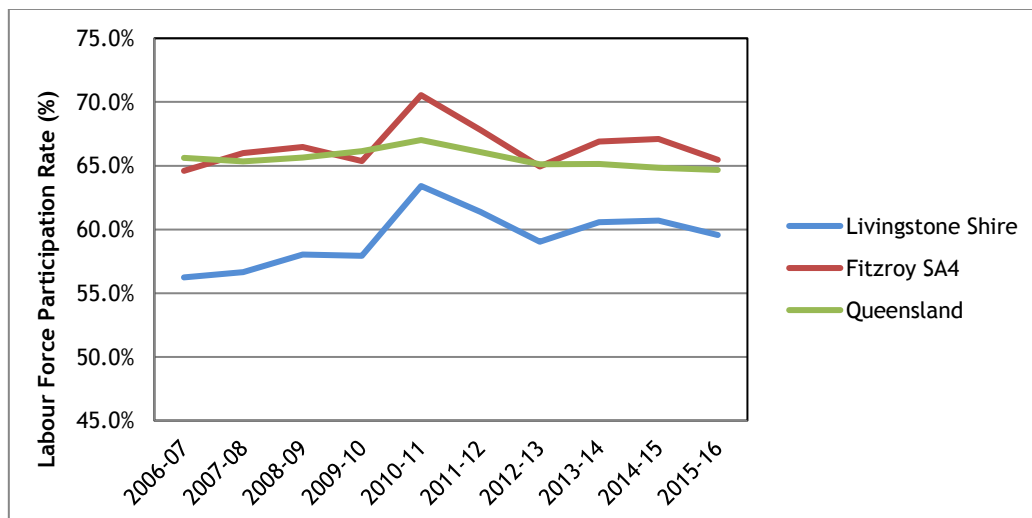
Source: Department of Employment (various years)

2.3.3 Labour Force Participation Rate

Between 2006-07 and 2015-16, the labour force participation rate in Livingstone Shire has consistently been below that of Fitzroy SA4 and Queensland by several percentage points. However, labour force participation in Livingstone Shire has increased from 56.2% in 2006-07 to 59.6% in 2015-16, where the labour force participation rate in Queensland has decreased from 65.6% to 64.7% in the same period. The labour force participation rate in Fitzroy SA4 has been loosely on par with Queensland, though was significantly higher in 2010-11 and between 2013-14 and 2014-15.

Figure 2.8 below summarises the labour force participation rate trends in Livingstone Shire, Fitzroy SA4 and Queensland between 2006-07 and 2015-16.

Figure 2.8: Labour Force Participation Rate, Livingstone Shire, Fitzroy SA4 and Queensland, 2006-07 to 2015-16



Source: Department of Employment (various years), Australian Bureau of Statistics (2015a), Australian Bureau of Statistics (2014), Queensland Government Statistician's Office (2014), Economic Associates estimates

The average labour force participation rate in Livingstone Shire was 59.4% in the 2006-07 to 2015-16 period, significantly lower than in Fitzroy SA4 (66.5%) and Queensland (65.6%).

Table 2.4 below summarises the labour force participation rates in Livingstone Shire, Fitzroy SA4 and Queensland between 2006-07 and 2015-16.

Table 2.4: Labour Force Participation Rate, Livingstone Shire, Fitzroy SA4 and Queensland, 2006-07 to 2015-16

	Livingstone Shire	Fitzroy SA4	Queensland
2006-07	56.2%	64.6%	65.6%
2007-08	56.7%	66.0%	65.3%
2008-09	58.0%	66.5%	65.6%
2009-10	57.9%	65.4%	66.1%
2010-11	63.4%	70.5%	67.0%
2011-12	61.4%	67.8%	66.1%
2012-13	59.0%	64.9%	65.1%
2013-14	60.6%	66.9%	65.1%
2014-15	60.7%	67.1%	64.8%
2015-16	59.6%	65.5%	64.7%
Average, 2006-07 to 2015-16	59.4%	66.5%	65.6%
Average, 2011-12 to 2015-16	60.3%	66.4%	65.2%
Average, 2014-15 to 2015-16	60.1%	66.3%	64.7%

Source: Department of Employment (various years), Australian Bureau of Statistics (2015a), Australian Bureau of Statistics (2014), Queensland Government Statistician's Office (2016), Economic Associates estimates

2.3.4 Employment by Industry

In Livingstone Shire, 10.7%, 10.4% and 10.2% of persons were employed in the construction, retail trade and health care and social assistance sectors respectively, as of the 2011 census. Livingstone Shire recorded a lower incidence of employment in manufacturing, and a higher incidence of employment in construction and education and training, relative to Fitzroy SA4 and Queensland.

The proportion of employment by industry sector in Livingstone Shire, Fitzroy SA4 and Queensland in 2011 is summarised in Table 2.5.

Table 2.5: Employment by Industry, Livingstone Shire, Fitzroy SA4 and Queensland, 2011

Industry	Livingstone	Fitzroy SA4	Queensland
Agriculture, forestry and fishing	3.9%	4.6%	2.7%
Mining	8.2%	8.7%	2.6%
Manufacturing	6.2%	9.6%	8.4%
Electricity, gas, water and waste services	2.2%	2.4%	1.2%
Construction	10.7%	9.7%	9.0%
Wholesale trade	2.8%	3.0%	3.6%
Retail trade	10.4%	9.7%	10.7%
Accommodation and food services	7.6%	6.6%	7.0%
Transport, postal and warehousing	4.2%	6.1%	5.3%
Information media and telecommunications	0.6%	0.6%	1.2%
Financial and insurance services	1.7%	1.4%	2.7%
Rental, hiring and real estate services	1.6%	1.6%	1.8%
Professional, scientific and technical services	4.1%	4.5%	6.5%
Administrative and support services	2.3%	2.4%	3.2%
Public administration and safety	6.5%	5.3%	6.7%
Education and training	9.7%	7.7%	7.9%
Health care and social assistance	10.2%	9.3%	11.9%

Industry	Livingstone	Fitzroy SA4	Queensland
Arts and recreation services	1.0%	0.6%	1.4%
Other services	3.8%	3.9%	6.2%
Total	14,734	101,129	2,039,275

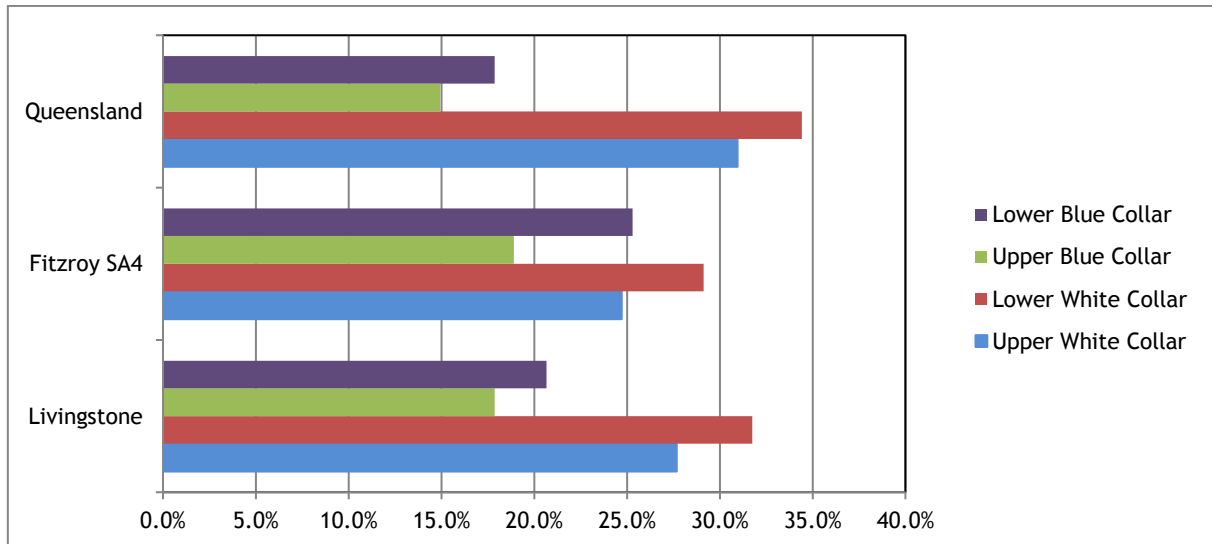
Source: Australian Bureau of Statistics (2012a)

2.3.5 Occupation Type

Livingstone Shire recorded a significantly higher proportion of both lower and upper white collar workers than Fitzroy SA4 and a significantly lower incidence of lower blue collar workers than Fitzroy SA4 as of the 2011 census. Livingstone Shire recorded significantly higher proportions of blue collar workers and significantly lower proportions of white collar workers relative to Queensland as of the 2011 census.

The proportion of employment by occupation in Livingstone Shire, Fitzroy SA4 and Queensland as of the 2011 census is summarised in Figure 2.9.

Figure 2.9: Employment by Occupation Type, Livingstone Shire, Fitzroy SA4 and Queensland, 2011



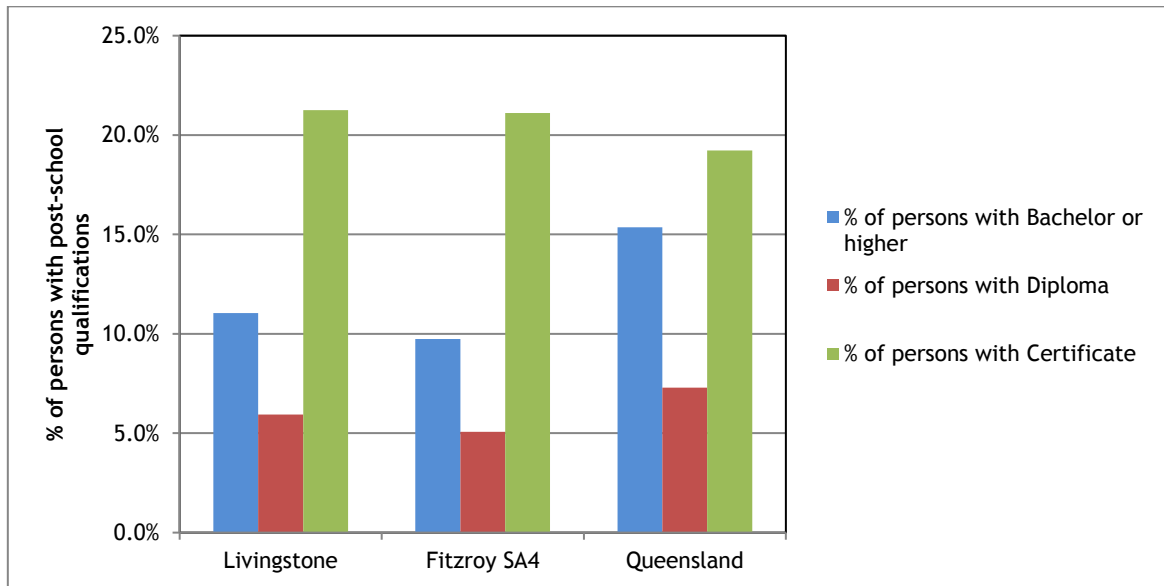
Source: Australian Bureau of Statistics (2012a)

2.3.6 Qualifications

The incidence of persons with a post school qualification in Livingstone Shire was comparable with Queensland at 38.2% and 41.9% respectively, yet significantly lower in Fitzroy SA4 (35.9%) as of the 2011 census. The incidence of persons with a certificate is higher in Livingstone Shire than both Fitzroy SA4 and Queensland.

The proportion of the population aged 15 years and over with postgraduate, bachelor, diploma and certificate qualifications in Livingstone Shire, Fitzroy SA4 and Queensland as of the 2011 census is summarised in Figure 2.10.

Figure 2.10: Proportion of Persons with a Post School Qualification, Livingstone Shire, Fitzroy SA4 and Queensland, 2011



Source: Australian Bureau of Statistics (2012a)

2.3.7 Enterprise Activity

The latest edition of the ABS Counts of Australian Businesses publication presents business count estimates by industry at the Statistical Area Level 2 (SA2) level.

This section reports the number of businesses by industry registered within Livingstone Shire and Fitzroy SA4. Significant business activity in the region(s) is undertaken by enterprises registered outside the region(s). This business register data provides an indication of the number and capability of locally based businesses.

Livingstone Shire

As of February 2017, there was an estimated 3,235 registered businesses in Livingstone Shire, with an estimated 63.6% classified as sole operators. Just under a quarter of all registered businesses were classified within the agriculture, forestry and fishing Sector (761 businesses) and just over a fifth were classified within the construction sector (731 businesses). There were 44 businesses within the Livingstone Shire that recorded employment of 20-199 workers, comprising six in accommodation and food services, five in administrative and support services and six in health care and social assistance. There were no businesses identified within Livingstone Shire that employed 200 or more workers.

Table 2.6 below summarises the count of registered businesses within Livingstone Shire by employment size as of February 2017.

Table 2.6: Counts of Australian Businesses, Livingstone Shire, February 2017

	Employing Businesses			Total Employing	Total Non- Employing	Total Businesses
	1-19	20-199	200+			
Agriculture, Forestry and Fishing	16.8%	0.4%	0.0%	17.2%	82.8%	761
Mining	65.7%	8.6%	0.0%	74.3%	25.7%	35
Manufacturing	27.8%	3.3%	0.0%	31.1%	68.9%	90
Electricity, Gas, Water and Waste Services	50.0%	0.0%	0.0%	50.0%	50.0%	10
Construction	49.5%	0.4%	0.0%	49.9%	50.1%	731
Wholesale Trade	25.5%	0.0%	0.0%	25.5%	74.5%	47
Retail Trade	53.3%	2.5%	0.0%	55.7%	44.3%	122
Accommodation and Food Services	62.7%	5.1%	0.0%	67.8%	32.2%	118
Transport, Postal and Warehousing	34.2%	1.9%	0.0%	36.0%	64.0%	161
Information Media and Telecommunications	30.0%	0.0%	0.0%	30.0%	70.0%	10
Financial and Insurance Services	20.2%	1.7%	0.0%	22.0%	78.0%	173
Rental, Hiring and Real Estate Services	13.9%	1.1%	0.0%	15.0%	85.0%	280
Professional, Scientific and Technical Services	37.9%	0.0%	0.0%	37.9%	62.1%	195
Administrative and Support Services	41.3%	4.6%	0.0%	45.9%	54.1%	109
Public Administration and Safety	100.0%	0.0%	0.0%	100.0%	0.0%	6
Education and Training	41.5%	7.3%	0.0%	48.8%	51.2%	41
Health Care and Social Assistance	51.7%	6.7%	0.0%	58.4%	41.6%	89
Arts and Recreation Services	45.0%	0.0%	0.0%	45.0%	55.0%	40
Other Services	54.1%	0.0%	0.0%	54.1%	45.9%	185
Not Classified	0.0%	0.0%	0.0%	0.0%	100.0%	32
Total	35.0%	1.4%	0.0%	36.4%	63.6%	3,235

Source: Australian Bureau of Statistics (2015b)

Fitzroy SA4

Within Fitzroy SA4, there were an estimated 17,795 registered businesses as of February 2017, with an estimated 62.7% of all businesses classified as sole operators. The most common business types (in terms of number of businesses) in Fitzroy SA4 were agriculture, forestry and fishing (4,763 businesses), construction (2,924 businesses) and rental, hiring and real estate services (1,610 businesses). As of February 2017, there were no registered businesses in Fitzroy SA4 that employed 200 or more persons.

Table 2.7 below summarises the count of registered businesses within Fitzroy SA4 by employment size as of February 2017.

Table 2.7: Counts of Australian Businesses, Fitzroy SA4, February 2017

	Employing Businesses			Total Employing	Total Non- Employing	Total Businesses
	1-19	20-199	200+			
Agriculture, Forestry and Fishing	18.0%	0.3%	0.0%	18.2%	81.8%	4,763
Mining	51.3%	1.9%	0.0%	53.2%	46.8%	154
Manufacturing	45.9%	5.6%	0.0%	51.4%	48.6%	519
Electricity, Gas, Water and Waste Services	61.5%	0.0%	0.0%	61.5%	38.5%	52
Construction	45.5%	1.3%	0.0%	46.8%	53.2%	2,924
Wholesale Trade	46.4%	2.1%	0.0%	48.4%	51.6%	289
Retail Trade	60.1%	5.3%	0.0%	65.5%	34.5%	883
Accommodation and Food Services	61.1%	12.4%	0.0%	73.5%	26.5%	671
Transport, Postal and Warehousing	33.0%	1.6%	0.0%	34.5%	65.5%	1,071
Information Media and Telecommunications	21.4%	7.1%	0.0%	28.6%	71.4%	42
Financial and Insurance Services	17.0%	0.9%	0.0%	17.9%	82.1%	955
Rental, Hiring and Real Estate Services	16.7%	1.2%	0.0%	17.9%	82.1%	1,610
Professional, Scientific and Technical Services	46.6%	2.1%	0.0%	48.6%	51.4%	1,061
Administrative and Support Services	45.3%	4.6%	0.0%	49.9%	50.1%	523
Public Administration and Safety	54.5%	0.0%	0.0%	54.5%	45.5%	44
Education and Training	60.8%	3.1%	0.0%	63.9%	36.1%	194
Health Care and Social Assistance	49.0%	3.6%	0.0%	52.6%	47.4%	661
Arts and Recreation Services	40.2%	3.7%	0.0%	43.9%	56.1%	164
Other Services	55.1%	1.5%	0.0%	56.6%	43.4%	1,044
Not Classified	15.8%	0.0%	0.0%	15.8%	84.2%	171
Total	35.2%	2.0%	0.0%	37.3%	62.7%	17,795

Source: Australian Bureau of Statistics (2017b)

Regional Comparison

In Livingstone Shire, 22.6% of registered businesses were within the construction sector, as compared to 16.4% of registered businesses in Fitzroy SA4 and 17.1% of registered businesses in Queensland, as of February 2017.

Fitzroy SA4 had a significantly higher proportion of registered businesses within the agriculture, forestry and fishing sector compared to Livingstone Shire and Queensland at 26.8%, 23.5% and 9.7% respectively. Livingstone Shire had significantly lower proportions of registered businesses within the retail trade and health care and social assistance sectors relative to Fitzroy SA4 and Queensland.

Table 2.8 below summarises the distribution of total businesses by industry sector within Livingstone Shire, Fitzroy SA4 and Queensland as of February 2017.

Table 2.8: Total Businesses by Industry Sector, Regional Comparison, February 2017

	Livingstone Shire	Fitzroy SA4	Queensland
Agriculture, Forestry & Fishing	23.5%	26.8%	9.7%
Mining	1.1%	0.9%	0.4%
Manufacturing	2.8%	2.9%	3.8%
Electricity, Gas, Water & Waste Services	0.3%	0.3%	0.3%
Construction	22.6%	16.4%	17.1%
Wholesale Trade	1.5%	1.6%	3.1%
Retail Trade	3.8%	5.0%	5.9%
Accommodation & Food Services	3.6%	3.8%	4.0%
Transport, Postal & Warehousing	5.0%	6.0%	5.9%
Information Media & Telecommunications	0.3%	0.2%	0.7%
Financial & Insurance Services	5.3%	5.4%	9.7%
Rental, Hiring & Real Estate Services	8.7%	9.0%	10.0%
Professional, Scientific & Technical Services	6.0%	6.0%	11.0%
Administrative & Support Services	3.4%	2.9%	3.9%
Public Administration & Safety	0.2%	0.2%	0.3%
Education & Training	1.3%	1.1%	1.3%
Health Care & Social Assistance	2.8%	3.7%	5.6%
Arts & Recreation Services	1.2%	0.9%	1.1%
Other Services	5.7%	5.9%	4.7%
Not Classified	1.0%	1.0%	1.3%
Total	3,235	17,795	425,576

Source: Australian Bureau of Statistics (2017b)

2.4 Development Pipeline

There were 20 major developments identified within the Fitzroy SA4, comprising 17 coal, mineral and gas projects (including the project) and three other developments (comprising two tourism developments and one port related development).

Table 2.9 below summarises the proposed major developments within Fitzroy SA4 that are currently within the development pipeline.

Table 2.9: Development Pipeline within Fitzroy SA4

Project	Proponent	Location	Project Details	Status
Coal, Mineral & Gas Projects Broughton Coal Mine Project	U&D Mining Industry Pty Ltd	100km west-south west of Mackay, 27km north-west of the township of Nebo in the Isaac Regional Council local government area	3Mt coal/annum over 15 years	EIS under preparation
Gladstone New Fuels Development Project Stage 2A	Aussun Pty Ltd, Stuart Pty Ltd	15km north-west of Gladstone	5Mt oil shale/annum over 20 years	EIS under preparation
New Lenton Coal Project	New Lenton Coal Pty Ltd	65km north-west of Nebo, adjacent Isaac River, 65km north of Moranbah and 20km south of Glenden.	8Mt ROM coal/annum	EIS under preparation
Saraji East Mining Lease Project	BHP Coal Pty Ltd, QCT Mining Pty Ltd, Mitsubishi Development Pty Ltd, QCT Investment Pty Ltd, BHP Queensland Coal Investments Pty, Ltd, QCT Resources Pty Ltd and Umal Consolidated Pty Ltd	30km north of Dysart, Central Queensland	7Mt metallurgical product coal/annum over 25-30 years	Public notification of draft ToR
Styx Coal Project (the project)	Styx Coal Pty Ltd, Fairway Coal Pty Ltd	130km north-west of Rockhampton, Styx Basin	10Mt ROM coal/annum over 20-25 years	Public notification of draft ToR
Baralaba South Project	Wonbindi Coal Pty Ltd	115km south-west of Rockhampton, 8km south of Baralaba.	6Mt ROM coal/annum over 23-40 years	Public notification of draft ToR
Gladstone Steel Plant Project	Boulder Steel Ltd	Gladstone state development area	5Mt semi-finished steel/annum, port facilities, coal dump station, co-generation power station	EIS under preparation
Nathan Dam and Pipelines	SunWater Ltd (Government-owned)	36km north-east of Taroom	888,000ML dam, 66,000ML/annum, 149km trunk pipeline	Evaluation of EIS under preparation
Olive Downs Project	Pembroke Resources South Pty Ltd	40km south-east of Moranbah	14Mt coking coal/annum	Public notification of draft ToR
South Burnett Coal Project	MRV Tarong Basin Coal Pty Ltd	6km south of Kingaroy	Open cut thermal coal mine	EIS under preparation
Kevin's Corner Project	Hancock Galilee Pty Ltd	160km west of emerald	30Mt coal/annum	Approved (2013)
Gladstone-Fitzroy Pipeline	Gladstone Area Water Board	Stanwell-gladstone	Underground pipeline	Approved (2015)
Arrow LNG Plant	Arrow CSG Pty Ltd	Curtis Island	LNG processing plant, pipeline, dredging	Approved (2013)

Project	Proponent	Location	Project Details	Status
Booundary Hill South Project	Anglo American's Coal Pty Ltd	20km north of Biloela	2.6Mt coal/annum	Approved (2016)
Curragh North Coal Project	Wesfarmers Curragh Pty Ltd	25km north of Blackwater	7Mt coal/annum over 40 years	Approved (2016)
Rolleston Coal Expansion Project	Glencore Coal Queensland Pty Ltd	Rolleston	19Mt coal/annum over 30 years	Approved(2015)
Springsure Creek Coal Mine Project	Springsure Creek Coal Pty Ltd	47km south-east of Emerald	11Mt coal/annum	Approved(2013)
Other Projects				
Capricorn Integrated Resort	Iwasaki Sangyi Co Pty Ltd	9km north-east of Yeppoon, 45km north of Rockhampton	300 rooms, golf course, cattle farm, residential community 8,000 dwellings, airstrip	Draft EIS under preparation
Port of Gladstone Western Basin Dredging Project	Gladstone Ports Co Ltd	10km north of Gladstone city	deepening and widening of existing channels, new channels	Approved (2010)
Great Keppel Island Resort	GKI Resort Pty Ltd	12km off coast of Yeppoon	250 rooms, 750 villas, 300 apartments, marina, yacht club, golf course	Approved (2014)

Source: Department of State Development (2015a), Department of State Development (2015b), Department of Environment and Heritage Protection (2015a), Department of Environment and Heritage Protection (2015b)

2.5 Gross Regional Product

Between 2000-01 and 2010-11, the nominal GRP at current prices within Fitzroy SA4 increased from \$7,842 million in 2001 to \$20,974 million in 2011, or by 10.3% per annum. Fitzroy SA4 recorded significantly higher rates of GRP growth than Queensland (which achieved 8.8% per annum growth over the same period).

Notable drivers of Fitzroy SA4's GRP growth were construction, mining, manufacturing and transport, postal and warehousing.

Table 2.10 below reports the nominal GRP at current prices by industry for Fitzroy SA4 and Queensland for 2000-01 and 2010-11.

Table 2.10: Nominal Gross Regional Product by Industry, Current prices (\$m), Fitzroy SA4 and Queensland, 2001, and 2011

Industry	Fitzroy SA4			Queensland		
	2000-01	2010-11	Ave Annual Growth, 2000-01-2010-11	2000-01	2010-11	Ave Annual Growth, 2000-01-2010-11
Agriculture, forestry and fishing	\$570	\$534	-0.7%	\$5,079	\$6,795	3.0%
Mining	\$1,943	\$6,840	13.4%	\$7,813	\$26,990	13.2%
Manufacturing	\$789	\$1,556	7.0%	\$11,665	\$20,577	5.8%
Electricity, gas, water and waste services	\$341	\$778	8.6%	\$2,178	\$6,636	11.8%
Construction	\$441	\$3,408	22.7%	\$7,293	\$23,436	12.4%
Wholesale trade	\$363	\$622	5.5%	\$6,239	\$13,524	8.0%
Retail trade	\$297	\$585	7.0%	\$6,697	\$13,732	7.4%
Accommodation and food services	\$167	\$285	5.5%	\$3,749	\$6,555	5.7%
Transport, postal and warehousing	\$514	\$1,123	8.1%	\$7,267	\$15,821	8.1%
Information media and telecommunications	\$134	\$153	1.3%	\$3,756	\$5,284	3.5%
Financial and insurance services	\$178	\$384	8.0%	\$6,280	\$16,831	10.4%
Rental, hiring and real estate services	\$81	\$279	13.2%	\$2,482	\$6,273	9.7%
Professional, scientific and technical services	\$154	\$558	13.7%	\$4,918	\$15,421	12.1%
Administrative and support services	\$87	\$218	9.6%	\$2,109	\$5,365	9.8%
Public administration and safety	\$223	\$532	9.1%	\$5,931	\$14,079	9.0%
Education and training	\$289	\$500	5.6%	\$5,131	\$10,406	7.3%
Health care and social assistance	\$288	\$630	8.1%	\$6,441	\$16,092	9.6%
Arts and recreation services	\$29	\$28	-0.4%	\$1,039	\$1,495	3.7%
Other services	\$127	\$268	7.8%	\$2,552	\$4,633	6.1%
Ownership of dwellings	\$337	\$811	9.2%	\$8,774	\$23,255	10.2%
Gross Value Added	\$7,354	\$20,094	10.6%	\$107,393	\$253,201	9.0%
Gross Regional Product	\$7,842	\$20,974	10.3%	\$116,561	\$269,866	8.8%

Source: Queensland Treasury and Trade (2013)

2.6 Agricultural Production

Agricultural production data (in terms of volume and value of production) has been collated from the ABS as of the 2010-11 financial year for Livingstone Shire, Fitzroy SA4 and Queensland. This is the most recent comprehensive dataset available at the small area level.

The assessment of agricultural production has focussed on the key commodities produced within Fitzroy SA4 and has included all commodities produced within Livingstone Shire.

2.6.1 Volume of Production

Cropping

In Livingstone Shire, the cropping commodities produced in 2010-11 were:

- Sugar cane: 27,980 tonnes or 0.1% of Queensland production;
- Wheat: 916 tonnes or 0.1% of Queensland production;
- Sorghum: 227 tonnes (less than 0.1% of Queensland production); and
- Mung beans: 201 tonnes or 0.4% of Queensland production.

In Fitzroy SA4, the key cropping commodities produced in 2010-11 were:

- Mung beans: 19,863 tonnes or 44.2% of Queensland production;
- Rice: 944 tonnes or 41.1% of Queensland production;
- Sunflower: 2,776 tonnes or 29.0% of Queensland production; and
- Chickpeas: 37,674 tonnes or 27.1% of Queensland production.

Table 2.11 below summarises the volume of production in tonnes for the key cropping commodities identified within Livingstone Shire and Fitzroy SA4.

Table 2.11: Volume of Production (tonnes), Key Cropping Commodities, Livingstone Shire and Fitzroy SA4, 2010-11

	Livingstone Shire		Fitzroy SA4	
	Tonnes	% of QLD	Tonnes	% of QLD
Cereals for grain	1,143.0	0.0%	393,853.0	12.8%
Wheat	916.0	0.1%	204,936.0	13.5%
Sorghum	227.0	0.0%	156,149.0	13.2%
Maize	0.0	0.0%	24,085.0	14.0%
Barley	0.0	0.0%	1,201.0	0.8%
Rice	0.0	0.0%	944.0	41.1%
Oats	0.0	0.0%	104.0	1.4%
Other	0.0	0.0%	6,434.0	14.1%
Cotton	0.0	0.0%	74,517.2	8.4%
Chickpeas	0.0	0.0%	37,674.0	27.1%
Sugar cane	27,980.0	0.1%	27,987.0	0.1%
Mung beans	201.0	0.4%	19,863.0	44.2%
Sunflower	0.0	0.0%	2,776.0	29.0%
Peanuts	0.0	0.0%	1,204.8	6.8%

Source: Australian Bureau of Statistics (2012b)

Fruit and Vegetables for Human Consumption

In 2010-11 the key fruit and vegetable crops for human consumption, grown in Livingstone Shire were:

- Pineapples: 10,466 tonnes or 12.6% of Queensland production;
- Pumpkins: 852 tonnes or 2.1% of Queensland production; and
- Sweet Corn: 250 tonnes or 1.0% of Queensland production.

In Fitzroy SA4, the key fruit and vegetables crops for human consumption in 2010-11 were:

- Grapes: 5,486 tonnes or 46.6% of Queensland production;
- Pineapples: 10,466 tonnes or 12.6% of Queensland production (all of which produced in Livingstone Shire); and
- Pumpkins: 2,697 tonnes or 6.5% of Queensland production.

Table 2.12 below summarises the volume of production for key fruit and vegetable crops for human consumption within Livingstone Shire and Fitzroy SA4 in 2010-11.

Table 2.12: Volume of Production (tonnes), Key Fruit & Vegetables for Human Consumption, Livingstone Shire and Fitzroy SA4, 2010-11

	Livingstone Shire		Fitzroy SA4	
	Tonnes	% of QLD	Tonnes	% of QLD
Pineapples	10,466.0	12.6%	10,466.0	12.6%
Grapes	0.0	0.0%	5,486.0	46.6%
Pumpkins	852.0	2.1%	2,697.0	6.5%
Melons	659.0	0.9%	1,733.0	2.5%
Sweet corn	250.0	1.0%	1,413.0	5.5%
Macadamias	15.0	0.1%	191.0	1.4%
Carrots	0.0	0.0%	53.0	0.2%
Potatoes	45.0	0.1%	45.0	0.1%
Tomatoes	34.0	0.0%	36.0	0.0%
Mandarins	0.0	0.0%	2.4	3.4%

Source: Australian Bureau of Statistics (2012b)

Livestock

Within the Livingstone Shire, the majority of livestock identified were meat cattle, with an estimated 163,189 head in 2010-11, accounting for 1.3% of Queensland production. In Fitzroy SA4, the dominant livestock in 2010-11 were:

- Meat cattle: 1,882,737 head, accounting for 15.1% of Queensland production; and
- Pigs: 19,934 head, accounting for 3.1% of Queensland production.

Table 2.13 below summarises the volume of livestock commodities produced within Livingstone Shire and Fitzroy SA4 in 2010-11.

Table 2.13: Volume of Production (number), Key Livestock Commodities, Livingstone Shire and Fitzroy SA4, 2010-11

	Livingstone Shire		Fitzroy SA4	
	No.	% of QLD	No.	% of QLD
Meat cattle	163,189	1.3%	1,882,737	15.1%
Pigs	1,233	0.2%	19,934	3.1%
Sheep and lambs	1	0.0%	10,251	0.3%
Meat poultry	51	0.0%	4,389	0.0%

Source: Australian Bureau of Statistics (2012b)

2.6.2 Value of Production

Cropping

Within Fitzroy SA4, cotton accounted for the majority of the value of production at \$64.8 million but only 8.3% of the total value of cotton production in Queensland. Wheat and sorghum were also substantial contributors to the total value of production at \$50.9 million and \$33.2 million or 13.5% and 13.2% of total value, respectively.

Table 2.14 below summarises the value of production for key cropping commodities identified within Livingstone Shire and Fitzroy SA4 in 2010-11.

Table 2.14: Value of Production (\$m), Key Cropping Commodities, Livingstone Shire and Fitzroy SA4, 2010-11

	Livingstone Shire		Fitzroy SA4	
	Value (\$m)	% of QLD	Value (\$m)	% of QLD
Cereals for grain	0.3	0.0%	91.8	12.9%
Wheat	0.2	0.1%	50.9	13.5%
Sorghum	0.0	0.0%	33.2	13.2%
Maize	0.0	0.0%	5.6	14.0%
Barley	0.0	0.0%	0.2	0.7%
Rice	0.0	0.0%	0.2	33.3%
Oats	0.0	0.0%	0.0	0.0%
Other	0.1	0.9%	1.7	15.5%
Cotton	0.0	0.0%	64.8	8.3%
Chickpeas	0.0	0.0%	15.0	27.0%
Sugar cane	1.1	0.1%	1.1	0.1%
Mung beans	0.2	0.6%	15.7	44.2%
Sunflower	0.0	0.0%	1.4	29.8%
Peanuts	0.0	0.0%	1.0	6.8%

Source: Australian Bureau of Statistics (2012c)

Fruit and Vegetables for Human Consumption

In Livingstone Shire, pineapples accounted for the majority of the value of production at \$6.3 million, or 12.5% of the total Queensland value. Within Fitzroy SA4, grapes were the most valuable crop, with an estimated value of \$14.9 million in 2010-11 (or 46.1% of total Queensland value).

Table 2.15 below summarises the value of production for key fruit and vegetable crops for human consumption within Livingstone Shire and Fitzroy SA4 in 2010-11.

Table 2.15: Value of Production (\$m), Key Fruit & Vegetables for Human Consumption, Livingstone Shire and Fitzroy SA4, 2010-11

	Livingstone Shire		Fitzroy SA4	
	Value (\$m)	% of QLD	Value (\$m)	% of QLD
Pineapples	6.3	12.5%	6.3	12.5%
Grapes	0.0	0.0%	14.9	46.1%
Pumpkins	0.6	2.3%	1.7	6.6%
Melons	0.5	0.9%	1.3	2.4%
Sweet corn	0.3	0.8%	2.0	5.6%
Macadamias	0.0	0.0%	0.5	1.4%
Carrots	0.0	0.0%	0.0	0.0%
Potatoes	0.0	0.0%	0.0	0.0%
Tomatoes	0.1	0.0%	0.1	0.0%
Mandarins	0.0	0.0%	3.1	3.5%

Source: Australian Bureau of Statistics (2012c)

Livestock

Within both Livingstone Shire and Fitzroy SA4, cattle and calves slaughtered accounted for the majority of livestock value in 2010-11 (accounting for 1.4% of Queensland value and 14.1% of Queensland value, respectively).

Table 2.16 below summarises the value of livestock commodities within Livingstone Shire and Fitzroy SA4 in 2010-11.

Table 2.16: Value of Production (\$m), Livestock, Livingstone Shire and Fitzroy SA4, 2010-11

	Livingstone Shire		Fitzroy SA4	
	Value (\$m)	% of QLD	Value (\$m)	% of QLD
Cattle and Calves	46.3	1.4%	480.8	14.1%
Pigs	0.4	0.2%	6.9	3.1%
Sheep and lambs	0.0	0.0%	0.1	0.2%
Poultry	0.0	0.0%	1.3	0.3%
Other	0.2	0.5%	1.6	4.1%
Total	46.9	1.1%	490.7	11.9%

Source: Australian Bureau of Statistics (2012c)

2.7 Economic Baseline Summary

A number of trends were observed in Livingstone Shire and Fitzroy SA4 and are summarised below.

Population

- Livingstone Shire: population projected to increase at an average annual rate of 2.1% per annum between 2016 and 2036;
- Fitzroy SA4: population projected to increase at an average rate of 1.5% per annum between 2016 and 2036;
- Projected average growth rate of population is higher in Livingstone Shire (2.1% per annum) than both Fitzroy SA4 (1.5% per annum) and Queensland (1.7% per annum); and
- Projected average growth rate of working age population anticipated to be significantly lower within all regions.

Average age of residents

- 40.5 years in Livingstone Shire as of the 2011 census; and
- 37.2 years in Fitzroy SA4 as at the 2011 census.

Age profile

- Livingstone Shire recorded a lower incidence of working aged persons relative to Fitzroy SA4 and Queensland at 63.1% of total population as of the 2011 census; and
- Fitzroy SA4 recorded a similar incidence of working aged persons relative to Queensland; at approximately 66.5% of total population as of the 2011 census.

Family structure

- In 2011, couple family without children households were the most prevalent household type in Livingstone Shire; and
- Most prevalent household type in Fitzroy SA4 and Queensland was couple families with children.

Household income

- Average household income in Livingstone Shire was approximately 8.5% below the state average in 2001 and in 2011 it had converged to 1.3% below the state average;
- Average household income in Fitzroy SA4 was approximately 1.2% above the state average in 2001, increasing to 9.2% above the state average by 2011; and
- Livingstone Shire and Fitzroy SA4 both recorded higher rates of growth in average household incomes than Queensland in both the 2001-06 and 2006-11 period.

Labour market trends

- Unemployment rate in Livingstone Shire has risen by 1.3 percentage points between 2006-07 and 2015-16, yet is lower than that of Fitzroy SA4 and Queensland; and
- Labour force participation rate in Livingstone Shire significantly lower than in Fitzroy SA4 and Queensland.

Employment by industry

- Approximately one third of all workers in Livingstone Shire were employed in the construction, retail trade, and health care and social assistance sectors as of the 2011 census;
- The incidence of employment within the manufacturing sector in Livingstone Shire was significantly lower than Fitzroy SA4 and Queensland as of the 2011 census; and
- The incidence of employment within the education and training sector in Livingstone Shire was significantly higher than Fitzroy SA4 and Queensland as of the 2011 census.

Occupation type

- Livingstone Shire recorded a significantly higher proportion of persons employed in white collar occupations than Fitzroy SA4.

Qualifications

- Livingstone Shire recorded a significantly lower proportion of people who have a Diploma or Bachelor degree (or higher) than Queensland; and
- Livingstone Shire and Fitzroy SA4 both recorded a higher proportion of people who hold a certificate than Queensland.

Enterprise Activity

- There were 3,235 registered businesses within Livingstone Shire as of February 2017, with approximately 46.1% of these registered businesses in the construction sector and the agriculture, forestry and fishing sector;
- Six accommodation and food services businesses, six health care and social assistance businesses and five administrative and support services businesses within Livingstone Shire employed 20-199 persons, with no registered businesses employing 200 or more persons; and
- There were 17,795 registered businesses within Fitzroy SA4 as of February 2017, with agriculture, forestry and fishing, construction and rental, hiring and real estate services the most common business types.

Development Pipeline

- 20 major projects identified, comprising 17 coal, mineral and gas projects and three other developments (two tourism developments and one port related development).

Gross regional product

- GRP of \$20,974 million in Fitzroy SA4 in 2010-11 (7.8% of Queensland's Gross State Product (GSP));
- Growth in GRP between 2000-01 and 2010-11 was significantly higher in Fitzroy SA4 (10.3% per annum) than Queensland (8.8% per annum); and
- Between 2000-01 and 2010-11 the main sources of GRP growth in Fitzroy SA4 were construction, mining, manufacturing and transport, postal and warehousing.

Agriculture

- Livestock commodities produced within Livingstone Shire were meat cattle and calves;

- Sorghum and cotton were the key cropping commodities in Fitzroy SA4 in terms of both volume and value of production;
- Grapes were the key fruit crop within Fitzroy SA4, accounting for almost half of Queensland production in terms of both volume and value of production; and
- Cattle and calves the dominant livestock commodity in terms of value in both Livingstone Shire and Fitzroy SA4.

3 ECONOMIC IMPACT ASSESSMENT

The purpose of this section of the report is to estimate the economic impacts of the construction and operational phases of the project in a regional, state and national context.

Styx Coal has provided indicative capital and operating expenditures for the project which have been used as inputs to the estimation of the regional, state and national stimulus generated by the project.

3.1 Project Expenditures

3.1.1 Capital Expenditures

Capital expenditures for the project are anticipated to total \$242.68 million, comprising approximately:

- \$106.78 million of project expenditures within Central Queensland;
- \$49.75 million of project expenditures within the rest of Queensland;
- \$43.68 million of project expenditures interstate; and
- \$42.47 million of project expenditures overseas.

Project expenditures made overseas represent direct imports and as such do not make an economic contribution at a state, regional or national level, and hence are excluded from the subsequent impact analysis.

Capital expenditures were subsequently collated into respective industrial categories and used as inputs to the estimation of the regional, state and national stimulus generated by the construction stage of the project.

Table 3.1 below summarises the anticipated capital expenditure within Central Queensland, the rest of Queensland, nationally and internationally for the project.

Table 3.1: Anticipated Capital Expenditures (\$m), Central Queensland, Rest of Queensland, National & International, Styx Coal Mine Project

Expenditure	Origin of Pruchase (\$m)				Total (\$m)
	Central Qld	Rest of Qld	National	International	
Open Cut					
Mining Engineering	\$12.10	\$7.60	\$5.40	\$0.00	\$25.10
Civil Engineering	\$6.70	\$4.10	\$3.40	\$0.00	\$14.20
Other Costs	\$4.90	\$4.50	\$2.90	\$0.00	\$12.30
Contingency	\$3.70	\$4.70	\$3.70	\$0.00	\$12.10
Subtotal	\$27.40	\$20.90	\$15.40	\$0.00	\$63.70
Coal Handling Preparation Plant					
Civil Engineering	\$2.10	\$2.70	\$0.00	\$1.00	\$5.80
Equipment	\$2.30	\$2.30	\$2.30	\$32.50	\$39.40
Installation	\$2.10	\$3.80	\$2.70	\$1.00	\$9.60
Other Costs	\$1.10	\$1.70	\$3.10	\$1.50	\$7.40
Contingency	\$2.50	\$3.00	\$3.70	\$3.28	\$12.48
Subtotal	\$10.10	\$13.50	\$11.80	\$39.28	\$74.68
Infrastructure					
Civil Engineering	\$32.50	\$6.20	\$7.40	\$1.00	\$47.10
Other Costs	\$31.00	\$5.30	\$6.10	\$1.10	\$43.50
Contingency	\$5.78	\$3.85	\$2.98	\$1.09	\$13.70
Subtotal	\$69.28	\$15.35	\$16.48	\$3.19	\$104.30
Total	\$106.78	\$49.75	\$43.68	\$42.47	\$242.68

Source: Styx Coal Estimates

3.1.2 Operation

Styx Coal has also provided estimated operational expenditures that will likely be incurred over the life of the project, which were subsequently categorised by expenditure type. This categorisation allows these expenditures to be used as inputs to the estimation of the regional, state and national stimulus generated by the operational stage of the project.

Annual operating costs for the project are reported in Table 3.2 below.

Table 3.2: Aggregated Annual Operating Costs (\$m), Styx Coal Mine Project

Expenditure Category	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Mining & CHPP Operations	\$9.2	\$18.7	\$18.7	\$37.6	\$37.8	\$37.4	\$36.9	\$55.3	\$54.0	\$68.3	\$133.2	\$200.1	\$74.8	\$18.3	\$9.1	\$3.2	\$1.0	\$1.0	\$1.0	\$1.0
Vehicle Fleets & Fuel	\$13.8	\$28.0	\$28.0	\$56.4	\$56.7	\$56.2	\$55.3	\$82.9	\$80.9	\$102.4	\$199.8	\$300.1	\$112.2	\$27.5	\$13.7	\$4.9	\$1.5	\$1.5	\$1.5	\$1.5
Camp Costs	\$1.6	\$3.3	\$3.3	\$6.6	\$6.6	\$6.6	\$6.4	\$9.7	\$9.4	\$12.0	\$23.3	\$35.0	\$13.1	\$3.2	\$1.6	\$0.6	\$0.2	\$0.2	\$0.2	\$0.2
Consumables	\$6.9	\$14.0	\$14.0	\$28.2	\$28.4	\$28.1	\$27.6	\$41.5	\$40.5	\$51.2	\$99.9	\$150.1	\$56.1	\$13.7	\$6.8	\$2.4	\$0.8	\$0.8	\$0.8	\$0.8
Water Management	\$1.4	\$2.8	\$2.8	\$5.6	\$5.7	\$5.6	\$5.5	\$8.3	\$8.1	\$10.2	\$20.0	\$30.0	\$11.2	\$2.7	\$1.4	\$0.5	\$0.2	\$0.2	\$0.2	\$0.2
Professional Services	\$0.7	\$1.4	\$1.4	\$2.8	\$2.8	\$2.8	\$2.8	\$4.1	\$4.0	\$5.1	\$10.0	\$15.0	\$5.6	\$1.4	\$0.7	\$0.2	\$0.1	\$0.1	\$0.1	\$0.1
Repairs & Maintenance	\$4.6	\$9.3	\$9.3	\$18.8	\$18.9	\$18.7	\$18.4	\$27.6	\$27.0	\$34.1	\$66.6	\$100.0	\$37.4	\$9.2	\$4.6	\$1.6	\$0.5	\$0.5	\$0.5	\$0.5
Plant & Equipment	\$2.3	\$4.7	\$4.7	\$9.4	\$9.5	\$9.4	\$9.2	\$13.8	\$13.5	\$17.1	\$33.3	\$50.0	\$18.7	\$4.6	\$2.3	\$0.8	\$0.3	\$0.3	\$0.3	\$0.3
Transport Costs	\$5.5	\$11.2	\$11.2	\$22.6	\$22.7	\$22.5	\$22.1	\$33.2	\$32.4	\$41.0	\$79.9	\$120.1	\$44.9	\$11.0	\$5.5	\$1.9	\$0.6	\$0.6	\$0.6	\$0.6
Total	\$45.9	\$93.5	\$93.4	\$188.0	\$189.1	\$187.2	\$184.3	\$276.4	\$269.8	\$341.4	\$665.9	\$1,000.4	\$374.0	\$91.5	\$45.5	\$16.2	\$5.0	\$5.0	\$5.0	\$5.0

Source: Styx Coal estimates

3.2 Project Impacts

3.2.1 Regional, State and National Economic Impacts - Construction

Tables 3.3 to 3.14 below provide an overview of the project's contribution to output, household income, employment and value added during the construction phase for the central Queensland, rest of Queensland and national economy. Capital expenditures are anticipated to incur for the first 16 years of the project.

Output

During the construction phase of the project, output or consumption effects are anticipated to be concentrated in year 1, with the central Queensland region likely to experience the most significant stimulus. In year 1, output or consumption effects for central Queensland, state and national economy are estimated at:

- Central Queensland: total output contribution of \$119.11 million, comprising \$66 million in direct contribution and \$53.11 million of indirect contributions;
- Rest of Queensland: total output contribution \$56.99 million, comprising \$30.75 million in direct contribution and \$26.24 million of indirect contributions; and
- National: total output contribution of \$53.26 million, comprising \$27 million in direct contribution and \$26.26 million of indirect contributions.

Output effects are anticipated to be concentrated within the construction sector, with the manufacturing sector also benefitting from significant stimulus at the regional, state and national level, as summarised in Tables 3.3 to 3.5.

Household Income

Household income effects are anticipated to peak in year 1, with the central Queensland region likely to record the most significant stimulus. In year 1, household income effects for the central Queensland region, state and national economy are estimated at:

- Central Queensland: total output contribution of \$24.15 million, comprising \$13.66 million in direct contribution and \$10.49 million in indirect contribution;
- Rest of Queensland: total output contribution of \$12.60 million, comprising \$6.36 million in direct contribution and \$6.24 million of indirect contributions; and
- National: total output contribution \$11.98 million, comprising \$5.59 million in direct contribution and \$6.39 million of indirect contributions.

Within all regions under review, household income effects are anticipated to be highest within the construction sector as summarised in Tables 3.6 to 3.8.

Employment (FTEs)

The employment effects of the construction phase of the project are expected to peak in year 1. In year 1, employment effects for central Queensland, state and national economy are estimated at:

- Central Queensland: total employment contribution of 225 FTEs, comprising a direct contribution of 93 FTEs and an indirect contribution of 132 FTEs;
- Rest of Queensland: total employment contribution of 127 FTEs, comprising a direct contribution of 43 FTEs and an indirect contribution of 84 FTEs; and
- National: total employment contribution of 123 FTEs, comprising a direct contribution of 38 FTEs and indirect contribution of 85 FTEs.

Within the central Queensland region, the rest of Queensland and at the national level, employment effects are anticipated to be highest within the manufacturing sector, with the construction sector also experiencing significant employment effects, as summarised in Tables 3.9 to 3.11

Value Added

During the construction phase of the project, value added impacts are anticipated to peak in year 1, with central Queensland likely to experience the most significant stimulus. In year 1, value added effects for the central Queensland region, state and national economy are estimated at:

- Central Queensland: total value added contribution of \$42.98 million, comprising direct contribution of \$23.55 million and an indirect contribution of \$30.73 million;
- Rest of Queensland: total value added contribution of \$21.43 million, comprising direct contribution of \$10.97 million and an indirect contribution of \$10.46 million; and
- National: total value added contribution of \$20.36 million, comprising \$9.63 million in direct contribution and \$10.72 million of indirect contributions.

Within central Queensland, the rest of Queensland and at the national level, value added effects are anticipated to be highest in the construction sector as summarised in Tables 3.12 to 3.14.

Table 3.3: Contribution to Output (\$m), Central Queensland Economy, Construction Phase

Industry	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
Agriculture, Forestry & Fishing	\$0.16	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.02	\$0.04	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Mining	\$12.12	\$0.08	\$0.08	\$0.16	\$0.16	\$0.16	\$0.16	\$0.24	\$1.86	\$2.75	\$0.57	\$0.81	\$0.32	\$0.08	\$0.04	\$0.01
Manufacturing	\$28.51	\$0.19	\$0.19	\$0.38	\$0.38	\$0.38	\$0.38	\$0.57	\$4.37	\$6.46	\$1.33	\$1.90	\$0.76	\$0.19	\$0.10	\$0.03
Electricity, Gas, Water & Waste Services	\$6.51	\$0.04	\$0.04	\$0.09	\$0.09	\$0.09	\$0.09	\$0.13	\$1.00	\$1.48	\$0.30	\$0.43	\$0.17	\$0.04	\$0.02	\$0.01
Construction	\$59.36	\$0.40	\$0.40	\$0.79	\$0.79	\$0.79	\$0.79	\$1.19	\$9.10	\$13.46	\$2.77	\$3.96	\$1.58	\$0.40	\$0.20	\$0.07
Wholesale Trade	\$1.44	\$0.01	\$0.01	\$0.02	\$0.02	\$0.02	\$0.02	\$0.03	\$0.22	\$0.33	\$0.07	\$0.10	\$0.04	\$0.01	\$0.00	\$0.00
Retail Trade	\$0.53	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.08	\$0.12	\$0.02	\$0.04	\$0.01	\$0.00	\$0.00	\$0.00
Accommodation & Food Services	\$0.34	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.05	\$0.08	\$0.02	\$0.02	\$0.01	\$0.00	\$0.00	\$0.00
Transport, Postal & Warehousing	\$1.84	\$0.01	\$0.01	\$0.02	\$0.02	\$0.02	\$0.02	\$0.04	\$0.28	\$0.42	\$0.09	\$0.12	\$0.05	\$0.01	\$0.01	\$0.00
Information Media and Telecommunications	\$0.07	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.02	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Financial & Insurance Services	\$0.56	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.09	\$0.13	\$0.03	\$0.04	\$0.02	\$0.00	\$0.00	\$0.00
Rental, Hiring & Real Estate Services	\$1.75	\$0.01	\$0.01	\$0.02	\$0.02	\$0.02	\$0.02	\$0.04	\$0.27	\$0.40	\$0.08	\$0.12	\$0.05	\$0.01	\$0.01	\$0.00
Professional, Scientific & Technical Services	\$4.08	\$0.03	\$0.03	\$0.05	\$0.05	\$0.05	\$0.05	\$0.08	\$0.63	\$0.92	\$0.19	\$0.27	\$0.11	\$0.03	\$0.01	\$0.00
Administrative & Support Services	\$0.76	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.02	\$0.12	\$0.17	\$0.04	\$0.05	\$0.02	\$0.01	\$0.00	\$0.00
Public Administration & Safety	\$0.39	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.06	\$0.09	\$0.02	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00
Education & Training	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Health Care & Social Assistance	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Arts & Recreation Services	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Other Services	\$0.66	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.10	\$0.15	\$0.03	\$0.04	\$0.02	\$0.00	\$0.00	\$0.00
Direct	\$66.00	\$0.44	\$0.44	\$0.88	\$0.88	\$0.88	\$0.88	\$1.32	\$10.12	\$14.96	\$3.08	\$4.40	\$1.76	\$0.44	\$0.22	\$0.08
Indirect	\$53.11	\$0.35	\$0.35	\$0.71	\$0.71	\$0.71	\$0.71	\$1.06	\$8.14	\$12.04	\$2.48	\$3.54	\$1.42	\$0.35	\$0.18	\$0.06
Total	\$119.1	\$0.79	\$0.79	\$1.59	\$1.59	\$1.59	\$1.59	\$2.38	\$18.26	\$27.00	\$5.56	\$7.94	\$3.18	\$0.79	\$0.40	\$0.14

Source: Economic Associates estimates

Table 3.4: Contribution to Output (\$m), Rest of Queensland Economy, Construction Phase

Industry	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
Agriculture, Forestry & Fishing	\$0.15	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.02	\$0.03	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Mining	\$1.45	\$0.01	\$0.01	\$0.02	\$0.02	\$0.02	\$0.02	\$0.03	\$0.22	\$0.33	\$0.07	\$0.10	\$0.04	\$0.01	\$0.00	\$0.00
Manufacturing	\$12.92	\$0.09	\$0.09	\$0.17	\$0.17	\$0.17	\$0.17	\$0.26	\$1.98	\$2.93	\$0.60	\$0.86	\$0.34	\$0.09	\$0.04	\$0.02
Electricity, Gas, Water & Waste Services	\$0.73	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.11	\$0.17	\$0.03	\$0.05	\$0.02	\$0.00	\$0.00	\$0.00
Construction	\$30.88	\$0.21	\$0.21	\$0.41	\$0.41	\$0.41	\$0.41	\$0.62	\$4.73	\$7.00	\$1.44	\$2.06	\$0.82	\$0.21	\$0.10	\$0.04
Wholesale Trade	\$1.32	\$0.01	\$0.01	\$0.02	\$0.02	\$0.02	\$0.02	\$0.03	\$0.20	\$0.30	\$0.06	\$0.09	\$0.04	\$0.01	\$0.00	\$0.00
Retail Trade	\$0.46	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.07	\$0.10	\$0.02	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00
Accommodation & Food Services	\$0.23	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.04	\$0.05	\$0.01	\$0.02	\$0.01	\$0.00	\$0.00	\$0.00
Transport, Postal & Warehousing	\$1.03	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.02	\$0.16	\$0.23	\$0.05	\$0.07	\$0.03	\$0.01	\$0.00	\$0.00
Information Media and Telecommunications	\$0.15	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.02	\$0.03	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Financial & Insurance Services	\$0.66	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.10	\$0.15	\$0.03	\$0.04	\$0.02	\$0.00	\$0.00	\$0.00
Rental, Hiring & Real Estate Services	\$1.23	\$0.01	\$0.01	\$0.02	\$0.02	\$0.02	\$0.02	\$0.02	\$0.19	\$0.28	\$0.06	\$0.08	\$0.03	\$0.01	\$0.00	\$0.00
Professional, Scientific & Technical Services	\$4.04	\$0.03	\$0.03	\$0.05	\$0.05	\$0.05	\$0.05	\$0.08	\$0.62	\$0.92	\$0.19	\$0.27	\$0.11	\$0.03	\$0.01	\$0.00
Administrative & Support Services	\$1.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.02	\$0.15	\$0.23	\$0.05	\$0.07	\$0.03	\$0.01	\$0.00	\$0.00
Public Administration & Safety	\$0.33	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.05	\$0.07	\$0.02	\$0.02	\$0.01	\$0.00	\$0.00	\$0.00
Education & Training	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Health Care & Social Assistance	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Arts & Recreation Services	\$0.02	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Other Services	\$0.39	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.06	\$0.09	\$0.02	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00
Direct	\$30.75	\$0.21	\$0.21	\$0.41	\$0.41	\$0.41	\$0.41	\$0.62	\$4.72	\$6.97	\$1.44	\$2.05	\$0.82	\$0.21	\$0.10	\$0.04
Indirect	\$26.24	\$0.17	\$0.17	\$0.35	\$0.35	\$0.35	\$0.35	\$0.52	\$4.02	\$5.95	\$1.22	\$1.75	\$0.70	\$0.17	\$0.09	\$0.03
Total	\$56.99	\$0.38	\$0.38	\$0.76	\$0.76	\$0.76	\$0.76	\$1.14	\$8.74	\$12.92	\$2.66	\$3.80	\$1.52	\$0.38	\$0.19	\$0.07

Source: Economic Associates estimates

Table 3.5: Contribution to Output (\$m), National Economy, Construction Phase

Industry	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
Agriculture, Forestry & Fishing	\$0.17	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.03	\$0.04	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Mining	\$1.30	\$0.01	\$0.01	\$0.02	\$0.02	\$0.02	\$0.02	\$0.03	\$0.20	\$0.29	\$0.06	\$0.09	\$0.03	\$0.01	\$0.00	\$0.00
Manufacturing	\$11.91	\$0.08	\$0.08	\$0.16	\$0.16	\$0.16	\$0.16	\$0.24	\$1.83	\$2.70	\$0.56	\$0.79	\$0.32	\$0.08	\$0.04	\$0.01
Electricity, Gas, Water & Waste Services	\$0.68	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.10	\$0.16	\$0.03	\$0.05	\$0.02	\$0.00	\$0.00	\$0.00
Construction	\$27.39	\$0.18	\$0.18	\$0.37	\$0.37	\$0.37	\$0.37	\$0.55	\$4.20	\$6.21	\$1.28	\$1.83	\$0.73	\$0.18	\$0.09	\$0.03
Wholesale Trade	\$1.48	\$0.01	\$0.01	\$0.02	\$0.02	\$0.02	\$0.02	\$0.03	\$0.23	\$0.34	\$0.07	\$0.10	\$0.04	\$0.01	\$0.00	\$0.00
Retail Trade	\$0.46	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.07	\$0.10	\$0.02	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00
Accommodation & Food Services	\$0.22	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.03	\$0.05	\$0.01	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00
Transport, Postal & Warehousing	\$0.98	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.02	\$0.15	\$0.22	\$0.05	\$0.07	\$0.03	\$0.01	\$0.00	\$0.00
Information Media and Telecommunications	\$0.28	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.04	\$0.06	\$0.01	\$0.02	\$0.01	\$0.00	\$0.00	\$0.00
Financial & Insurance Services	\$1.05	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.02	\$0.16	\$0.24	\$0.05	\$0.07	\$0.03	\$0.01	\$0.00	\$0.00
Rental, Hiring & Real Estate Services	\$1.06	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.02	\$0.16	\$0.24	\$0.05	\$0.07	\$0.03	\$0.01	\$0.00	\$0.00
Professional, Scientific & Technical Services	\$4.44	\$0.03	\$0.03	\$0.06	\$0.06	\$0.06	\$0.06	\$0.09	\$0.68	\$1.01	\$0.21	\$0.30	\$0.12	\$0.03	\$0.01	\$0.01
Administrative & Support Services	\$1.08	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.02	\$0.17	\$0.24	\$0.05	\$0.07	\$0.03	\$0.01	\$0.00	\$0.00
Public Administration & Safety	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.05	\$0.08	\$0.02	\$0.02	\$0.01	\$0.00	\$0.00	\$0.00
Education & Training	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Health Care & Social Assistance	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Arts & Recreation Services	\$0.02	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Other Services	\$0.38	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.06	\$0.09	\$0.02	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00
Direct	\$27.00	\$0.18	\$0.18	\$0.36	\$0.36	\$0.36	\$0.36	\$0.54	\$4.14	\$6.12	\$1.26	\$1.80	\$0.72	\$0.18	\$0.09	\$0.03
Indirect	\$26.26	\$0.18	\$0.18	\$0.35	\$0.35	\$0.35	\$0.35	\$0.53	\$4.03	\$5.95	\$1.23	\$1.75	\$0.70	\$0.18	\$0.09	\$0.03
Total	\$53.26	\$0.36	\$0.36	\$0.71	\$0.71	\$0.71	\$0.71	\$1.07	\$8.17	\$12.07	\$2.49	\$3.55	\$1.42	\$0.36	\$0.18	\$0.06

Source: Economic Associates estimates

Table 3.6: Contribution to Household Income (\$m), Central Queensland, Construction Phase

Industry	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
Agriculture, Forestry & Fishing	\$0.02	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Mining	\$2.01	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.31	\$0.46	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Manufacturing	\$6.39	\$0.04	\$0.04	\$0.03	\$0.03	\$0.03	\$0.03	\$0.04	\$0.98	\$1.45	\$0.09	\$0.13	\$0.05	\$0.01	\$0.01	\$0.00
Electricity, Gas, Water & Waste Services	\$0.76	\$0.01	\$0.01	\$0.09	\$0.09	\$0.09	\$0.09	\$0.13	\$0.12	\$0.17	\$0.30	\$0.43	\$0.17	\$0.04	\$0.02	\$0.01
Construction	\$11.11	\$0.07	\$0.07	\$0.01	\$0.01	\$0.01	\$0.01	\$0.02	\$1.70	\$2.52	\$0.04	\$0.05	\$0.02	\$0.01	\$0.00	\$0.00
Wholesale Trade	\$0.45	\$0.00	\$0.00	\$0.15	\$0.15	\$0.15	\$0.15	\$0.22	\$0.07	\$0.10	\$0.52	\$0.74	\$0.30	\$0.07	\$0.04	\$0.01
Retail Trade	\$0.20	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.03	\$0.05	\$0.02	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00
Accommodation & Food Services	\$0.10	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.02	\$0.02	\$0.01	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00
Transport, Postal & Warehousing	\$0.49	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.08	\$0.11	\$0.00	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Information Media and Telecommunications	\$0.02	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.00	\$0.00	\$0.02	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00
Financial & Insurance Services	\$0.15	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.02	\$0.03	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Rental, Hiring & Real Estate Services	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.05	\$0.08	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Professional, Scientific & Technical Services	\$1.37	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.21	\$0.31	\$0.02	\$0.02	\$0.01	\$0.00	\$0.00	\$0.00
Administrative & Support Services	\$0.34	\$0.00	\$0.00	\$0.02	\$0.02	\$0.02	\$0.02	\$0.03	\$0.05	\$0.08	\$0.06	\$0.09	\$0.04	\$0.01	\$0.00	\$0.00
Public Administration & Safety	\$0.18	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.03	\$0.04	\$0.02	\$0.02	\$0.01	\$0.00	\$0.00	\$0.00
Education & Training	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Health Care & Social Assistance	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Arts & Recreation Services	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Other Services	\$0.21	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.03	\$0.05	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Direct	\$13.66	\$0.09	\$0.09	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2.09	\$3.10	\$0.01	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00
Indirect	\$10.49	\$0.07	\$0.07	\$0.18	\$0.18	\$0.18	\$0.18	\$0.27	\$1.61	\$2.38	\$0.64	\$0.91	\$0.36	\$0.09	\$0.05	\$0.02
Total	\$24.15	\$0.16	\$0.16	\$0.14	\$0.14	\$0.14	\$0.14	\$0.21	\$3.70	\$5.47	\$0.49	\$0.70	\$0.28	\$0.07	\$0.03	\$0.01

Source: Economic Associates estimates

Table 3.7: Contribution to Household Income (\$m), Rest of Queensland, Construction Phase

Industry	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
Agriculture, Forestry & Fishing	\$0.02	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Mining	\$0.21	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.03	\$0.05	\$0.01	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00
Manufacturing	\$3.07	\$0.02	\$0.02	\$0.04	\$0.04	\$0.04	\$0.04	\$0.06	\$0.47	\$0.70	\$0.14	\$0.20	\$0.08	\$0.02	\$0.01	\$0.00
Electricity, Gas, Water & Waste Services	\$0.12	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.02	\$0.03	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Construction	\$5.71	\$0.04	\$0.04	\$0.08	\$0.08	\$0.08	\$0.08	\$0.11	\$0.88	\$1.30	\$0.27	\$0.38	\$0.15	\$0.04	\$0.02	\$0.01
Wholesale Trade	\$0.41	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.06	\$0.09	\$0.02	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00
Retail Trade	\$0.17	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.03	\$0.04	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Accommodation & Food Services	\$0.07	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.02	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Transport, Postal & Warehousing	\$0.26	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.04	\$0.06	\$0.01	\$0.02	\$0.01	\$0.00	\$0.00	\$0.00
Information Media and Telecommunications	\$0.03	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Financial & Insurance Services	\$0.19	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.03	\$0.04	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Rental, Hiring & Real Estate Services	\$0.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.04	\$0.05	\$0.01	\$0.02	\$0.01	\$0.00	\$0.00	\$0.00
Professional, Scientific & Technical Services	\$1.36	\$0.01	\$0.01	\$0.02	\$0.02	\$0.02	\$0.02	\$0.03	\$0.21	\$0.31	\$0.06	\$0.09	\$0.04	\$0.01	\$0.00	\$0.00
Administrative & Support Services	\$0.44	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.07	\$0.10	\$0.02	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00
Public Administration & Safety	\$0.16	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.02	\$0.04	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Education & Training	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Health Care & Social Assistance	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Arts & Recreation Services	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Other Services	\$0.13	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.02	\$0.03	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Direct	\$6.36	\$0.04	\$0.04	\$0.08	\$0.08	\$0.08	\$0.08	\$0.13	\$0.98	\$1.44	\$0.30	\$0.42	\$0.17	\$0.04	\$0.02	\$0.01
Indirect	\$6.24	\$0.04	\$0.04	\$0.08	\$0.08	\$0.08	\$0.08	\$0.12	\$0.96	\$1.41	\$0.29	\$0.42	\$0.17	\$0.04	\$0.02	\$0.01
Total	\$12.60	\$0.08	\$0.08	\$0.17	\$0.17	\$0.17	\$0.17	\$0.25	\$1.93	\$2.86	\$0.59	\$0.84	\$0.34	\$0.08	\$0.04	\$0.01

Source: Economic Associates estimates

Table 3.8: Contribution to Household Income (\$m), National, Construction Phase

Industry	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
Agriculture, Forestry & Fishing	\$0.02	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Mining	\$0.18	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.03	\$0.04	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Manufacturing	\$2.82	\$0.02	\$0.02	\$0.04	\$0.04	\$0.04	\$0.04	\$0.06	\$0.43	\$0.64	\$0.13	\$0.19	\$0.08	\$0.02	\$0.01	\$0.00
Electricity, Gas, Water & Waste Services	\$0.11	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.02	\$0.03	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Construction	\$5.06	\$0.03	\$0.03	\$0.07	\$0.07	\$0.07	\$0.07	\$0.10	\$0.78	\$1.15	\$0.24	\$0.34	\$0.13	\$0.03	\$0.02	\$0.01
Wholesale Trade	\$0.46	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.07	\$0.10	\$0.02	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00
Retail Trade	\$0.18	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.03	\$0.04	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Accommodation & Food Services	\$0.07	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.02	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Transport, Postal & Warehousing	\$0.25	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.04	\$0.06	\$0.01	\$0.02	\$0.01	\$0.00	\$0.00	\$0.00
Information Media and Telecommunications	\$0.06	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Financial & Insurance Services	\$0.29	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.04	\$0.07	\$0.01	\$0.02	\$0.01	\$0.00	\$0.00	\$0.00
Rental, Hiring & Real Estate Services	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.03	\$0.05	\$0.01	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00
Professional, Scientific & Technical Services	\$1.50	\$0.01	\$0.01	\$0.02	\$0.02	\$0.02	\$0.02	\$0.03	\$0.23	\$0.34	\$0.07	\$0.10	\$0.04	\$0.01	\$0.01	\$0.00
Administrative & Support Services	\$0.48	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.07	\$0.11	\$0.02	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00
Public Administration & Safety	\$0.17	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.03	\$0.04	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Education & Training	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Health Care & Social Assistance	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Arts & Recreation Services	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Other Services	\$0.13	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.02	\$0.03	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Direct	\$5.59	\$0.04	\$0.04	\$0.07	\$0.07	\$0.07	\$0.07	\$0.11	\$0.86	\$1.27	\$0.26	\$0.37	\$0.15	\$0.04	\$0.02	\$0.01
Indirect	\$6.39	\$0.04	\$0.04	\$0.09	\$0.09	\$0.09	\$0.09	\$0.13	\$0.98	\$1.45	\$0.30	\$0.43	\$0.17	\$0.04	\$0.02	\$0.01
Total	\$11.98	\$0.08	\$0.08	\$0.16	\$0.16	\$0.16	\$0.16	\$0.24	\$1.84	\$2.71	\$0.56	\$0.80	\$0.32	\$0.08	\$0.04	\$0.01

Source: Economic Associates estimates

Table 3.9: Contribution to Employment (FTEs), Central Queensland, Construction Phase

Industry	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
Agriculture, Forestry & Fishing	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mining	18	0	0	0	0	0	0	0	3	4	0	0	0	0	0	0
Manufacturing	89	1	1	0	0	0	0	0	14	20	1	1	0	0	0	0
Electricity, Gas, Water & Waste Services	7	0	0	1	1	1	1	2	1	2	4	6	2	1	0	0
Construction	60	0	0	0	0	0	0	0	9	14	0	0	0	0	0	0
Wholesale Trade	4	0	0	1	1	1	1	1	1	1	3	4	2	0	0	0
Retail Trade	4	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Accommodation & Food Services	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transport, Postal & Warehousing	7	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0
Information Media and Telecommunications	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Financial & Insurance Services	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rental, Hiring & Real Estate Services	3	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Professional, Scientific & Technical Services	17	0	0	0	0	0	0	0	3	4	0	0	0	0	0	0
Administrative & Support Services	3	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0
Public Administration & Safety	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Education & Training	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Health Care & Social Assistance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arts & Recreation Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Services	5	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Direct	93	1	1	0	0	0	0	0	14	21	0	0	0	0	0	0
Indirect	132	1	1	1	1	1	1	2	20	30	4	6	2	1	0	0
Total	225	1	1	2	2	2	2	3	34	51	6	9	4	1	0	0

Source: Economic Associate estimates

Table 3.10: Contribution to Employment (FTEs), Rest of Queensland, Construction Phase

Industry	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
Agriculture, Forestry & Fishing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mining	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manufacturing	41	0	0	1	1	1	1	1	6	9	2	3	1	0	0	0
Electricity, Gas, Water & Waste Services	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Construction	39	0	0	1	1	1	1	1	6	9	2	3	1	0	0	0
Wholesale Trade	4	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Retail Trade	4	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Accommodation & Food Services	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transport, Postal & Warehousing	4	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Information Media and Telecommunications	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Financial & Insurance Services	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rental, Hiring & Real Estate Services	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Professional, Scientific & Technical Services	17	0	0	0	0	0	0	0	3	4	1	1	0	0	0	0
Administrative & Support Services	4	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Public Administration & Safety	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Education & Training	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Health Care & Social Assistance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arts & Recreation Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Services	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Direct	43	0	0	1	1	1	1	1	7	10	2	3	1	0	0	0
Indirect	84	1	1	1	1	1	1	2	13	19	4	6	2	1	0	0
Total	127	1	1	2	2	2	2	3	19	29	6	8	3	1	0	0

Source: Economic Associates estimates

Table 3.11: Contribution to Employment (FTEs), National, Construction Phase

Industry	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
Agriculture, Forestry & Fishing	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mining	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manufacturing	37	0	0	0	0	0	0	1	6	8	2	2	1	0	0	0
Electricity, Gas, Water & Waste Services	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Construction	35	0	0	0	0	0	0	1	5	8	2	2	1	0	0	0
Wholesale Trade	4	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Retail Trade	4	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Accommodation & Food Services	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transport, Postal & Warehousing	4	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Information Media and Telecommunications	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Financial & Insurance Services	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rental, Hiring & Real Estate Services	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Professional, Scientific & Technical Services	19	0	0	0	0	0	0	0	3	4	1	1	1	0	0	0
Administrative & Support Services	4	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Public Administration & Safety	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Education & Training	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Health Care & Social Assistance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arts & Recreation Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Services	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Direct	38	0	0	1	1	1	1	1	6	9	2	3	1	0	0	0
Indirect	85	1	1	1	1	1	1	2	13	19	4	6	2	1	0	0
Total	123	1	1	2	2	2	2	2	19	28	6	8	3	1	0	0

Source: Economic Associates estimates

Table 3.12: Contribution to Value Added (\$m), Central Queensland, Construction Phase

Industry	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
Agriculture, Forestry & Fishing	\$0.07	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.02	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Mining	\$5.46	\$0.04	\$0.04	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.84	\$1.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Manufacturing	\$8.96	\$0.06	\$0.06	\$0.07	\$0.07	\$0.07	\$0.07	\$0.11	\$1.37	\$2.03	\$0.25	\$0.36	\$0.15	\$0.04	\$0.02	\$0.01
Electricity, Gas, Water & Waste Services	\$2.06	\$0.01	\$0.01	\$0.12	\$0.12	\$0.12	\$0.12	\$0.18	\$0.32	\$0.47	\$0.42	\$0.60	\$0.24	\$0.06	\$0.03	\$0.01
Construction	\$20.48	\$0.14	\$0.14	\$0.03	\$0.03	\$0.03	\$0.03	\$0.04	\$3.14	\$4.64	\$0.10	\$0.14	\$0.05	\$0.01	\$0.01	\$0.00
Wholesale Trade	\$0.68	\$0.00	\$0.00	\$0.27	\$0.27	\$0.27	\$0.27	\$0.41	\$0.10	\$0.15	\$0.96	\$1.37	\$0.55	\$0.14	\$0.07	\$0.02
Retail Trade	\$0.30	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.05	\$0.07	\$0.03	\$0.05	\$0.02	\$0.00	\$0.00	\$0.00
Accommodation & Food Services	\$0.16	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.02	\$0.04	\$0.01	\$0.02	\$0.01	\$0.00	\$0.00	\$0.00
Transport, Postal & Warehousing	\$0.79	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.12	\$0.18	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Information Media and Telecommunications	\$0.04	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.02	\$0.01	\$0.01	\$0.04	\$0.05	\$0.02	\$0.01	\$0.00	\$0.00
Financial & Insurance Services	\$0.37	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.06	\$0.08	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Rental, Hiring & Real Estate Services	\$0.65	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.10	\$0.15	\$0.02	\$0.02	\$0.01	\$0.00	\$0.00	\$0.00
Professional, Scientific & Technical Services	\$2.03	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.31	\$0.46	\$0.03	\$0.04	\$0.02	\$0.00	\$0.00	\$0.00
Administrative & Support Services	\$0.39	\$0.00	\$0.00	\$0.03	\$0.03	\$0.03	\$0.03	\$0.04	\$0.06	\$0.09	\$0.09	\$0.14	\$0.05	\$0.01	\$0.01	\$0.00
Public Administration & Safety	\$0.22	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.03	\$0.05	\$0.02	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00
Education & Training	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00
Health Care & Social Assistance	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Arts & Recreation Services	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Other Services	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.05	\$0.07	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Direct	\$23.55	\$0.16	\$0.16	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$3.61	\$5.34	\$0.01	\$0.02	\$0.01	\$0.00	\$0.00	\$0.00
Indirect	\$19.43	\$0.13	\$0.13	\$0.31	\$0.31	\$0.31	\$0.31	\$0.47	\$2.98	\$4.40	\$1.10	\$1.57	\$0.63	\$0.16	\$0.08	\$0.03
Total	\$42.98	\$0.29	\$0.29	\$0.26	\$0.26	\$0.26	\$0.26	\$0.39	\$6.59	\$9.74	\$0.91	\$1.30	\$0.52	\$0.13	\$0.06	\$0.02

Source: Economic Associates estimates

Table 3.13: Contribution to Value Added (\$m), Rest of Queensland, Construction Phase

Industry	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
Agriculture, Forestry & Fishing	\$0.07	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.02	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Mining	\$0.77	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.02	\$0.12	\$0.18	\$0.04	\$0.05	\$0.02	\$0.01	\$0.00	\$0.00
Manufacturing	\$4.48	\$0.03	\$0.03	\$0.06	\$0.06	\$0.06	\$0.06	\$0.09	\$0.69	\$1.01	\$0.21	\$0.30	\$0.12	\$0.03	\$0.01	\$0.01
Electricity, Gas, Water & Waste Services	\$0.30	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.05	\$0.07	\$0.01	\$0.02	\$0.01	\$0.00	\$0.00	\$0.00
Construction	\$10.50	\$0.07	\$0.07	\$0.14	\$0.14	\$0.14	\$0.14	\$0.21	\$1.61	\$2.38	\$0.49	\$0.70	\$0.28	\$0.07	\$0.03	\$0.01
Wholesale Trade	\$0.62	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.10	\$0.14	\$0.03	\$0.04	\$0.02	\$0.00	\$0.00	\$0.00
Retail Trade	\$0.26	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.04	\$0.06	\$0.01	\$0.02	\$0.01	\$0.00	\$0.00	\$0.00
Accommodation & Food Services	\$0.11	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.02	\$0.02	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Transport, Postal & Warehousing	\$0.41	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.06	\$0.09	\$0.02	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00
Information Media and Telecommunications	\$0.08	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.02	\$0.00	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Financial & Insurance Services	\$0.40	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.06	\$0.09	\$0.02	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00
Rental, Hiring & Real Estate Services	\$0.50	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.08	\$0.11	\$0.02	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00
Professional, Scientific & Technical Services	\$2.02	\$0.01	\$0.01	\$0.03	\$0.03	\$0.03	\$0.03	\$0.04	\$0.31	\$0.46	\$0.09	\$0.13	\$0.05	\$0.01	\$0.01	\$0.00
Administrative & Support Services	\$0.52	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.08	\$0.12	\$0.02	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00
Public Administration & Safety	\$0.18	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.03	\$0.04	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Education & Training	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Health Care & Social Assistance	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Arts & Recreation Services	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Other Services	\$0.19	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.03	\$0.04	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Direct	\$10.97	\$0.07	\$0.07	\$0.15	\$0.15	\$0.15	\$0.15	\$0.22	\$1.68	\$2.49	\$0.51	\$0.73	\$0.29	\$0.07	\$0.04	\$0.01
Indirect	\$10.46	\$0.07	\$0.07	\$0.14	\$0.14	\$0.14	\$0.14	\$0.21	\$1.60	\$2.37	\$0.49	\$0.70	\$0.28	\$0.07	\$0.03	\$0.01
Total	\$21.43	\$0.14	\$0.14	\$0.29	\$0.29	\$0.29	\$0.29	\$0.43	\$3.29	\$4.86	\$1.00	\$1.43	\$0.57	\$0.14	\$0.07	\$0.03

Source: Economic Associates estimates

Table 3.14: Contribution to Value Added (\$m), National, Construction Phase

Industry	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
Agriculture, Forestry & Fishing	\$0.08	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.02	\$0.00	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Mining	\$0.72	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.11	\$0.16	\$0.03	\$0.05	\$0.02	\$0.00	\$0.00	\$0.00
Manufacturing	\$4.11	\$0.03	\$0.03	\$0.05	\$0.05	\$0.05	\$0.05	\$0.08	\$0.63	\$0.93	\$0.19	\$0.27	\$0.11	\$0.03	\$0.01	\$0.00
Electricity, Gas, Water & Waste Services	\$0.29	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.04	\$0.07	\$0.01	\$0.02	\$0.01	\$0.00	\$0.00	\$0.00
Construction	\$9.30	\$0.06	\$0.06	\$0.12	\$0.12	\$0.12	\$0.12	\$0.19	\$1.43	\$2.11	\$0.43	\$0.62	\$0.25	\$0.06	\$0.03	\$0.01
Wholesale Trade	\$0.69	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.11	\$0.16	\$0.03	\$0.05	\$0.02	\$0.00	\$0.00	\$0.00
Retail Trade	\$0.26	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01	\$0.04	\$0.06	\$0.01	\$0.02	\$0.01	\$0.00	\$0.00	\$0.00
Accommodation & Food Services	\$0.10	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.02	\$0.02	\$0.00	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Transport, Postal & Warehousing	\$0.39	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.06	\$0.09	\$0.02	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00
Information Media and Telecommunications	\$0.14	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.02	\$0.03	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Financial & Insurance Services	\$0.65	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.10	\$0.15	\$0.03	\$0.04	\$0.02	\$0.00	\$0.00	\$0.00
Rental, Hiring & Real Estate Services	\$0.45	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.07	\$0.10	\$0.02	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00
Professional, Scientific & Technical Services	\$2.22	\$0.01	\$0.01	\$0.03	\$0.03	\$0.03	\$0.03	\$0.04	\$0.34	\$0.50	\$0.10	\$0.15	\$0.06	\$0.01	\$0.01	\$0.00
Administrative & Support Services	\$0.56	\$0.00	\$0.00	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.09	\$0.13	\$0.03	\$0.04	\$0.01	\$0.00	\$0.00	\$0.00
Public Administration & Safety	\$0.19	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.03	\$0.04	\$0.01	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00
Education & Training	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Health Care & Social Assistance	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Arts & Recreation Services	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Other Services	\$0.18	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.03	\$0.04	\$0.01	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
Direct	\$9.63	\$0.06	\$0.06	\$0.13	\$0.13	\$0.13	\$0.13	\$0.19	\$1.48	\$2.18	\$0.45	\$0.64	\$0.26	\$0.06	\$0.03	\$0.01
Indirect	\$10.72	\$0.07	\$0.07	\$0.14	\$0.14	\$0.14	\$0.14	\$0.21	\$1.64	\$2.43	\$0.50	\$0.71	\$0.29	\$0.07	\$0.04	\$0.01
Total	\$20.36	\$0.14	\$0.14	\$0.27	\$0.27	\$0.27	\$0.27	\$0.41	\$3.12	\$4.61	\$0.95	\$1.36	\$0.54	\$0.14	\$0.07	\$0.02

Source: Economic Associates estimates

3.2.2 Economic Impacts of Operation

Tables 3.15 to 3.18 below provide a detailed overview of the project’s contribution to output, household income, employment and value added during the operational phase for the central Queensland region.

The project is anticipated to have an operational life of 20 years. Total impacts of the operational phase of the project are anticipated to increase steadily between years 1 and 10. The sharp increase in activity that is anticipated to occur during years 11 and 12 of the project, will result in a substantial increase in total contributions to the regional economy.

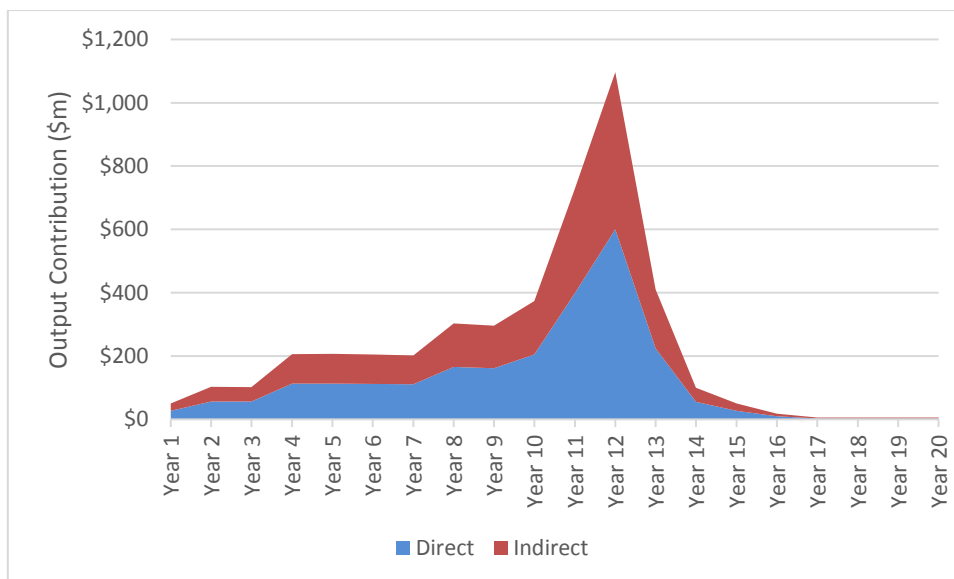
The effects that these activities will have on the state and national economy will also be measurable, though will not be discussed in this section.

Output

Output contributions are anticipated to peak in year 12 and are estimated at \$1,096.55 million, comprising \$600.25 million in direct contribution and \$496.30 million of indirect contributions as summarised in Table 3.15.

Figure 3.1 below provides an outline of the anticipated contribution that will be made to output over the life of the project.

Figure 3.1: Direct and Indirect Output Contribution (\$m), Operational Phase, Styx Coal Mine Project



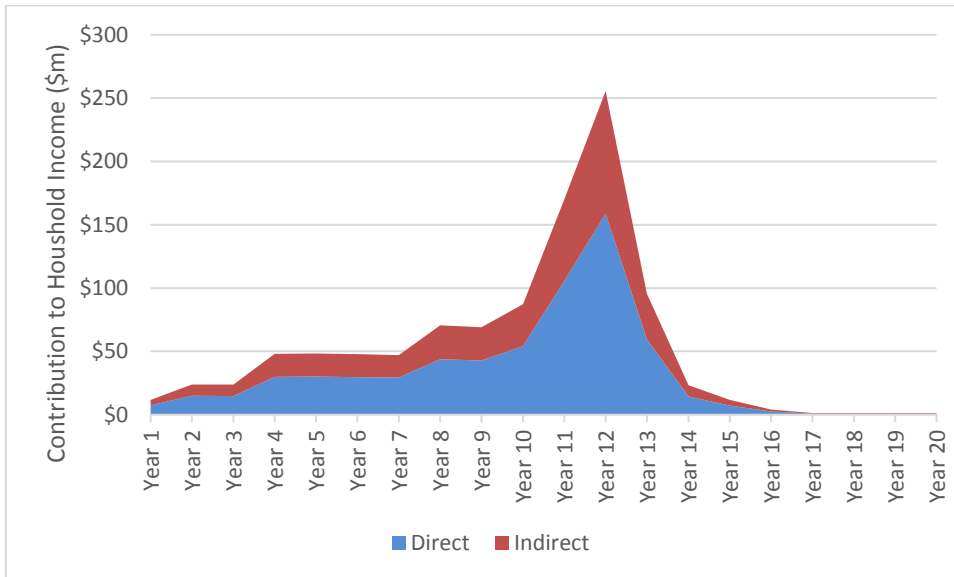
Source: Economic Associates Estimates

Household Income

Household income contributions are anticipated to peak in year 12 and are estimated at \$255.57 million, comprising \$158.86 million in direct contribution and \$96.71 million in indirect contribution as summarised in Table 3.16.

Figure 3.2 below provides an outline of the anticipated contribution that will be made to household income over the life of the project.

Figure 3.1: Direct and Indirect Contribution to Household Income (\$m), Operational Phase, Styx Coal Mine Project



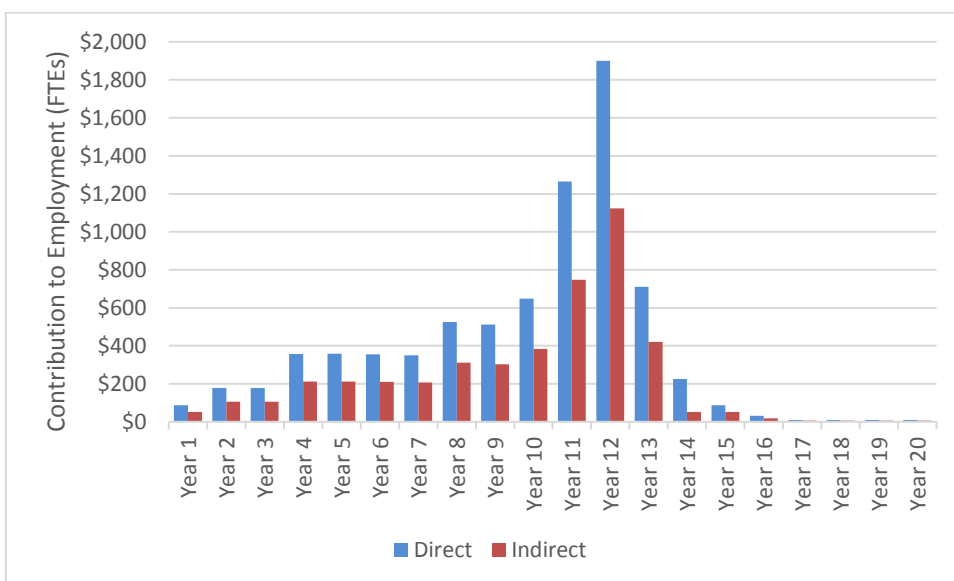
Source: Economic Associates Estimates

Employment (FTEs)

Employment contributions are also anticipated to peak in year 12, comprising a total employment contribution of 3,024 FTEs. This includes a direct contribution of 1,900 FTEs and an indirect contribution of 1,124 FTEs as summarised in Table 3.17.

Figure 3.3 below provides an outline of the anticipated contribution that will be made to employment, in terms of FTEs, over the life of the project.

Figure 3.3: Direct and Indirect Contribution to Employment (FTEs), Operational Phase, Styx Coal Mine Project



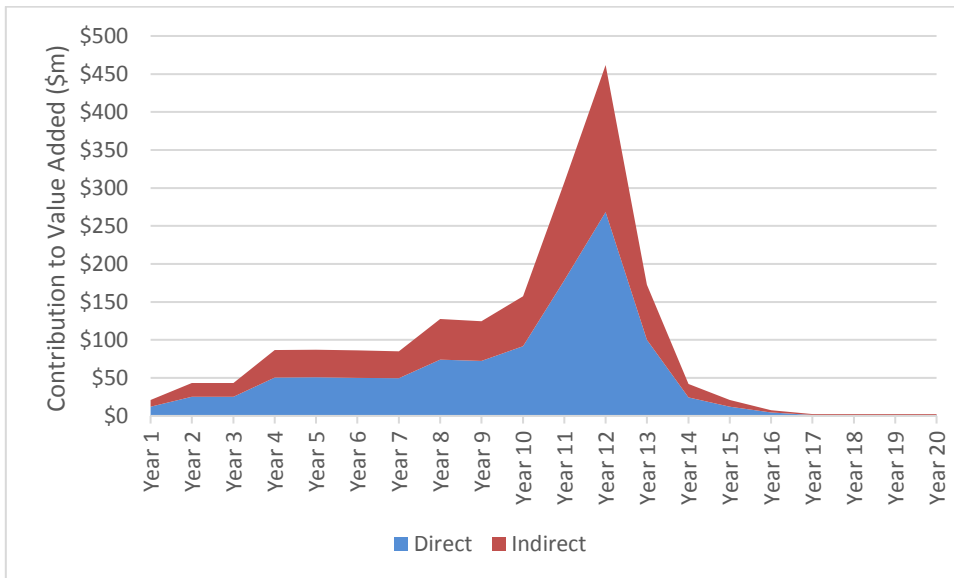
Source: Economic Associates Estimates

Value Added

Value added effects of the project are anticipated to peak in year 12, with the total contribution amounting to \$461.75 million. This includes a direct contribution of \$268.30 million and an indirect contribution of \$193.45 million as summarised in Table 3.18.

Figure 3.4 below provides an outline of the anticipated contribution that will be made to value added, or GRP, over the life of the project.

Figure 3.4: Direct and Indirect Contribution to Value Added (GRP) (\$m), Operational Phase, Styx Coal Mine Project



Source: Economic Associates Estimates

Table 3.15: Contribution to Output (\$m) by Industry Sector, Central Queensland, Operational Phase

Industry	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Agriculture, Forestry & Fishing	\$0.2	\$0.4	\$0.4	\$0.8	\$0.8	\$0.8	\$0.8	\$1.1	\$1.1	\$1.4	\$2.7	\$4.1	\$1.5	\$0.4	\$0.2	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0
Mining	\$13.5	\$27.4	\$27.4	\$55.1	\$55.4	\$54.9	\$54.0	\$81.1	\$79.1	\$100.1	\$195.3	\$293.3	\$109.7	\$26.8	\$13.3	\$4.8	\$1.5	\$1.5	\$1.5	\$1.5
Manufacturing	\$4.2	\$8.6	\$8.6	\$17.3	\$17.4	\$17.2	\$17.0	\$25.4	\$24.8	\$31.4	\$61.3	\$92.1	\$34.4	\$8.4	\$4.2	\$1.5	\$0.5	\$0.5	\$0.5	\$0.5
Electricity, Gas, Water & Waste Services	\$5.1	\$10.5	\$10.5	\$21.0	\$21.2	\$21.0	\$20.6	\$31.0	\$30.2	\$38.2	\$74.6	\$112.0	\$41.9	\$10.2	\$5.1	\$1.8	\$0.6	\$0.6	\$0.6	\$0.6
Construction	\$1.4	\$2.9	\$2.9	\$5.8	\$5.8	\$5.8	\$5.7	\$8.5	\$8.3	\$10.5	\$20.5	\$30.8	\$11.5	\$2.8	\$1.4	\$0.5	\$0.2	\$0.2	\$0.2	\$0.2
Wholesale Trade	\$13.0	\$26.5	\$26.4	\$53.2	\$53.5	\$53.0	\$52.2	\$78.3	\$76.4	\$96.7	\$188.6	\$283.3	\$105.9	\$25.9	\$12.9	\$4.6	\$1.4	\$1.4	\$1.4	\$1.4
Retail Trade	\$0.3	\$0.6	\$0.6	\$1.1	\$1.1	\$1.1	\$1.1	\$1.7	\$1.6	\$2.1	\$4.0	\$6.0	\$2.2	\$0.6	\$0.3	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0
Accommodation & Food Services	\$1.3	\$2.6	\$2.6	\$5.1	\$5.2	\$5.1	\$5.0	\$7.6	\$7.4	\$9.3	\$18.2	\$27.4	\$10.2	\$2.5	\$1.2	\$0.4	\$0.1	\$0.1	\$0.1	\$0.1
Transport, Postal & Warehousing	\$4.5	\$9.2	\$9.2	\$18.5	\$18.6	\$18.5	\$18.2	\$27.2	\$26.6	\$33.7	\$65.6	\$98.6	\$36.9	\$9.0	\$4.5	\$1.6	\$0.5	\$0.5	\$0.5	\$0.5
Information Media and Telecommunications	\$0.1	\$0.1	\$0.1	\$0.2	\$0.3	\$0.2	\$0.2	\$0.4	\$0.4	\$0.5	\$0.9	\$1.3	\$0.5	\$0.1	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Financial & Insurance Services	\$0.4	\$0.9	\$0.9	\$1.7	\$1.7	\$1.7	\$1.7	\$2.5	\$2.5	\$3.1	\$6.1	\$9.2	\$3.4	\$0.8	\$0.4	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0
Rental, Hiring & Real Estate Services	\$1.1	\$2.3	\$2.3	\$4.7	\$4.7	\$4.7	\$4.6	\$6.9	\$6.7	\$8.5	\$16.6	\$24.9	\$9.3	\$2.3	\$1.1	\$0.4	\$0.1	\$0.1	\$0.1	\$0.1
Professional, Scientific & Technical Services	\$1.4	\$2.9	\$2.9	\$5.9	\$6.0	\$5.9	\$5.8	\$8.7	\$8.5	\$10.8	\$21.0	\$31.5	\$11.8	\$2.9	\$1.4	\$0.5	\$0.2	\$0.2	\$0.2	\$0.2
Administrative & Support Services	\$0.4	\$0.8	\$0.8	\$1.7	\$1.7	\$1.6	\$1.6	\$2.4	\$2.4	\$3.0	\$5.8	\$8.8	\$3.3	\$0.8	\$0.4	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0
Public Administration & Safety	\$0.2	\$0.3	\$0.3	\$0.6	\$0.6	\$0.6	\$0.6	\$0.9	\$0.9	\$1.1	\$2.2	\$3.4	\$1.3	\$0.3	\$0.2	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0
Education & Training	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Health Care & Social Assistance	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Arts & Recreation Services	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.1	\$0.1	\$0.1	\$0.2	\$0.2	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Other Services	\$3.2	\$6.5	\$6.5	\$13.1	\$13.1	\$13.0	\$12.8	\$19.2	\$18.8	\$23.7	\$46.3	\$69.6	\$26.0	\$6.4	\$3.2	\$1.1	\$0.3	\$0.3	\$0.3	\$0.3
Direct	\$27.5	\$56.1	\$56.0	\$112.8	\$113.4	\$112.3	\$110.6	\$165.9	\$161.9	\$204.9	\$399.6	\$600.3	\$224.4	\$54.9	\$27.3	\$9.7	\$3.0	\$3.0	\$3.0	\$3.0
Indirect	\$22.8	\$46.4	\$46.3	\$93.2	\$93.8	\$92.9	\$91.4	\$137.1	\$133.8	\$169.4	\$330.4	\$496.3	\$185.5	\$45.4	\$22.6	\$8.1	\$2.5	\$2.5	\$2.5	\$2.5
Total	\$50.3	\$102.4	\$102.4	\$206.0	\$207.2	\$205.2	\$202.0	\$303.0	\$295.7	\$374.3	\$729.9	\$1,096.5	\$409.9	\$100.3	\$49.9	\$17.8	\$5.5	\$5.5	\$5.5	\$5.5

Source: Economic Associates estimates

Table 3.16: Contribution to Household Income (\$m) by Industry Sector, Central Queensland, Operational Phase

Industry	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Agriculture, Forestry & Fishing	\$0.0	\$0.0	\$0.0	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.3	\$0.4	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Mining	\$2.3	\$4.6	\$4.6	\$9.3	\$9.4	\$9.3	\$9.1	\$13.7	\$13.4	\$16.9	\$33.0	\$49.6	\$18.5	\$4.5	\$2.3	\$0.8	\$0.2	\$0.2	\$0.2	\$0.2
Manufacturing	\$0.8	\$1.7	\$1.7	\$3.4	\$3.4	\$3.4	\$3.3	\$5.0	\$4.8	\$6.1	\$11.9	\$17.9	\$6.7	\$1.6	\$0.8	\$0.3	\$0.1	\$0.1	\$0.1	\$0.1
Electricity, Gas, Water & Waste Services	\$0.6	\$1.2	\$1.2	\$2.5	\$2.5	\$2.5	\$2.5	\$3.7	\$3.6	\$4.6	\$8.9	\$13.3	\$5.0	\$1.2	\$0.6	\$0.2	\$0.1	\$0.1	\$0.1	\$0.1
Construction	\$0.2	\$0.5	\$0.5	\$1.0	\$1.0	\$1.0	\$1.0	\$1.5	\$1.5	\$1.8	\$3.6	\$5.4	\$2.0	\$0.5	\$0.2	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0
Wholesale Trade	\$4.0	\$8.2	\$8.2	\$16.4	\$16.5	\$16.4	\$16.1	\$24.2	\$23.6	\$29.9	\$58.2	\$87.5	\$32.7	\$8.0	\$4.0	\$1.4	\$0.4	\$0.4	\$0.4	\$0.4
Retail Trade	\$0.1	\$0.2	\$0.2	\$0.4	\$0.4	\$0.4	\$0.4	\$0.6	\$0.6	\$0.8	\$1.5	\$2.3	\$0.9	\$0.2	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Accommodation & Food Services	\$0.3	\$0.7	\$0.7	\$1.4	\$1.4	\$1.4	\$1.4	\$2.1	\$2.0	\$2.5	\$5.0	\$7.5	\$2.8	\$0.7	\$0.3	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0
Transport, Postal & Warehousing	\$1.2	\$2.5	\$2.5	\$5.1	\$5.1	\$5.1	\$5.0	\$7.5	\$7.3	\$9.2	\$18.0	\$27.1	\$10.1	\$2.5	\$1.2	\$0.4	\$0.1	\$0.1	\$0.1	\$0.1
Information Media and Telecommunications	\$0.0	\$0.0	\$0.0	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.2	\$0.3	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Financial & Insurance Services	\$0.1	\$0.2	\$0.2	\$0.5	\$0.5	\$0.5	\$0.4	\$0.7	\$0.7	\$0.8	\$1.6	\$2.4	\$0.9	\$0.2	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Rental, Hiring & Real Estate Services	\$0.2	\$0.4	\$0.4	\$0.9	\$0.9	\$0.9	\$0.9	\$1.3	\$1.3	\$1.6	\$3.2	\$4.7	\$1.8	\$0.4	\$0.2	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0
Professional, Scientific & Technical Services	\$0.5	\$1.0	\$1.0	\$2.0	\$2.0	\$2.0	\$1.9	\$2.9	\$2.9	\$3.6	\$7.0	\$10.6	\$4.0	\$1.0	\$0.5	\$0.2	\$0.1	\$0.1	\$0.1	\$0.1
Administrative & Support Services	\$0.2	\$0.4	\$0.4	\$0.7	\$0.7	\$0.7	\$0.7	\$1.1	\$1.0	\$1.3	\$2.6	\$3.9	\$1.4	\$0.4	\$0.2	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0
Public Administration & Safety	\$0.1	\$0.2	\$0.2	\$0.3	\$0.3	\$0.3	\$0.3	\$0.4	\$0.4	\$0.6	\$1.1	\$1.6	\$0.6	\$0.1	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Education & Training	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Health Care & Social Assistance	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Arts & Recreation Services	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Other Services	\$1.0	\$2.0	\$2.0	\$4.0	\$4.0	\$3.9	\$3.9	\$5.8	\$5.7	\$7.2	\$14.0	\$21.0	\$7.9	\$1.9	\$1.0	\$0.3	\$0.1	\$0.1	\$0.1	\$0.1
Direct	\$7.3	\$14.8	\$14.8	\$29.8	\$30.0	\$29.7	\$29.3	\$43.9	\$42.8	\$54.2	\$105.7	\$158.9	\$59.4	\$14.5	\$7.2	\$2.6	\$0.8	\$0.8	\$0.8	\$0.8
Indirect	\$4.4	\$9.0	\$9.0	\$18.2	\$18.3	\$18.1	\$17.8	\$26.7	\$26.1	\$33.0	\$64.4	\$96.7	\$36.2	\$8.8	\$4.4	\$1.6	\$0.5	\$0.5	\$0.5	\$0.5
Total	\$11.7	\$23.9	\$23.9	\$48.0	\$48.3	\$47.8	\$47.1	\$70.6	\$68.9	\$87.2	\$170.1	\$255.6	\$95.5	\$23.4	\$11.6	\$4.1	\$1.3	\$1.3	\$1.3	\$1.3

Source: Economic Associates estimates

Table 3.17: Contribution to Employment (FTEs) by Industry Sector, Central Queensland, Operational Phase

Industry	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Agriculture, Forestry & Fishing	1	1	1	3	3	3	3	4	4	5	10	14	5	1	1	0	0	0	0	0
Mining	20	40	40	81	81	80	79	118	116	146	285	429	160	39	19	7	2	2	2	2
Manufacturing	11	23	23	46	46	46	45	68	66	83	163	245	91	22	11	4	1	1	1	1
Electricity, Gas, Water & Waste Services	6	12	12	25	25	24	24	36	35	45	87	131	49	12	6	2	1	1	1	1
Construction	3	7	7	14	14	14	14	20	20	25	49	74	28	7	3	1	0	0	0	0
Wholesale Trade	39	80	80	161	162	160	158	237	231	292	570	856	320	78	39	14	4	4	4	4
Retail Trade	2	4	4	9	9	9	9	13	13	16	31	47	18	4	2	1	0	0	0	0
Accommodation & Food Services	7	14	14	28	28	28	27	41	40	50	98	148	55	14	7	2	1	1	1	1
Transport, Postal & Warehousing	14	28	28	57	58	57	56	84	82	104	203	304	114	28	14	5	2	2	2	2
Information Media and Telecommunications	0	0	0	1	1	1	1	1	1	1	2	4	1	0	0	0	0	0	0	0
Financial & Insurance Services	1	2	2	3	3	3	3	5	5	6	12	18	7	2	1	0	0	0	0	0
Rental, Hiring & Real Estate Services	2	5	5	10	10	10	9	14	14	17	34	51	19	5	2	1	0	0	0	0
Professional, Scientific & Technical Services	6	12	12	25	25	25	25	37	36	46	89	134	50	12	6	2	1	1	1	1
Administrative & Support Services	2	4	4	7	7	7	7	11	10	13	26	39	14	4	2	1	0	0	0	0
Public Administration & Safety	1	2	2	4	4	4	4	6	6	7	14	21	8	2	1	0	0	0	0	0
Education & Training	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Health Care & Social Assistance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arts & Recreation Services	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
Other Services	23	48	48	96	96	95	94	141	138	174	340	510	191	47	23	8	3	3	3	3
Direct	87	178	177	357	359	356	350	525	512	649	1,265	1,900	710	225	86	31	9	9	9	9
Indirect	52	105	105	211	212	210	207	311	303	384	748	1,124	420	52	51	18	6	6	6	6
Total	139	283	282	568	572	566	557	836	816	1,032	2,013	3,024	1,131	277	138	49	15	15	15	15

Source: Economic Associates estimates

Table 3.18: Contribution to Value Added (\$m) by Industry Sector, Central Queensland, Operational Phase

Industry	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Agriculture, Forestry & Fishing	\$0.1	\$0.2	\$0.2	\$0.4	\$0.4	\$0.4	\$0.3	\$0.5	\$0.5	\$0.6	\$1.3	\$1.9	\$0.7	\$0.2	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Mining	\$5.6	\$11.4	\$11.4	\$23.0	\$23.1	\$22.9	\$22.5	\$33.8	\$33.0	\$41.7	\$81.4	\$122.2	\$45.7	\$11.2	\$5.6	\$2.0	\$0.6	\$0.6	\$0.6	\$0.6
Manufacturing	\$1.1	\$2.3	\$2.3	\$4.7	\$4.7	\$4.7	\$4.6	\$6.9	\$6.7	\$8.5	\$16.6	\$25.0	\$9.3	\$2.3	\$1.1	\$0.4	\$0.1	\$0.1	\$0.1	\$0.1
Electricity, Gas, Water & Waste Services	\$1.8	\$3.8	\$3.8	\$7.6	\$7.6	\$7.5	\$7.4	\$11.1	\$10.8	\$13.7	\$26.8	\$40.2	\$15.0	\$3.7	\$1.8	\$0.7	\$0.2	\$0.2	\$0.2	\$0.2
Construction	\$0.4	\$0.9	\$0.9	\$1.8	\$1.8	\$1.8	\$1.8	\$2.7	\$2.6	\$3.3	\$6.5	\$9.8	\$3.6	\$0.9	\$0.4	\$0.2	\$0.0	\$0.0	\$0.0	\$0.0
Wholesale Trade	\$6.1	\$12.4	\$12.4	\$25.0	\$25.1	\$24.9	\$24.5	\$36.8	\$35.9	\$45.4	\$88.6	\$133.1	\$49.7	\$12.2	\$6.1	\$2.2	\$0.7	\$0.7	\$0.7	\$0.7
Retail Trade	\$0.2	\$0.3	\$0.3	\$0.6	\$0.6	\$0.6	\$0.6	\$0.9	\$0.9	\$1.2	\$2.3	\$3.4	\$1.3	\$0.3	\$0.2	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0
Accommodation & Food Services	\$0.6	\$1.2	\$1.2	\$2.5	\$2.5	\$2.5	\$2.5	\$3.7	\$3.6	\$4.5	\$8.9	\$13.3	\$5.0	\$1.2	\$0.6	\$0.2	\$0.1	\$0.1	\$0.1	\$0.1
Transport, Postal & Warehousing	\$2.0	\$4.0	\$4.0	\$8.1	\$8.2	\$8.1	\$8.0	\$11.9	\$11.6	\$14.7	\$28.7	\$43.2	\$16.1	\$4.0	\$2.0	\$0.7	\$0.2	\$0.2	\$0.2	\$0.2
Information Media and Telecommunications	\$0.0	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.2	\$0.2	\$0.2	\$0.5	\$0.7	\$0.3	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Financial & Insurance Services	\$0.3	\$0.6	\$0.6	\$1.1	\$1.1	\$1.1	\$1.1	\$1.7	\$1.6	\$2.1	\$4.0	\$6.0	\$2.3	\$0.6	\$0.3	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0
Rental, Hiring & Real Estate Services	\$0.5	\$1.0	\$1.0	\$2.0	\$2.0	\$1.9	\$1.9	\$2.9	\$2.8	\$3.5	\$6.9	\$10.4	\$3.9	\$0.9	\$0.5	\$0.2	\$0.1	\$0.1	\$0.1	\$0.1
Professional, Scientific & Technical Services	\$0.7	\$1.5	\$1.5	\$3.0	\$3.0	\$2.9	\$2.9	\$4.3	\$4.2	\$5.4	\$10.5	\$15.7	\$5.9	\$1.4	\$0.7	\$0.3	\$0.1	\$0.1	\$0.1	\$0.1
Administrative & Support Services	\$0.2	\$0.4	\$0.4	\$0.9	\$0.9	\$0.8	\$0.8	\$1.3	\$1.2	\$1.5	\$3.0	\$4.5	\$1.7	\$0.4	\$0.2	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0
Public Administration & Safety	\$0.1	\$0.2	\$0.2	\$0.4	\$0.4	\$0.4	\$0.3	\$0.5	\$0.5	\$0.6	\$1.3	\$1.9	\$0.7	\$0.2	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Education & Training	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Health Care & Social Assistance	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Arts & Recreation Services	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.1	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Other Services	\$1.4	\$2.8	\$2.8	\$5.7	\$5.7	\$5.7	\$5.6	\$8.4	\$8.2	\$10.4	\$20.2	\$30.4	\$11.4	\$2.8	\$1.4	\$0.5	\$0.2	\$0.2	\$0.2	\$0.2
Direct	\$12.3	\$25.1	\$25.0	\$50.4	\$50.7	\$50.2	\$49.4	\$74.1	\$72.4	\$91.6	\$178.6	\$268.3	\$100.3	\$24.5	\$12.2	\$4.4	\$1.3	\$1.3	\$1.3	\$1.3
Indirect	\$8.9	\$18.1	\$18.1	\$36.3	\$36.6	\$36.2	\$35.6	\$53.5	\$52.2	\$66.0	\$128.8	\$193.4	\$72.3	\$17.7	\$8.8	\$3.1	\$1.0	\$1.0	\$1.0	\$1.0
Total	\$21.2	\$43.1	\$43.1	\$86.8	\$87.3	\$86.4	\$85.1	\$127.6	\$124.5	\$157.6	\$307.4	\$461.8	\$172.6	\$42.2	\$21.0	\$7.5	\$2.3	\$2.3	\$2.3	\$2.3

Source: Economic Associates estimates

3.3 Value of Coal Production

The project is anticipated to produce a total of 36.93 million tonnes of semi-soft coking and high-grade thermal coal over the life of the project. Approximately 28.11 million tonnes of the production (~76%) will be semi-soft coking coal and 8.82 million tonnes will be high-grade thermal coal – anticipated to only be produced in years 9 and 10 of the project.

The exchange rate outlook for Australia is anticipated to remain, at least in the medium term, at approximately ~US\$0.76. The price of semi-soft coking coal is anticipated to decrease from its current high of US\$160 per tonne to approximately US\$125 per tonne in the short to medium term. The price of high grade thermal coal is anticipated to remain at approximately US\$95 per tonne for the medium term.

Thus, based on these anticipated prices and exchange rate, the total export value of the coal produced is estimated to be in the order of AUD\$4.41 billion of the life of the project. Assuming Queensland coal mining royalty rates remain unchanged, this will yield royalties of approximately \$525.26 million over the life of the project.

It is pertinent to note that both coal prices and exchange rates are subject to fluctuations and shocks, so these estimates are intended to be indicative only, based on the current trade environment.

Table 3.19 below outlines the anticipated production, export value and royalties generated over the life of the project.

Table 3.19: Anticipated Production, Export Value and Queensland Government Coal Mining Royalties, Styx Coal Mine

Year	Production of Saleable Coal (Tonnes)		Export Price (\$AUD/t)		Export Value (\$m AUD)			Royalties (\$m)
	HGTC	SSCC	HGTC	SSCC	HGTC	SSCC	Total	Total
1	-	417,345	\$95	\$160	-	\$66.78	\$66.78	\$9.20
2	-	849,556	\$95	\$150	-	\$127.43	\$127.43	\$17.06
3	-	849,090	\$95	\$140	-	\$118.87	\$118.87	\$15.37
4	-	1,708,639	\$95	\$130	-	\$222.12	\$222.12	\$27.57
5	-	1,718,708	\$95	\$125	-	\$214.84	\$214.84	\$26.03
6	-	1,701,616	\$95	\$125	-	\$212.70	\$212.70	\$25.77
7	-	1,675,155	\$95	\$125	-	\$209.39	\$209.39	\$25.37
8	-	2,513,081	\$95	\$125	-	\$314.14	\$314.14	\$38.06
9	2,940,000	2,452,699	\$95	\$125	\$279.3	\$306.59	\$585.89	\$37.15
10	5,880,000	3,104,035	\$95	\$125	\$558.6	\$388.00	\$946.60	\$47.01
11	-	3,113,935	\$95	\$125	-	\$389.24	\$389.24	\$76.56
12	-	3,214,700	\$95	\$125	-	\$401.84	\$401.84	\$107.49
13	-	3,399,837	\$95	\$125	-	\$424.98	\$424.98	\$51.49
14	-	832,061	\$95	\$125	-	\$104.01	\$104.01	\$12.60
15	-	413,655	\$95	\$125	-	\$51.71	\$51.71	\$6.27
16	-	147,638	\$95	\$125	-	\$18.45	\$18.45	\$2.24
17	-	-	\$95	\$125	-	-	-	-
18	-	-	\$95	\$125	-	-	-	-
19	-	-	\$95	\$125	-	-	-	-
20	-	-	\$95	\$125	-	-	-	-
Total	8,820,000	28,111,750			\$837.90	\$3,571.09	\$4,408.99	\$525.26

Source: Styx Coal, Economic Associates estimates

Note: HGTC - High Grade Thermal Coal, SSCC - Semi Soft Coking Coal

3.4 Opportunity Cost of the Project

3.4.1 Alternative Economic Use

The opportunity cost of any given project is generally defined as the next best alternative use of resources that will be foregone because of the project. Thus, in the central Queensland region, the most common economic use of land is for cattle grazing.

The production parameters for cattle grazing in the central Queensland region are typically:

- Average production cycle: ~3 years;
- Slaughter value: ~\$1,500 per head;
- Stocking rate: ~2 head per hectare; and
- Gross margin: ~15%.

The project is estimated to have a total mine lease area of approximately 3,027.74 hectares. Hence, the opportunity cost of the project is the value of the lost production of cattle grazing from the impacted area. Therefore, the opportunity cost of the project in terms of annual output foregone and annual gross margin foregone were the land utilised for cattle grazing is estimated to be approximately \$3.03 million and \$0.45 million respectively. This analysis assumes that cattle could have been grazed over the entire mine lease area.

3.4.2 Ecosystem Services Foregone

The project is likely to disrupt and adversely impact a regional ecosystem which provides a habitat for a number of species, ranging from Least Concern to Endangered. The total regional ecosystem impacted by the project is estimated to be 138.21 hectares, consisting of:

- Least concern: 35.05 ha;
- Of Concern: 102.76 ha; and
- Endangered: 0.40 ha.

There will also be 1,093.40 ha of non-remnant vegetation disturbed by the project.

Table 3.20 below provides details on the regional ecosystem which is impacted by the project.

Table 3.20: Regional Ecosystem Impacted by Styx Coal Mine Project

RE Code	VM Act Status	Description	Impacted area (ha)
11.3.4	Of Concern	Eucalyptus tereticornis woodland to open forest. Other tree species that may be present and locally dominant include E. camaldulensis, Corymbia tessellaris, E. coolabah, C. clarksoniana, E. populnea or E. brownii, E. melanophloia, E. platyphylla or Angophora floribunda. E. crebra and Lophostemon suaveolens may be locally dominant. Suitable primary feed for koalas - known to occur nearby.	7.92
11.3.25	Least Concern	Eucalyptus camaldulensis or E. tereticornis open forest to woodland. Other tree species such as Casuarina cunninghamiana, E. coolabah, Melaleuca bracteata, Melaleuca viminalis, Livistona spp. (in north), Melaleuca spp. and Angophora floribunda are commonly present and may be locally dominant. Suitable primary feed for koalas - known to occur nearby.	28.1

RE Code	VM Act Status	Description	Impacted area (ha)
11.4.2	Of Concern	Eucalyptus populnea/brownii or E. melanophloia +/- Corymbia dallachiana +/- C. tessellaris +/- E. crebra +/- E. platyphylla woodland. Squatter Pigeons species may forage in this habitat.	94.84
11.4.9	Endangered	Open forest, occasionally woodland, dominated by Acacia harpophylla usually with a low tree mid-storey of Terminalia oblongata and Eremophila mitchellii. Casuarina cristata sometimes replaces Acacia harpophylla in the overstorey and Lysiphyllum cunninghamii sometimes co-dominates. Other low tree or shrub species such as Alectryon diversifolius, Carissa ovata, Pittosporum spinescens, Ehretia membranifolia, Geijera parviflora and Flindersia dissosperma may occur in the mid-storey or low shrub layer. Ornamental Snake species may forage in this habitat.	0.4
11.10.7	Least Concern	Eucalyptus crebra and/or E. melanophloia +/- E. populnea shrubby woodland. Eucalyptus melanophloia and/or E. crebra predominate and form a distinct but open canopy. E. populnea is commonly present and may be locally dominant particularly on lower slopes. Greater Glide species known to occur nearby. Squatter Pigeons may forage in this habitat.	6.84
11.11.15a	Least Concern	Eucalyptus crebra +/- Corymbia erythrophloia +/- E. populnea +/- E. melanophloia +/- C. tessellaris +/- C. clarksoniana woodland to open woodland often with a shrubby layer. Eucalyptus exserta and E. platyphylla present in central coastal part of bioregion. Greater Glider species known to occur nearby.	0.11
-	-	Non-Remnant Vegetation	1,093.40
Total			1,231.61

Source: CDM Smith, Department of Environment, Land and Water

The loss of habitat areas can be categorised as a non-market disbenefit. Guidelines prepared by the Queensland Government set out a range of tools for estimating the value of such non-market benefits as follows:

- Methods based on market prices, for example taking the value of an externality (such as the loss of habitat areas) as equal to the cost of its prevention, its effect on economic production or its effect on loss of individual income via negative health impacts or the costs of activities necessary to avert a negative impact;
- Surrogate or proxy market methods, for example, valuing noise impacts by reference to variations in house prices (hedonic pricing), or valuing a wilderness area by inference from the costs individuals incur in travelling to it; and
- Survey-based methods which seek to obtain individuals' valuations of impacts using question and answer and related data modelling techniques. Examples include contingent valuation and choice modelling.

Each of these methods has advantages and disadvantages in terms of simplicity, reliability, cost and certainty. Contingent valuation for example is adaptable to a range of impact scenarios in terms of type and extent, but the process is expensive and the results can be subject to conjecture if respondents are unable to comprehend the impact under investigation or the nature of the questioning. Similarly, proxy methods can be expensive and may be constrained by the explanatory power of the available data (such as data reflecting variations in house prices according to environmental attributes). At the other end of the spectrum, some of the methods based on market

prices are simple and inexpensive and may be appropriate where the range of potential mitigation strategies are limited or the necessity to avoid a negative impact is not in dispute².

This study uses the ‘benefit transfer’ technique, in which valuations obtained from primary research conducted for other projects is applied to the project in question.

Environmental values for habitats affected by development can be categorised as being either:

- Use values, being those values derived from physical use of the environmental resource, including commercial activities, such as commercial fishing or tourism, and non-commercial activities, such as recreation; and
- Non-use values, which refer to:
 - Ecological function values: the value of the ecological services or functions provided by an environmental resource, such as provision of fish habitats and biodiversity;
 - Option values: the benefit derived from maintaining the right to use the resource without necessarily doing so;
 - Quasi-option values: the benefit derived from delaying a decision to develop an environmental resource to obtain better information regarding the impacts of that development on the resource;
 - Vicarious use values: the value derived by individuals in knowing that others are using the environmental resource;
 - Bequest values: the value of maintaining environmental values for the benefit of future generations; and
 - Existence values: the value derived by members of the community from the knowledge that areas of environmental value exist.

This study adopts the benefit transfer approach utilising parameters values identified in Costanza et al (1997), which estimates the ecosystem services value of forest communities at approximately \$2,100 per hectare per year and of grasslands or rangelands at approximately \$500 per hectare per year (adjusted to 2017 Australian dollars- rounded to the nearest \$100).

Based on a total impacted area of 1,093.40 hectares of directly impacted grassland and 138.21 hectares of directly impacted forestry habitat, the project is anticipated to have an adverse ecosystem service impact of \$0.84 million per annum, which would have a capitalised value of between \$13.95 million per annum and \$20.92 million per annum based on test discount rates of 6% and 4% respectively.

3.5 Assessment of Project Impacts

The project is anticipated to result in a range of beneficial impacts including:

² A contingent valuation study that places a low value on reliably potable drinking water is of little use if the law and community expectations mandate potable water. In a case such as this, the valuation of the negative impact of a project on drinking water supplies would best be taken as the cost of mitigating the impact or of taking actions to avert the impact such as using bottled water.

- Economic stimulus to the regional, state and national economies during the construction and operational phases of the project;
- Export revenues from coal produced across the life of the mine is estimated to be in the order of \$4.41 billion, which assuming royalty rates remain unchanged would yield royalties of approximately \$525.26 million over the life of the mine;
- Increased employment opportunities within central Queensland which would help to reverse the trend of increasing unemployment within the region; and
- Opportunities for suppliers in the central Queensland region to support the construction and operation of the project.

Theoretically, the project could result in a range of adverse impacts including:

- Opportunity cost of the project in terms of foregone output from cattle grazing in the order of \$3.03 million per annum which represents \$0.45 million in gross annual margin foregone;
- Loss of ecosystem services within areas directly impacted by the mine's operation with a value estimated at \$0.84 million per annum, which would have a capitalised value in the order of \$13.95 million and \$20.92 million per annum, based on directly impacted grassland and forestry habitats of 1,231.61 hectares;
- Tightening of the local and regional labour market potentially resulting in increased labour costs;
- Potential for skills shortages;
- Potential for inflationary pressure in the central Queensland housing market;
- Potential for inflationary pressure in the central Queensland commercial and industrial property markets; and
- Increased burden on central Queensland infrastructure.

The assessment of impacts utilises a risk based assessment framework based on the anticipated interaction of probability and consequence of impacts occurring. Table 3.21 below summarises the descriptors of the likelihood of a particular event occurring. Table 3.22 on the other hand summarises the descriptors of the consequence of the impact occurring.

Table 3.21: Qualitative Measure of Likelihood

Descriptor	Description
Almost certain	It is expected to occur in most circumstances
Likely	It will probably occur in most circumstances
Possible	Might occur at some time
Unlikely	Could occur but not expected
Rare	May only occur in very exceptional circumstances
Remote	Has not previously manifested but is not inconceivable

Source: Derived from Queensland Treasury (2011)

Table 3.22: Qualitative Measures of Consequence

Descriptor	Description of Beneficial Impacts	Description of Adverse Impacts
Negligible	Very insignificant impacts, which would be unlikely to be measurable against benchmarks.	Very insignificant impacts, which would be unlikely to be measurable against benchmarks.
Minor	Impacts may be detectable but result in only minimal changes to the established environment with the magnitude of impact being small relative to the broader context of the population/area being impacted. Benefits maintained over the short term without extended management and/ or works.	Impacts may be detectable but result in only minimal changes to the established environment with the magnitude of impact being small relative to the broader context of the population/area being impacted. Return to pre impact levels achievable and expected to occur over the short term once management initiatives are implemented.
Moderate	Detectable impacts, resulting in significant changes to the environment. The benefit is maintained over the medium term with minimal management and/or works.	Detectable impacts, resulting in significant changes to the environment. Management initiatives can result in recovery in the medium term.
Major	Broader and longer term impacts likely to result in a highly changed environment. The benefit is maintained over the longer term with minimal management and/or works.	Broader and longer term impacts likely to result in a highly changed environment. Long term and sustained effort required to affect a recovery.
Extraordinary	Broader and longer term impacts likely to result in a highly changed environment. The benefit is maintained over the longer term without management and/or works.	Broader and longer term impacts likely to result in a highly changed environment. Recovery to pre impact levels unlikely to occur despite mitigation and intervention.

Source: Derived from Queensland Treasury (2011)

The interaction of likelihood and consequence determine the extent of impact. Table 3.23 below outlines the matrix of interactions between different likelihoods and levels of consequence, which determine the level of impact (i.e. very low, low, medium, high, very high).

Table 3.23: Qualitative Impact Assessment Matrix

Likelihood	Consequence				
	Negligible	Minor	Moderate	Major	Extraordinary
Remote	Very Low	Very Low	Very Low	Low	Medium
Rare	Very Low	Very Low	Low	Medium	Medium
Unlikely	Very Low	Low	Low	Medium	High
Possible	Very Low	Low	Medium	High	High
Likely	Low	Medium	Medium	High	Very High
Almost certain	Low	Medium	High	Very High	Very High

Source: Derived from Queensland Treasury (2011)

Table 3.24 provides an assessment of the anticipated positive(+ve) economic impacts resulting from the project.

Table 3.24: Assessment of Positive Economic Impacts

Description of Impact	Likelihood	Consequence	Impact
Economic stimulus to the regional economy during construction and operation <ul style="list-style-type: none"> Regionally based project expenditures during the construction phase are estimated to make contributions to GRP at an average of \$4.02 million per year over years 1 to 16, including \$2.05 million of direct value added (table 3.12); and 	Almost Certain	Moderate	High (+ve)

Description of Impact	Likelihood	Consequence	Impact
<ul style="list-style-type: none"> Regionally based project expenditures during the operation phase are estimated to make contributions to GRP at an average of \$94.22 million per year over the life of the project, including \$54.74 million of direct value added (table 3.18). 			
Economic stimulus to the state economy during construction and operation <ul style="list-style-type: none"> State based project expenditures during the construction phase are estimated to make contributions to GRP at an average of \$2.17 million per year over years 1 to 16, including \$1.11 million of direct value added (table 3.13); and State based project expenditures during the operation phase are estimated to make contributions to GRP at an average of \$22.19 million per year over the life of the project, including \$13.69 million of direct value added. 	Almost certain	Minor	Low (+ve)
Economic stimulus to the national economy during construction and operation <ul style="list-style-type: none"> Project expenditures incurred interstate during the construction phase are estimated to make contributions to GRP at an average of \$2.06 million per year over years 1 to 16, including \$15.58 million of direct value added (table 3.15); and Project expenditures incurred interstate during the operation phase are estimated to make contributions to GRP of \$464.84 million over the life of the project, including \$273.72 million of direct value added. 	Almost Certain	Minor	Low (+ve)
Increased regional supply chain and employment opportunities throughout construction and operation The project is anticipated to generate additional regional supply chain activity. The volume of this activity is represented by the output measure. During the operational phase of the mine, total output impacts, pertaining to the central Queensland region, are estimated at an average of \$223.7 million per annum, including \$122.5 million in direct impacts (table 3.15). The employment support generated by this local supply chain activity is estimated at an average of 617 FTEs per annum, including 390 direct FTEs per annum (table 3.17). Operational employment on-site is estimated by Styx Coal to be approximately 500 workers at full production.	Almost certain	Moderate	High (+ve)

Table 3.25 below provides an assessment of the anticipated adverse economic impacts resulting from the project.

Table 3.25: Assessment of adverse economic impacts

Description of Impact	Likelihood	Consequence	Impact
Opportunity Cost of the Project The opportunity cost of the project in terms of alternative economic uses (ie. beef cattle) estimated in terms of forgone output is estimated to be approximately \$3.03 million, which represents an average annual gross margin of approximately \$0.45 million respectively (Section 3.4.1).	Almost Certain	Minor	Medium (-ve)
Loss of Ecosystem Services Based on a total area of 1,231.61 hectares of directly impacted forestry and grassland habitat, the project is anticipated to have adverse ecosystem service impacts of \$0.84 million per annum, which would have a capitalised value in the order of \$13.95 million and \$20.92 million per annum based on test discount rates of 6% and 4% respectively (Section 3.4.2).	Almost Certain	Minor	Medium (-ve)

Description of Impact	Likelihood	Consequence	Impact
<p>Increased inflationary pressure in regional labour markets The project is anticipated to generate a significant amount of employment demand throughout its construction and operational phases. In the event that the regional economy was facing an employment constraint this additional employment would have the potential to create inflationary pressure in the labour market. However, labour market conditions have been deteriorating at both the regional and state levels. As such, the potential for the project to materially add to wage inflation at a regional or state level is considered low.</p>	Unlikely	Minor	Low (-ve)
<p>Potential for skills shortage The project is anticipated to generate a significant amount of employment demand throughout its construction and operational phases. However, the potential impact of the project to create or contribute to a skills shortage is considered low.</p>	Unlikely	Minor	Low (-ve)
<p>Potential for inflationary pressure in local housing, commercial and industrial property markets Projects that generate significant employment and supply chain demand can have impacts on local and regional property markets in the form of inflationary pressure. It is considered that the potential impact of the project to cause significant inflationary pressure in the local property market is low.</p>	Rare	Minor	Very Low (-ve)
<p>Increased burden on local and regional infrastructure The project is likely to impact on local and regional transport infrastructure throughout its development and operation. The project will likely contribute to increased traffic volumes on the road network, as well as increased utilisation of the North Coast Railway Line for the haulage of coal to Dalrymple Bay coal terminal or coal terminals in Gladstone.</p>	Likely	Minor	Medium (-ve)

4 MITIGATION MEASURES

The project is anticipated to result in a range of adverse economic impacts, which will largely be offset by opportunities created by the project. These adverse economic impacts will likely only be experienced during the life of the project which is expected to be 20 years. Nonetheless, management of these risks are required in order to mitigate any potential negative economic consequences. These consequences could potentially entail:

- The opportunity cost of the project in terms of lost cattle grazing opportunities (although these will largely be offset by the improvement of the economic conditions and opportunities);
- Tightening of the local and regional labour market resulting in increased labour costs unless other skilled labour is promoted in the area through traineeships etc.;
- Potential short term worsening of skills shortages in the construction sector during the construction phase (although not directly the responsibility of the project, the issue will generally be apparent across the region);
- Potential localised inflation in residential, commercial and industrial property markets; and
- Increased burden on local and regional infrastructure, particularly during the construction phase.

4.1.1 Impacts Requiring Mitigation

Increased labour costs and skills shortages

As stated above, the project has the potential to increase labour costs within the region, particularly during the construction phase. To mitigate this potential impact the following actions are recommended:

- Work with Queensland government agencies, Queensland Resource Council, local government and other proponents to develop programs that assist local businesses retain workers and back fill any vacancies that may be created as a result of the project. Principally, these programs should seek to encourage locals to re-enter the workforce, upskill the unemployed or underemployed and assist local businesses to retain staff;
- Engage with Construction Skills Queensland to identify potential measures to increase the capacity of local job seekers to develop relevant skills for construction and mining; and
- Identify potential funding opportunities and training programs that local training providers can access to increase the available pool of skilled labour in the region.

Localised inflation in the housing market

The project has some potential to result in increased housing costs within its host region, particularly during the construction phase.

It is understood that the project will include accommodation facilities if required, thus the potential for inflationary pressures in the housing market will be mitigated to some degree.

Increased burden on local and regional infrastructure

The project will be providing its own electricity, sewerage treatment, water treatment (potable and contaminated sources), stormwater infrastructure and immediate site access road. The project will likely contribute to increased traffic volumes on the road network, as well as increased utilisation of the North Coast Railway Line for the haulage of coal to Dalrymple Bay coal terminal or coal terminals in Gladstone.

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