

ENVIRONMENTAL IMPACT STATEMENT

RED HILL
MINING LEASE

Section 19
Economic Assessment

Section 19 Economic Assessment

19.1 Introduction

This report provides an economic impact assessment for the Red Hill Mining Lease (the project), as well as a description of the existing local and regional economic environment that may be affected by the project.

The economic impact assessment considers the economic benefits, values and potential impact areas resulting from the construction and operational phases of the project and forms part of the environmental impact statement (EIS).

This assessment has been developed in accordance with the Coordinator-General's Terms of Reference (TOR) (section 7 Economic Impacts) issued by the Queensland Government in September 2013.

BHP Billiton Mitsubishi Alliance (BMA), through its joint venture manager, BM Alliance Coal Operations Pty Ltd, proposes to convert the mine lease application (MLA) 70421 to enable the continuation and expansion of existing mining operations associated with the Goonyella Riverside and Broadmeadow (GRB) mine complex. Specifically, the mining lease conversion will allow for:

- extension of three longwall panels (14, 15 and 16) of the existing Broadmeadow underground mine (BRM);
- future incremental expansion option of the existing Goonyella Riverside Mine (GRM); and
- future Red Hill Mine (RHM) underground expansion option located to the east of the GRM.

These three elements are collectively referred to as 'the project'.

The extension of the existing BRM into MLA70421, including the extension to the longwall, is to sustain existing production rates at GRB mine complex. The activities will be completed by the existing BRM workforce and no new infrastructure is proposed. While the potential environmental impacts associated with all three elements of the project are presented in the EIS, due to the minimal economic impacts generated by the longwall extension, only the GRM incremental expansion and RHM underground expansion options are considered in the assessment of economic impacts.

This report, therefore, describes the existing local and regional economic environment and describes the possible impacts (positive and negative) within that local and regional economic environment.

The impact assessment is based on a scenario for construction and operation of the GRM incremental expansion and RHM underground expansion option. The modelling scenario has been prepared by BMA in order to fulfil the TOR requirements and does not reflect a commitment by the project owners to proceed with the project. The project owners will undertake further assessment of the timing for commencement, the rate of development and scale of future production once the mining lease (ML) grant is finalised.

The scenario allows estimates to be provided of contributions to the state in rail freight and royalties and estimates the direct and indirect employment opportunities associated with the potential project expenditure.

At full production, the proposed GRM incremental expansion and RHM underground expansion option have the potential to produce up to 14 million tonnes per annum (mtpa) of high quality hard coking coal for the export market over a mine life of 20 to 25 years. The potential capacity of the extended complex, comprising GRB mine complex and RHM, would be approximately 32.5 mtpa.

The potential key infrastructure requirements are as follows:

- The incremental expansion of the GRM would include the following key elements:
 - underground mining associated with the RHM underground expansion option to target the GMS on ML1763;
 - a new mine industrial area (MIA);
 - a coal handling and preparation plant (CHPP) adjacent to the Riverside MIA on MLA1764 and ML1900 (the Red Hill CHPP will consist of up to three 1,200 tonne per hour modules);
 - construction of a drift for mine access;
 - a conveyor system linking RHM to the Red Hill CHPP;
 - associated coal handling infrastructure and stockpiles;
 - a new conveyor linking product coal stockpiles to a new rail load-out facility located on ML1900; and
 - means for providing flood protection to the mine access and MIA, potentially requiring a levee along the west bank of the Isaac River.
- The proposed new RHM underground expansion option would be located to the east of the GRB mine complex (to target the GMS on MLA70421). The proposed mine layout would consist of a main drive extending approximately west to east with longwall panels ranging to the north and south and includes the following key elements:
 - a network of bores and associated surface infrastructure over the underground mine footprint for mine gas pre-drainage (incidental mine gas) and management of goaf methane drainage to enable the safe extraction of coal;
 - a ventilation system for the underground workings;
 - a bridge across the Isaac River for all-weather access (this will be located above the main headings, and will also provide a crossing point for other mine related infrastructure including water pipelines and power supply);
 - a new accommodation village (Red Hill accommodation village) for the up to 100 per cent remote construction and operational workforces with capacity for up to 3,000 workers; and
 - potential production capacity of 14 mtpa of high quality hard coking coal over a life of 20 to 25 years.

The RHM underground expansion option will interface with the existing GRM in terms of water and waste management. Other synergies may also be explored where it is identified that capacity exists to optimise the use of existing infrastructure at GRB. A map of the proposed locations of key infrastructure associated with the RHM underground expansion option and existing GRB is provided in **Section 3**.

Based on the construction and operations scenario, the project has the potential to result in substantial economic impacts throughout the region, Queensland and Australia. The major economic impacts of the project include:

- significant capital investment and an increase in Queensland's gross state product (GSP) over the construction phase;
- potential peak direct employment of around 3,000 full-time workers, or an average of 653 employees, and an additional 4,200 indirect jobs in Queensland, during the overlapping construction and operations phase;
- potential for significant ongoing operating investment and an increase in Queensland's GSP over the operating life of the project;
- a potential peak of around 1,500 full-time employees, or an average of 875 employees, and an additional 1,200 indirect jobs in Queensland, during operations;
- increased local expenditure in the Moranbah township due to direct project expenditure, expenditure by project employees (where access is provided to the Moranbah township) and indirect employment growth where this results in the additional employees moving to Moranbah; and
- coal royalty payments to the Queensland Government.

There are not expected to be any direct costs to government associated with the development of the project. This includes rail, port and shipping, road, water, energy and accommodation infrastructure.

19.2 Methodology

This assessment reviews the direct economic impacts from the GRM incremental expansion and RHM underground expansion options, in conjunction with a broader qualitative review of broader indirect economic impacts. While the commencement timeframe for both options has not been determined and is subject to the owner's approval, the following project scenario has been provided by BMA for the purposes of assessing the potential peak economic impacts from the construction and operations phases.

Construction

The project scenario used for modelling potential economic impacts assumes the construction phase would commence in FY2020 pending necessary environmental, mining and owners approvals, and is expected to continue to FY2024 (including the completion of both longwalls).

The project scenario also assumes that the construction workforce will peak at 2,000 employees in 2021. Construction workers are expected to comprise an up to 100 per cent remote workforce.

Operations

The project scenario assumes the commencement of operations in FY2022 (first long wall only), with full operations (both long walls) commencing in FY2024. The operational workforce is assumed to peak at approximately 1,500 employees in 2024. During the period of overlap for the operation and construction period (between 2022 and 2024), there is expected to be a peak workforce of approximately 3,000.

Similar to the construction phase, operations workers are to be engaged as an up to 100 per cent remote workforce.

19.2.1 Baseline and Broader Economic Assessment

This section provides an overview of the EIS study area surrounding the project, and also the broader region.

19.2.1.1 Introduction

The following section provides a baseline profile of the existing demographic and economic characteristics within the areas of assessment, defined below, for the project. Drawing on a range of quantitative and qualitative information, the profile establishes a reference point from which any statistical community changes throughout the life of the proposed operations may be traced.

The baseline information will enable BMA to better predict and understand potential economic impacts of the GRM incremental expansion and RHM underground expansion option on the broader Mackay region, or changes that may occur to the existing socio-economic environment in the Isaac Local Government Area (LGA).

The baseline is based on data from a number of sources including:

- Australian Bureau of Statistics (ABS) 2011, 2006 and 2001 Census Data;
- Government Statistician, Queensland Treasury;
- Property Data Solutions; and
- other information was sourced from relevant other sources including ABS data sources and Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES).

This section defines key characteristics of the regional community through analysis of the available statistical data as well as desktop research into available infrastructure, including community and civic facilities, services and networks.

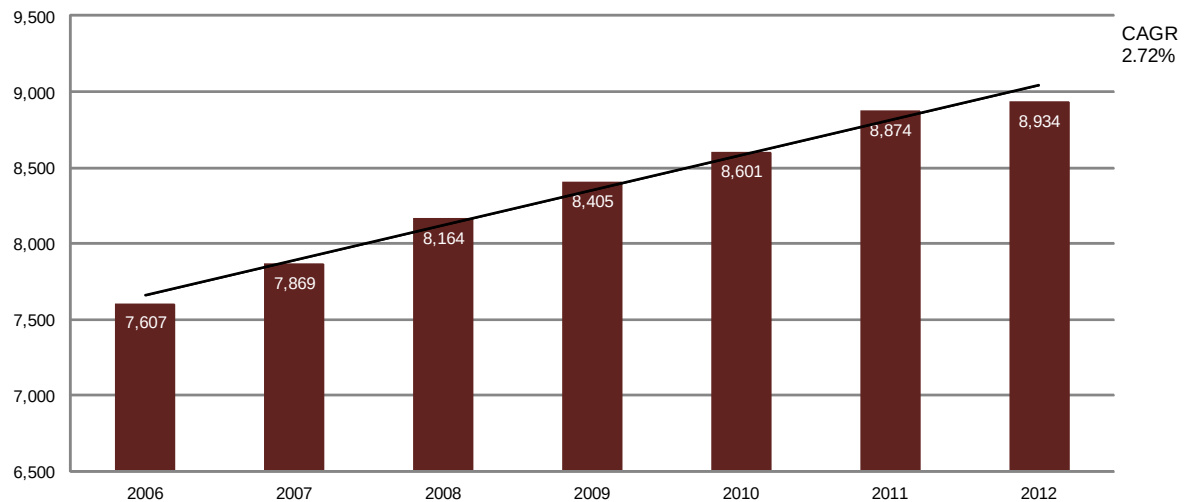
The data for this assessment was drawn from 2011 Census data, and accordingly any changes or recent developments regarding population and other demographic statistics may not be reflected. The use of more recent data has been included where possible.

19.2.1.2 Social Profile

Estimated Resident Population

The population of Moranbah (urban centre locality) was 8,934 persons in 2012, accounting for 0.2 per cent of Queensland's population. The estimated resident population for Moranbah increased from 7,607 persons in 2006 to 8,934 persons in 2012, a compound annual growth rate (CAGR) of 2.72 per cent (**Figure 19–1**). CAGR is calculated by taking the nth root of the total percentage growth rate, where n is the number of years in the period being considered. It represents a smoothed annualized gain or loss over the investment period).

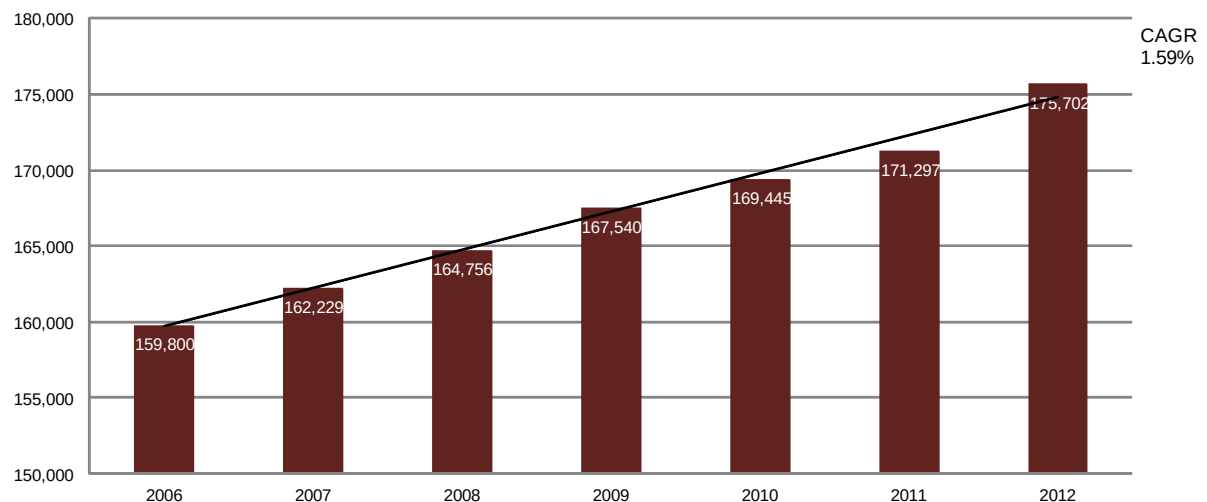
Figure 19-1 Estimated Resident Population, Moranbah, 2006 to 2012



Source: Government Statistician (2012d)

The estimated resident population for the Isaac LGA increased from 21,113 persons in 2006 to 23,688 in 2012, a CAGR of 1.94 per cent. By comparison, the CAGR for Mackay Statistical Division over the same period was slightly lower at 1.59 per cent (**Figure 19-2**).

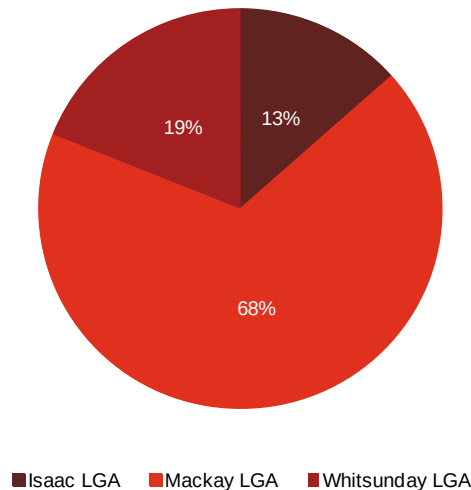
Figure 19-2 Estimated Resident Population, Mackay SD, 2006 to 2012



Source: Government Statistician (2012c).

In 2012, approximately 13 per cent of the resident population resident in Mackay SD resided within the Isaac LGA, while the Whitsunday LGA and Mackay LGA comprised of 19 and 68 per cent of the resident population respectively (**Figure 19-3**).

Figure 19-3 Mackay SD Division of Population by LGA as at 30 June 2012



Source: Government Statistician (2012c)

Full Time Equivalent Population

Table 19–1 provides a breakdown of the Full time equivalent (FTE) population estimates by residents and non-residents for 2012. The FTE population includes employees which travel to the area for work for each of the localities in the Isaac LGA but are permanent residents of a different area. Approximately 34 per cent of the FTE population in Moranbah were non-resident, while in Dysart, the population was slightly higher at 42 per cent. Coppabella recorded the highest percentage of non-resident workers (80 per cent).

Table 19-1 FTE Population Estimates, Isaac LGA, 2012

Urban centre/ locality	Resident population (estimated)	Non-resident workers on-shift	FTE population estimate	% of non-resident workers
Clermont	2,260	130	2,390	5%
Coppabella	630	2,575	3,205	80%
Dysart	3,280	2,365	5,645	42%
Glenden	1,340	535	1,875	29%
Middlemount	1,960	2,110	4,070	52%
Moranbah	8,990	4,585	13,575	34%
Nebo	495	555	1,050	53%
Rural areas	4,765	4,275	9,040	47%
Isaac Total	23,720	17,130	40,850	42%

Source: Government Statistician (2012b)

Population Projections

Table 19-2 summarises the population projections for the Isaac LGA, Mackay SD and Queensland to 2031.

The projected population of the Isaac LGA, based on medium estimates by the Government Statistician, is 34,270 persons in 2026 and 37,000 persons in 2031. This reflects a growth of 58.96 per cent between 2011 and 2031, or an average annual growth rate of 2.35 per cent per annum.

By comparison, Mackay SD and Queensland are expected to grow on average 2.22 per cent and 1.80 per cent per annum respectively between 2011 and 2031.

Table 19-2 Population Projections, 2011 to 2031 (Isaac LGA, Mackay SD and Queensland)

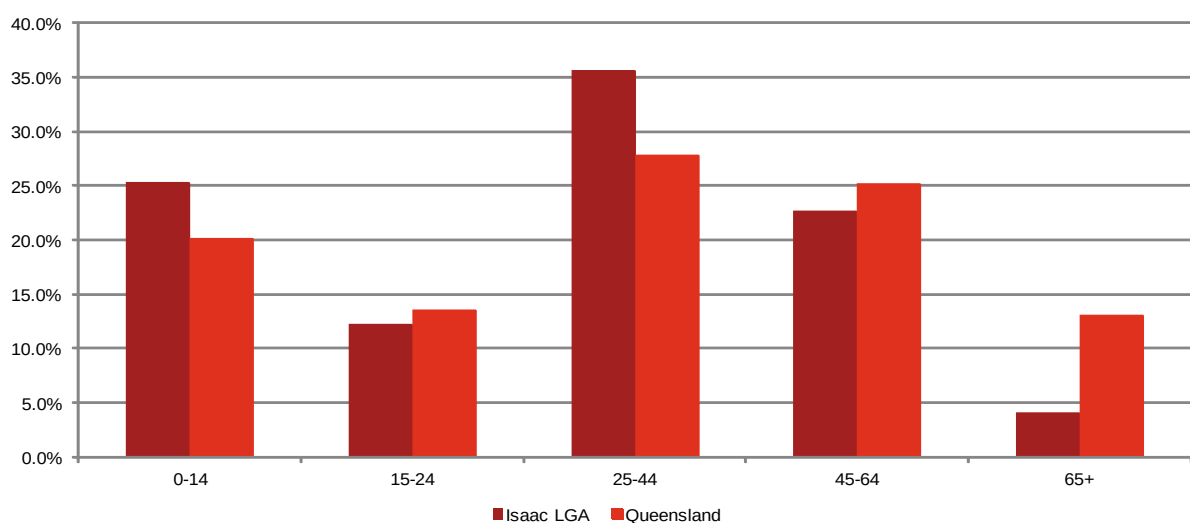
Area of assessment	2011	2016	2021	2026	2031	Average annual growth rate (2011-2031)
Isaac LGA	23,277	28,266	31,418	34,270	37,000	2.35%
Mackay SD	180,417	207,232	233,543	257,802	279,818	2.22%
Queensland	4,611,491	5,092,858	5,588,617	6,090,548	6,592,857	1.80%

Source: Government Statistician (2012e)

Age Profile

In the Isaac LGA, a greater percentage of the population falls within the 25 to 44 and 45 to 64 year age groups and a smaller percentage of the population falls within the age groups 0 to 14, 15 to 24 and 64 years and above, when compared to Queensland (**Figure 19-4**). The median age of persons in the Isaac LGA is 31 years. This is lower than the median age in Queensland (36 years).

Figure 19-4 Percentage of Population by Age Group, Isaac LGA and Queensland, 30 June 2011



Source: ABS (2011a)

19.2.1.3 Employment

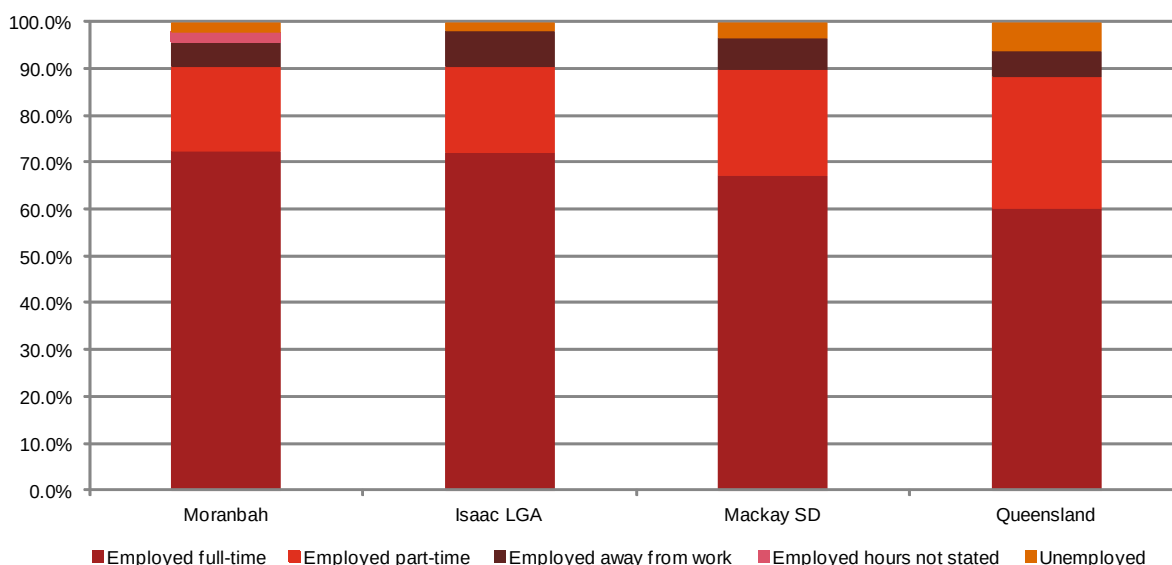
Structure of the Labour Force

In 2011, the number of full-time employees as a percentage of the total labour force in Moranbah State Suburb (SSC) was around 72.5 per cent, and around 72.1 per cent in Isaac LGA, both of which are higher than that recorded for Mackay SD and Queensland (67.3 per cent and 60.0 per cent respectively) (**Figure 19-5**).

Moranbah SSC (77.9 per cent) and the Isaac LGA (72.9 per cent) also recorded higher labour force participation when compared to Mackay SD (61.7 per cent) and Queensland (62.8 per cent).

In 2011, the overall unemployment rate for Isaac LGA (2.0 per cent) was lower than that recorded for the Mackay SD (3.6 per cent) and Queensland (6.1 per cent). Moranbah SSC recorded an unemployment rate of 2.2 per cent.

Figure 19-5 Division of Labour Force, 2011



Source: ABS (2011a)

More recent data suggests that the unemployment rate in the Isaac LGA has fallen from 2.0 per cent in 2011 to 1.1 per cent in 2012 (**Table 19-3**). This indicates a very tight labour market in the Isaac LGA, which is likely to be driven by the high levels of employment in the mining and related industries.

By comparison, the unemployment rate for the Mackay SD has increased slightly over the same period from 3.6 to 3.7 per cent and Queensland unemployment has risen slightly from 6.1 to 6.2 per cent.

Table 19-3 Unemployment Profile, December 2012

Area of assessment	Unemployed	Labour Force	Unemployment Rate	Change from 2008
Isaac LGA	156	14,065	1.11%	0.23%
Mackay LGA	2,381	67,552	3.52%	0.46%
Whitsunday LGA	1,239	20,309	6.10%	1.50%
Mackay SD	3,776	101,926	3.70%	0.64%
Queensland	153,600	2,480,400	6.19%	2.29%

Source: DEEWR (2013)

Employment by Occupation

Based on 2011 census data, the majority of workers in Moranbah (SSC) were technicians and trade workers (24.8 per cent) and machinery operators and drivers (23 per cent). This is similar to the Isaac LGA, with 20.6 per cent and 24.3 per cent of workers employed as technicians and trade workers and machinery operators and drivers respectively (**Table 19-4**).

The Mackay SD also had a high proportion of technicians and trade workers (20.5 per cent) and machinery operators and drivers (15.0 per cent), followed by professionals (12.1 per cent) and clerical and administrative workers (12.1 per cent).

By comparison, in Queensland the majority of workers were professionals (18.9 per cent), followed by technicians and trade workers (14.9 per cent) and clerical and administrative workers (14.7 per cent).

Table 19-4 Employment by Occupation, 2011

Occupation	Moranbah SSC	Isaac LGA	Mackay SD	Queensland
Managers	7.3%	11.9%	11.1%	12.0%
Professionals	12.4%	10.7%	12.1%	18.9%
Technicians & trades workers	24.8%	20.6%	20.5%	14.9%
Community & personal services workers	5.1%	4.6%	7.3%	10.0%
Clerical & administrative workers	10.2%	9.6%	12.1%	14.7%
Sales workers	5.4%	4.9%	8.2%	9.8%
Machinery operators & drivers	23.0%	24.3%	15.0%	7.3%
Labourers	10.1%	11.5%	12.0%	10.6%
Not stated	1.7%	1.8%	1.8%	1.8%

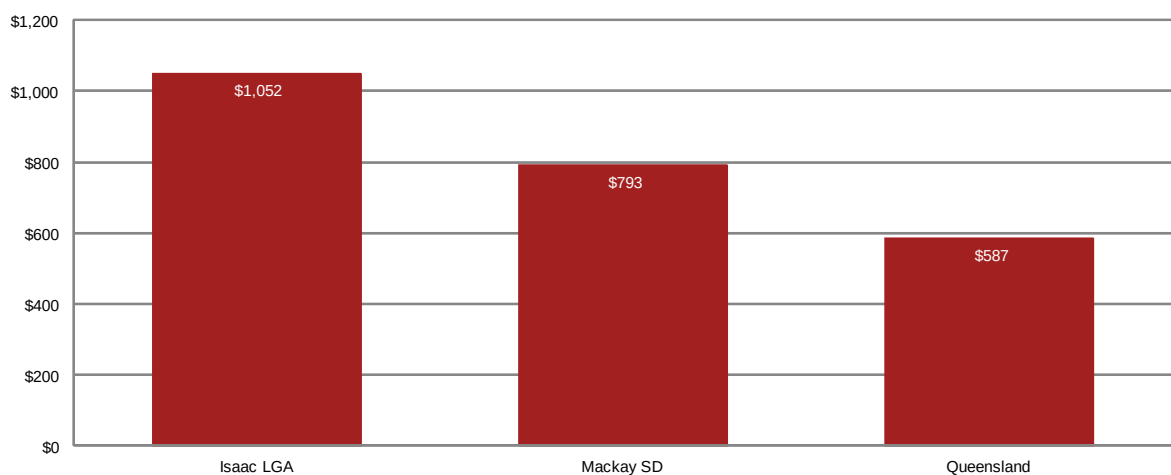
Source: ABS (2011a)

Income

The median individual weekly income for persons over the age of 15 in Isaac LGA in 2011 was \$1,052 per week. Across all SLAs in the Isaac LGA, the highest median individual weekly income was in Nebo (\$1,129 per week) and the lowest was in Broadsound (\$986 per week). However Moranbah SSC reported a median individual income of \$1,275 per week, which is likely to be driven by the substantial proportion of employment in the mining industry.

By comparison, the median individual income in Mackay SD and Queensland was \$793 and \$587 per week respectively (**Figure 19-6**).

Figure 19-6 Median Individual Income (\$/week), 2011

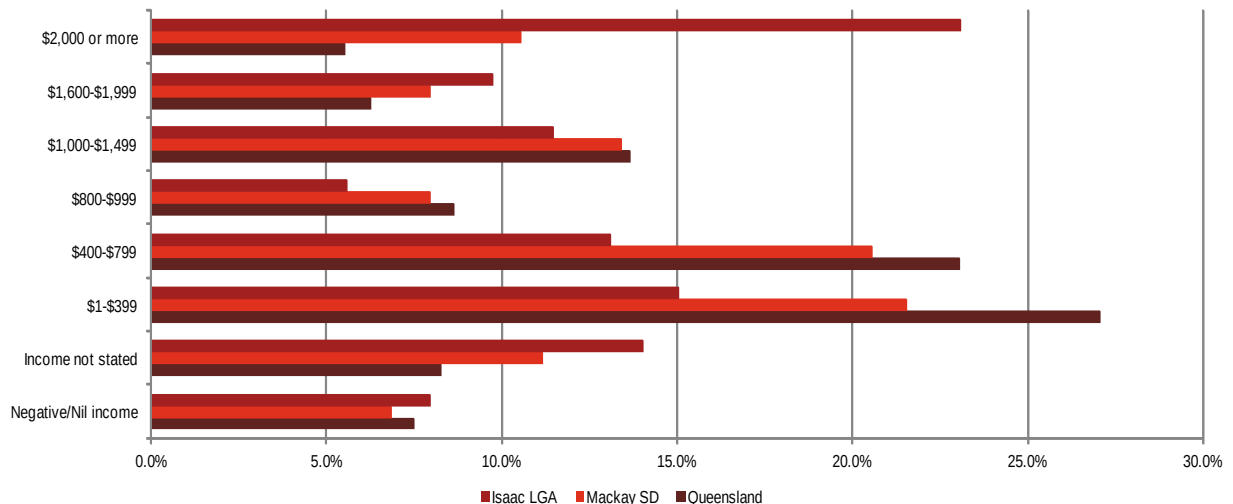


Source: ABS (2011a)

Figure 19-7 shows that a lower percentage of the working age population earns between \$0 and \$1,499 per week in the Isaac LGA, when compared to Queensland.

In the Isaac LGA, 44.3 per cent of the working age population earns an individual weekly income greater than \$1,000 and 23.1 per cent of the working population earn \$2,000 or more. This compares to 25.5 per cent of the working population earning an individual weekly income greater than \$1,000, and 5.5 per cent of the population earning \$2,000 or more recorded at the Queensland level (**Figure 19-7**).

Figure 19-7 Weekly Individual Income by Bracket, 2011



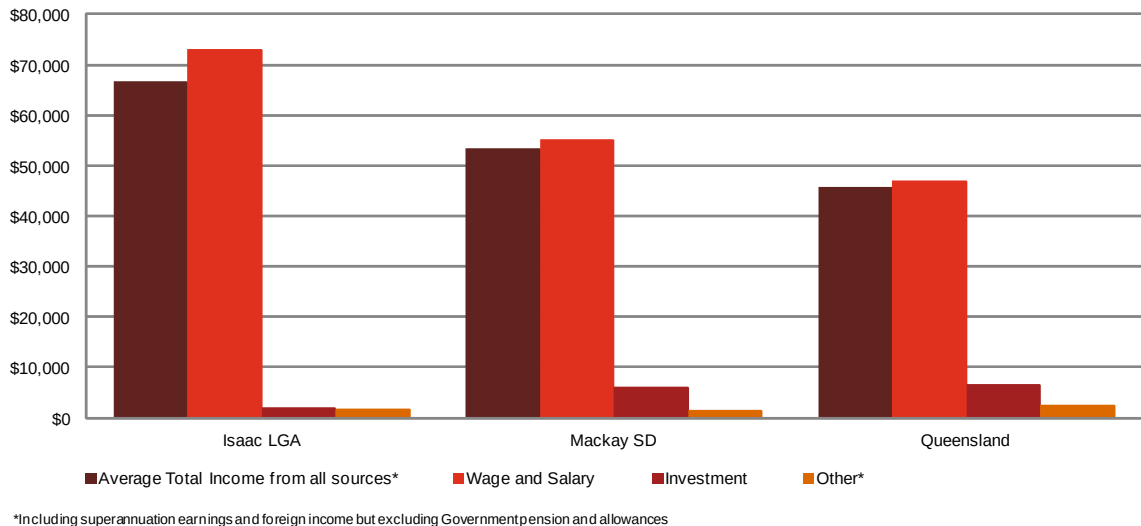
Source: ABS (2011a)

Figure 19-8 shows average annual person income for the Isaac LGA, Mackay SD and Queensland. In 2009-10 the Isaac LGA had an average wage and salary of \$73,143, which is \$26,089 above the average wage and salary for Queensland. This is likely to be attributed to the high proportion of employees in the mining and associated industries in the Mackay SD. A survey conducted in 2011 concluded that the mining industry had the highest earnings per employee at \$114,433 per annum, in comparison to the Queensland average across all industries of \$42,343 per annum (ABS 2012d). Investment and other income in the Isaac LGA are less than half the Queensland average.

The average total income from all sources in the Mackay SD was \$53,523 in 2009-10. However, in Queensland the average total income from all sources was lower at \$45,844 (total income for all sources excludes government pensions and allowances). In general the average total income in the Mackay SD was 16.8 per cent higher than the Queensland average total income.

The ABS's estimates of personal income are sourced from the Australian Taxation Office (ATO). The ABS uses the number of persons earning a wage and salary and the total amount of income disclosed in the income tax returns for wages and salaries to calculate the average wage and salary. Investment, other income and total income are also calculated in the same way. In this way, the annual average wage and salary can be higher than the average total income from all sources if there are fewer people earning a wage and salary and therefore a smaller denominator in the calculation (For example, a person may only generate income for investments or other incomes. While they will be included in the denominator for calculating average total income from all sources, they will not be included in the denominator for estimating average wage and salary).

Figure 19-8 Average annual personal income in 2009-10



Source: ABS (2011b)

19.2.1.4 Economic Profile

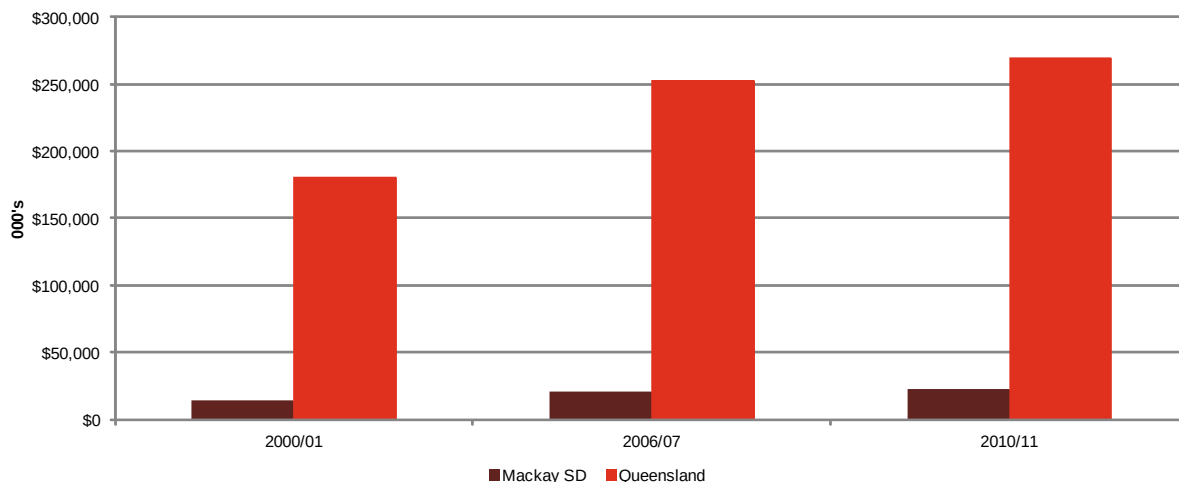
Size of Economy

Real gross domestic product (GDP) is a measure of production or output, adjusting for price movements, and can be used to represent the size of the Australian economy. Production and output measures can also be calculated at a sub-state level, with real GSP measuring output at the State level and real gross regional product (GRP) measuring output at a regional level.

Estimates of GRP examine growth in regional economies of Queensland and are indicative of the relative contributions of regions to the State's output. The real GRP for the Mackay SD in 2010-11 was \$22.8 billion (**Figure 19-9**), contributing 8.5 per cent to the total real GSP for Queensland in 2010-11.

The average annual growth in real GSP and GRP over the five years to 2010-11 was 6.8 per cent in Queensland and 8.5 per cent in Mackay SD. This indicates that the Mackay SD is expanding production at a faster rate than Queensland.

Figure 19-9 Real GRP (Mackay SD) and Real GSP (Qld), 2000-01, 2006-07 and 2010-11



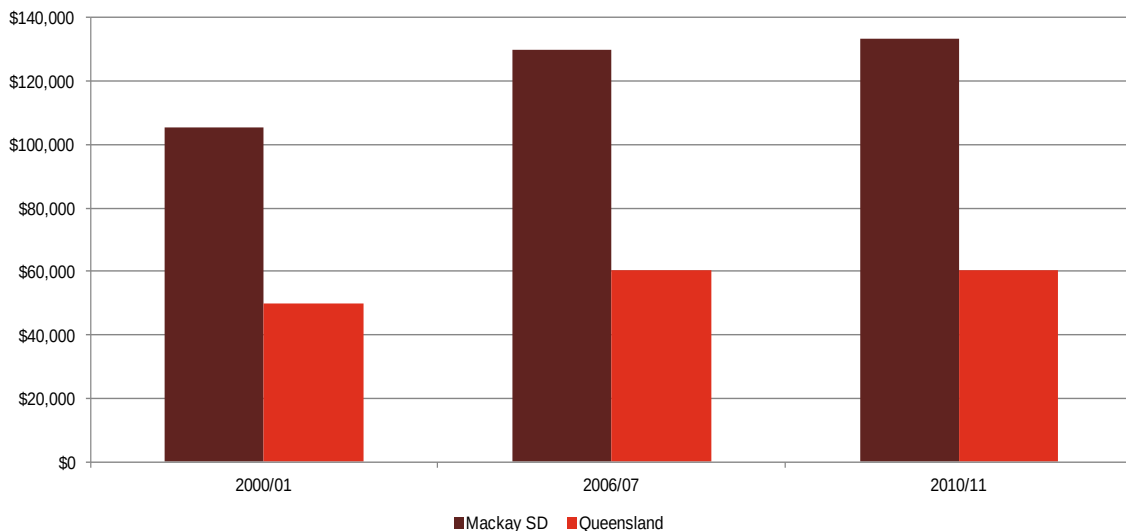
Source: Government Statistician (2013)

Changes in population can play a major role in determining changes in a region's productive capacity. It is therefore useful to consider population changes over time when comparing GRP and GSP estimates. In effect, per capita measures remove the impact of population growth as a driver of economic growth.

The real GRP per capita (this measure excludes any price movements that have occurred over the period, and therefore the estimates reflect the underlying value of output produced per capita) in Mackay SD was \$133,143 in 2010-11 (**Figure 19-10**). The average annual growth in real GRP per capita over the five years to 2010-11 in the Mackay SD (2.7 per cent) was significantly higher than the average annual decrease in real GSP per capita recorded in Queensland (-0.3 per cent).

The Mackay Isaac Whitsunday Regional Economic Development Corporation (REDC) also publishes estimates of GRP for the LGA's within Mackay SD. In 2011-12, GRP for Isaac LGA was \$11 billion. This accounted for 53.5 per cent of the total GRP for the Mackay SD (REDC 2013).

Figure 19-10 Real GRP per Capita (Mackay SD) and Real GSP per Capita (Queensland), 2000-01, 2005-06 and 2010-11



Source: Government Statistician (2013)

19.2.1.5 Structure of Economy

Key Industries

The mining industry is considered to be the significant driver of the Isaac LGA's economy, followed by construction and agriculture, forestry and fishing. **Table 19-5** outlines the key industries contributing to the economic base for each local government area in the Mackay SD.

Table 19-5 Key Industries within each LGA

LGA	Key Industries
Isaac LGA	Mining, agriculture, retail, construction and accommodation and food services
Mackay LGA	Retail trade, construction, manufacturing, mining, health care and social assistance
Whitsunday LGA	Accommodation and food services, retail, agriculture, construction and transport and warehousing services

Source: REDC (2012a)

Table 19-6 summarises the industry of employment as a percentage of total employment for Moranbah, Isaac LGA, Mackay SD and Queensland. This data does not take into account non-resident workers commuting to the region and therefore it is anticipated that the actual percentage of employment in the mining industry for the Isaac LGA is higher than that presented below.

The key industry of employment in the Isaac LGA is the mining industry, representing 42.3 per cent of total employment. Moranbah SSC has a higher proportion of employment in the mining industry at 44.2 per cent. This is significantly higher than Mackay SD (14.4 per cent) and Queensland

(2.6 per cent). The second and third largest employment industries in the Isaac LGA are agriculture, forestry and fishing and accommodation and food services, representing 8.5 and 6.4 per cent of total employment respectively.

Table 19-6 Industry of Employment as a Percentage of Total Industry

Industry	Moranbah	Isaac LGA	Mackay SD	Queensland
Mining	44.2%	39.5%	14.4%	2.6%
Agriculture, forestry and fishing	0.5%	8.5%	4.9%	2.7%
Manufacturing	3.1%	2.8%	7.9%	8.4%
Electricity, gas, water and waste services	0.7%	0.8%	0.9%	1.2%
Construction	7.0%	6.3%	9.7%	9.0%
Wholesale trade	2.8%	1.8%	3.7%	3.6%
Retail trade	6.0%	5.8%	9.6%	10.7%
Accommodation and food services	6.6%	6.4%	7.6%	7.0%
Transport, postal and warehousing	3.3%	3.7%	6.5%	5.3%
Information media and telecommunications	0.2%	0.3%	0.6%	1.2%
Financial and insurance services	0.6%	0.6%	1.2%	2.7%
Rental, hiring and real estate services	2.2%	1.4%	1.8%	1.8%
Professional, scientific and technical services	1.8%	1.6%	4.0%	6.5%
Administrative and support services	3.2%	3.0%	2.8%	3.2%
Public administration and safety	3.1%	3.2%	3.8%	6.7%
Education and training	5.4%	5.3%	5.5%	7.9%
Health care and social assistance	3.8%	3.6%	7.6%	11.9%
Arts and recreation services	0.5%	0.3%	0.5%	1.4%
Other services	2.9%	2.9%	4.7%	3.9%

Source: ABS (2011a)

Gross Value Added and Gross Regional Product

Table 19-7 summarises the industry composition of Mackay SD economy based on current price estimates of gross value added (GVA) for 2011-12.

One of the largest contributors to GVA in the Mackay SD was mining, growing from 55.8 per cent in 2005-06 to 60.9 per cent of Mackay's GVA in 2011-12. Following mining, the next largest contributor to GVA was construction (4.8 per cent) followed by manufacturing (4.4 per cent) (REDC 2013).

REDC also estimated that in 2011-12, mining contributed 90.2 per cent to Isaac LGA contribution to GRP, and represented approximately 50.3 per cent GRP for Mackay (**Table 19-7**) (REDC 2013).

Table 19-7 Gross Regional Product, Isaac LGA and Mackay SD

Industry	Isaac LGA	Mackay SD
Mining	90.2%	60.9%
Construction	2.3%	4.8%
Agriculture, forestry & fishing	1.1%	2.2%
Rental, hiring & real estate services	0.3%	1.2%
Transport, postal & warehousing	0.8%	3.8%
Retail trade	0.5%	2.8%
Accommodation & food services	0.6%	1.7%
Wholesale trade	0.6%	4.0%
Education & training	0.4%	1.9%
Manufacturing	0.7%	4.4%
Health care & social assistance	0.3%	2.5%
Public administration & safety	0.5%	1.8%
Finance & insurance	0.3%	1.7%
Professional, scientific & technical services	0.4%	2.2%
Information media & telecommunications	0.1%	0.5%
Electricity, gas & water supply	0.2%	0.8%
Arts & recreational services	0.0%	0.1%

Source: REDC (2013)

Coal and Resources Sector

Australia is a significant contributor to world seaborne-traded metallurgical coal supply, and is estimated to account for over half of total world trade in 2013 (BREE 2013). In 2013, the Bureau of Resources and Energy Economics forecast that Australian coal exports will increase by nine per cent to total 158 million tonnes. Australia's exports of metallurgical coal are expected to grow at an average annual rate of seven per cent from 2014 onwards, to reach 218 million tonnes in 2018 (BREE 2013).

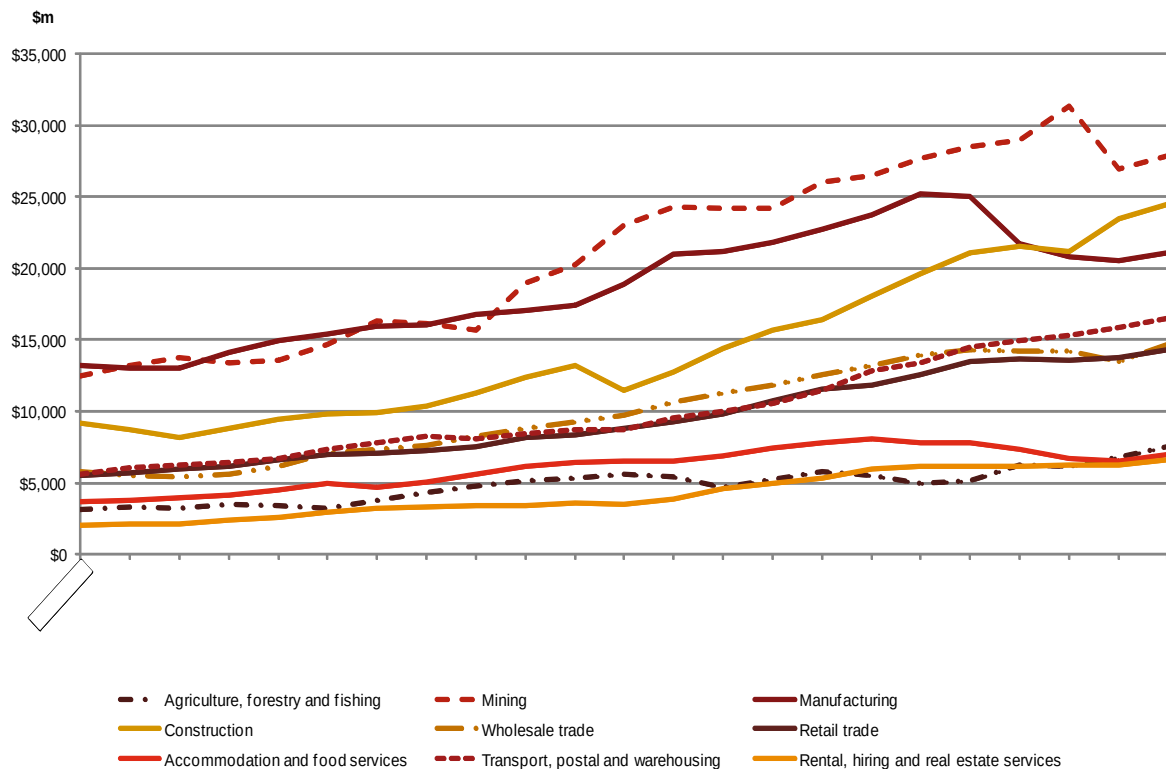
The Bowen Basin contains much of the known Permian coal resource in Queensland, including almost all of the known mineable prime coking coal. In 2003, estimates of the amount of identifiable raw coal in situ for Queensland's Bowen Basin was estimated at 20,981 million tonnes, comprising 11,193 million tonnes of coking coal and 9,788 million tonnes of thermal coal (which includes pulverised coal injection coals) (DEEDI 2003).

In 2011-12, mining contributed 90.2 per cent of the Isaac LGA's contribution to GRP, and the sector is expected to continue to make a significant contribution to the Mackay SD, Queensland and Australia (Table 19-7). Growth in the resources sector in Queensland has led to increased regional employment with direct employment in the mining sector increasing from 18,300 employees in 2002-03, to 42,500 employees in 2009-10 (Rolfe *et al* 2010). The resources sector has also been associated with higher incomes, and statistics suggest that the mining industry in Australia paid 2.1 times more per employee

than the retail trade industry, and 1.8 times more per employee than the manufacturing industry (Rolfe *et al* 2010).

The contribution of mining to Queensland's GSP has been growing since 1989-90 at a CAGR of 3.6 per cent (**Figure 19-11**). In Since 1998-99 the mining sector has consistently been the largest sector in Queensland, contributing 10.6 per cent to GSP in 2011-12.

Figure 19-11 Contribution to GSP (Selected Queensland Industries)



Source: ABS (2012a)

In 2011-12, the Queensland Government received over \$2.7 billion in royalties from mining across all commodity types (**Table 19-8**). The coal sector represented the highest contributor to State royalty revenues, representing 86.3 per cent of total royalties in 2011-12. Recent analysis into the future growth of the mining sector, including the coal industry, estimates that State royalties will more than triple (from existing levels) in the next 10 years (QRC 2011).

Table 19-8 State Royalty Revenue (\$million), by Commodity Type

Industry	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Coal	1,019.40	1,034.80	3,102.50	1,786.30	2,356.90	2,385.70
Base and precious metals	202.5	188.6	122.2	132.3	236.3	256.2
Petroleum	67	72.9	60.9	47.9	52.1	53.2
Other minerals	40	49.2	55.9	48.6	53	70.8
Total	1,328.90	1,345.50	3,341.50	2,015.10	2,698.30	2,765.90

Source: Office of State Revenue (2012)

In 2011-12, the Isaac LGA recorded the largest contribution to State royalties, compared to any other LGA in Queensland, at \$1.8 billion. The next largest proportion of royalties came from the Central Highlands LGA (\$516 million) and Cloncurry (\$118 million) (QRC 2013).

Agriculture and Farming

While the mining sector plays a significant role in the local economy of the Isaac LGA and Mackay SD, agriculture is still very important for the regional economy. In 2010-11, the total value of agricultural production in the Isaac LGA and Mackay SD was estimated to total \$302.7 million and \$890.7 million respectively.

The total value of agricultural production in Mackay SD represented 9.3 per cent of total agricultural production in Queensland, consisting of \$555.6 million from crops, \$331.7 million from livestock slaughtering and \$218.8 million from horticultural products consisting of fruit and vegetables for human consumption. By comparison, the Isaac LGA contributed 3.2 per cent of total agricultural production in Queensland (ABS 2012e).

Since 2000-01, the total value of agricultural production in Queensland has increased at a CAGR of 2.5 per cent to \$9.6 billion in 2010-11 (Government Statistician 2012a).

Construction Service and Building Inputs

The construction industry in both the Isaac LGA and Mackay SD represented the second largest contributors to GRP in 2011-12, contributing 2.3 and 4.8 per cent respectively, second only to the mining industry (REDC 2013).

According to the ABS, there are around 381 construction related businesses in the Bowen Basin North SA3. The Mackay SA4 has 12,869 construction based businesses equating to 18.1 per cent of all businesses in the Mackay SA4, as compared to the 77,805 construction businesses in Queensland as a whole (ABS 2012c).

According to 2011 Census data, 6,931 people in the Mackay SA4 were employed in construction services, which represent 14.3 per cent of the Mackay SA4's (In comparison, there were 9,723 people employed in construction services the Mackay SD, which represents 10.7 per cent of the Mackay SD's total industry employment total industry employment (ABS 2011a).

There is a strong correlation between the strength of the mining industry in the region and the growth of the construction industry, as a large portion of construction activity is linked to mining activity both directly and indirectly. The direct impacts are associated with the on-mine construction of mining infrastructure, workers accommodation, amenities, sheds and offices. The indirect demand for construction and building inputs stems from increasing infrastructure requirements such as, road upgrades (partially due to the increase in heavy vehicles carrying mining equipment), additional water treatment and related infrastructure, and the development of activity centres and transport facilities. Moreover, the construction of residential dwellings and non-residential developments to service the needs of the region's growing population, largely represented by the mining workforce, also contributes indirectly to the strength of the construction industry.

In 2011-12 there were 322 new dwellings in Isaac LGA which is an increase of 100 per cent on the previous year. The Mackay LGA saw an increase in the number of new dwellings by 59 per cent to 1,379 over the same period, while the Whitsundays LGA experienced a fall in the number of new

dwellings by 38 per cent to 76. Queensland as a whole saw a decrease of 2 per cent in the number of new dwellings from 27,265 to 26,682.

The value of total residential building in the Isaac LGA increased by over 70 per cent to reach \$66 million over the period 2010-11 to 2011-12. The value of non-residential building in the Isaac LGA decreased from \$57.6 million to \$33.1 million down 42.5 per cent) over the same period. Mackay SD experienced a decline of 22.2 and 45.9 per cent on the value of residential and non-residential buildings with the 2011-12 building values totalling \$213.6 million and \$58.7 million respectively (ABS 2012b).

According to the Mackay, Isaac and Whitsunday regional plan released on 8 February 2012, 43,300 new dwellings will be required to meet the region's expanding population by 2031, of which Mackay City will absorb two thirds of that growth, or 27,300 dwellings (DLGP 2012). This is representative of the future growth in demand expected for construction and building inputs in the region, not only for the construction of dwellings but also the associated infrastructure to be utilised by the population (inevitably requiring upgrades and/or expansions).

However, some property advisors are suggesting that with declining commodity prices for resources, and the associated fall in mining developments, it has been said that construction activity in the mining towns including Moranbah may fall going forward (Smart Property Investment 2012). However, there is limited evidence to suggest this occurring at this stage.

19.2.1.6 Businesses

Registered Businesses by Number of Employees

According to the ABS, there were approximately 2,675 registered businesses operating in the Bowen Basin SA3 in 2010-11. The majority of these businesses (93.9 per cent) were classified as small businesses (less than 20 employees) and around 6.3 per cent of businesses generated a turnover of greater than \$2 million. This is a higher percentage than the Queensland average (5.4 per cent) (**Table 19-9**) (Business level data is no longer available on an LGA level or SD level, hence SA3 and SA4 level data was used).

Table 19-9 Counts of Registered Businesses, Mackay SA4, 2010-11

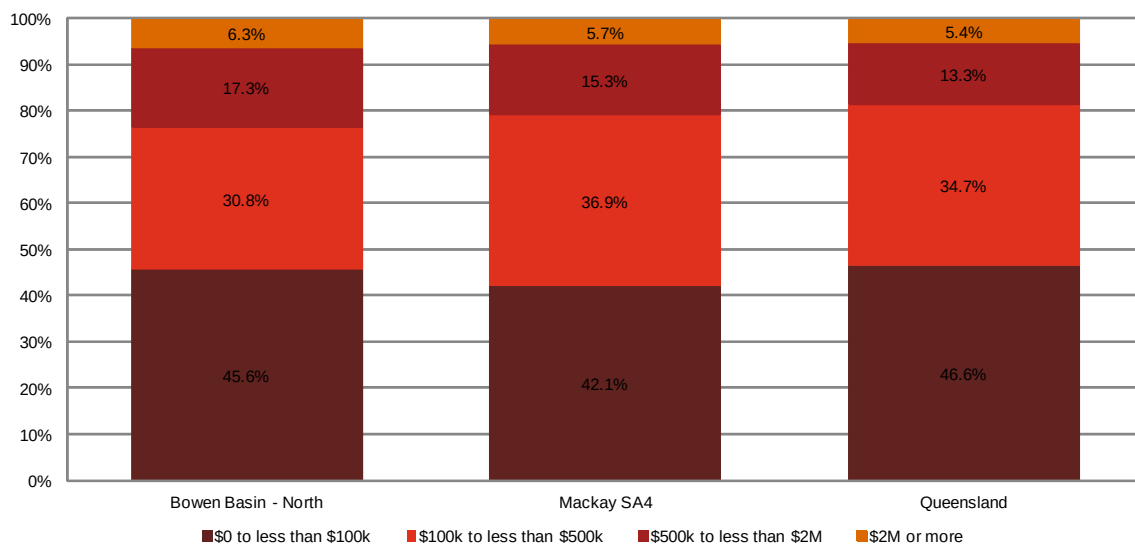
	Small	Medium	Large	Small businesses as % of total businesses	Businesses with a turnover >\$2m as a % of total businesses
	(<20 employees)	(20-100 employees)	(>100 employees)		
Bowen Basin - North	2,675	172	3	93.9%	6.3%
Mackay	9,898	536	36	94.5%	5.9%
Whitsunday	2,375	125	3	94.9%	4.2%
Mackay SA4	14,948	833	42	94.5%	5.9%
Queensland	411,935	17,310	1,161	95.7%	5.4%

Source: Government Statistician (2012g)

Registered Businesses by Turnover

In line with broader regional and State trends, the majority of businesses registered in the Bowen Basin – North SA3 recorded turnover of less than \$100,000 (45.6 per cent) (**Figure 19–12**). While the Bowen Basin – North SA3 recorded a smaller proportion of business with a turnover between \$100,000 and \$500,000, it recorded a higher proportion of registered business with a turnover of greater than \$500,000.

Figure 19-12 Registered Business by Turnover, Proportion, 2010-11



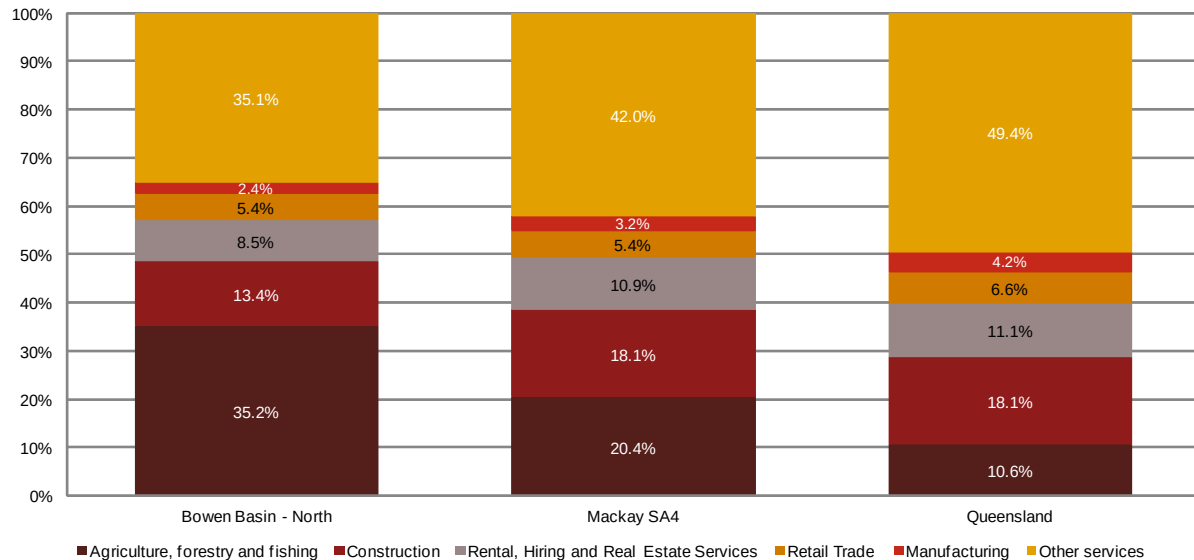
Source: Government Statistician (2012g)

Registered Businesses by Industry

Agriculture, forestry and fishing businesses made up 35.2 per cent of the businesses in the Bowen Basin – North SA3 followed by construction (13.4 per cent) and rental, hiring and real estate services (8.5 per cent). By comparison, agriculture, forestry and fishing business made up 20.4 per cent of the businesses in the Mackay SA4, followed by construction (18.1 per cent) and rental, hiring and real estate services (11.1 per cent) (**Figure 19–13**).

It is important to note that mining as industry group may be underrepresented in these statistics. The ABS collect counts of registered businesses using businesses registered with Australian Business Numbers and a type of activity unit. When businesses are registered, this is typically based on the location of their head office. Accordingly, it is not currently possible for the ABS to account for those businesses which operate out of multiple locations. This is particularly relevant for larger businesses, which commonly establish outlets in numerous states and regions across Australia. It is therefore important to note that mining operations that dominate the economic base in Bowen Basin – North may be registered for business purposes in other jurisdictions and therefore may not be captured in these statistics.

Figure 19-13 Businesses as a Percentage of Industry, 2010-11



*Other services include wholesale trade, accommodation and food services, transport, postal and warehousing, information media and telecommunications, financial and insurance services, professional, scientific and technical services, administration and support services, public administration and safety, education and training, health care and social assistance, arts and recreation services and other services.

Source: Government Statistician (2012f, 2012g)

19.2.1.7 Consumer Price Index

The Consumer Price Index (CPI) measures the quarterly changes in the price of a 'basket' of goods and services. The CPI is useful in analysing price movements in Queensland relative to other states.

The CPI in the March quarter 2013 was 102.0 for Brisbane, an increase of 2.1 per cent from the March quarter 2012 (ABS 2013a). The weighted average across the eight capital cities in Australia was 102.4, representing an annual increase of 2.9 per cent.

In March 2012, the CPI in Brisbane was equal to the weighted average CPI across all capital cities in Australia (99.9). Brisbane experienced very strong growth in the 10 years leading up to March 2012 (34.6 per cent) compared to the weighted average of all Australian capital cities (31.3 per cent). However, over the past year Brisbane has experienced a slower growth in CPI (2.1 per cent) compared to the capital city average in Australia (2.5 per cent).

Cost of Living

The Office of Economic and Statistical Research (OESR) has published an Index of Retail Prices in Queensland Regional Centres (OESR 2010b), which provides an overview of relative price differentials between some regional centres in Queensland compared to Brisbane. Overall, the study found that prices paid by Queensland households varied significantly across the state, with overall prices more expensive than the Brisbane average in three centres, being Moranbah, Blackwater and Mount Isa. The index does not provide price movement details for all centres in the Isaac LGA; however, some centres are included as detailed in **Table 19-10**.

As shown in **Table 19-10**, Moranbah was found to be the most expensive centre assessed, with prices across all items 13.9 per cent more expensive than Brisbane. In particular, the cost of housing (including rent, electricity and other household fuels) was 65.4 per cent more expensive than Brisbane (OESR 2010b). Prices for all items in Mackay and Whitsunday were also higher than Brisbane (3.2 per cent and 0.7 per cent respectively), however in Bowen prices were slightly lower (-0.1 per cent).

Partial baskets (in centres with a population of more than 3,000 persons, a partial basket of items was priced. The partial basket accounts for 45 per cent of the full basket of goods and services) of items were assessed in Dysart, Clermont and Sarina. The centre with the highest rent index was Dysart, at 77.2 per cent higher than Brisbane. The second most expensive rent was recorded in Moranbah (71.6 per cent higher than Brisbane). The cost of food, alcohol and tobacco, other groceries and fuel across Dysart was between 10 and 12 per cent higher than Brisbane.

Table 19-10 Retail prices in Queensland Regional Centres – 2010

Percentage Difference from Brisbane								
Centre	All items*	Housing*	All items less Housing*	Transport*	Food, alcohol & tobacco**	Other groceries**	Fuel**	Rent**
Bowen	-0.1	1.3	-0.5	0.5	1.1	-0.1	2.5	1.5
Clermont	n/a	n/a	n/a	n/a	8.5	6.1	4.1	-7.2
Dysart	n/a	n/a	n/a	n/a	11.1	11.3	10.3	77.2
Mackay	3.2	5.9	2.5	-0.5	6.2	5.8	3.6	6.5
Moranbah	13.9	65.4	0.1	2.6	7.6	0.8	4.7	71.6
Sarina	n/a	n/a	n/a	n/a	2.4	8.9	5.6	-3.7
Whitsunday	0.7	-0.2	0.9	-1.2	9.9	2.2	1.8	-0.2

*Full basket- a comprehensive range of goods and services purchased by Queensland households

**Partial basket- only account for 45 per cent of the full basket of goods and services

Source: OESR (2010b)

More recent data on average petrol prices shows the ULP (ULP is stated at cents per litre, inclusive of GST) for Moranbah is at 154.1 cents per litre. This is higher than the Queensland state average at 143.8 cents per litre and the Queensland regional average of 146.5 cents per litre (AIP 2013).

Overall, housing costs appear to be a key driver in differences of relative prices between certain regional centres and Brisbane. In a recent study by the Australian Housing and Urban Research Institute, it was found that the process of economic growth can have a clear and distinct impact on the nature and performance of housing markets in rural and regional centres across Australia (Beer *et al.* 2011). In particular, housing is significantly influenced by the level of demand and the capacity of individuals to afford housing. The housing markets in high-wage regions, such as mining towns, tend to be more expensive, and given that such housing markets are relatively small, such as mining towns within Queensland's Bowen Basin, these areas have limited capacity to adjust in the short-term to changes in supply and demand (Beer *et al.* 2011).

19.2.1.8 Housing and Land Market Profile

Housing Types

Table 19-11 shows that separate houses make up the largest proportion of private dwellings in Moranbah (84.5 per cent) and the Isaac LGA (88.3 per cent) in 2011; above the Queensland average (78.5 per cent). The area also has a low amount of flats, units and apartments (1.2 per cent) in Moranbah compared to areas such as the Whitsunday LGA, Mackay SD and Queensland. The lower proportion of these dwelling types reflects the historically rural and low-density nature of the area.

Table 19-11 Housing Types, 2011

Housing type	Moranbah	Isaac LGA	Mackay LGA	Whitsunday LGA	Mackay SD
Separate houses	84.5%	88.3%	85.2%	75.3%	83.6%
Semi-detached, row or terrace houses, townhouses etc.	9.7%	4.7%	5.0%	5.5%	5.0%
Flat, unit or apartments	1.2%	2.7%	7.7%	14.3%	8.4%
Other dwelling / Not stated	4.6%	4.3%	2.2%	4.8%	2.9%
Total occupied private dwellings	2,608	6,652	38,561	10,850	56,063

Source: ABS (2011a)

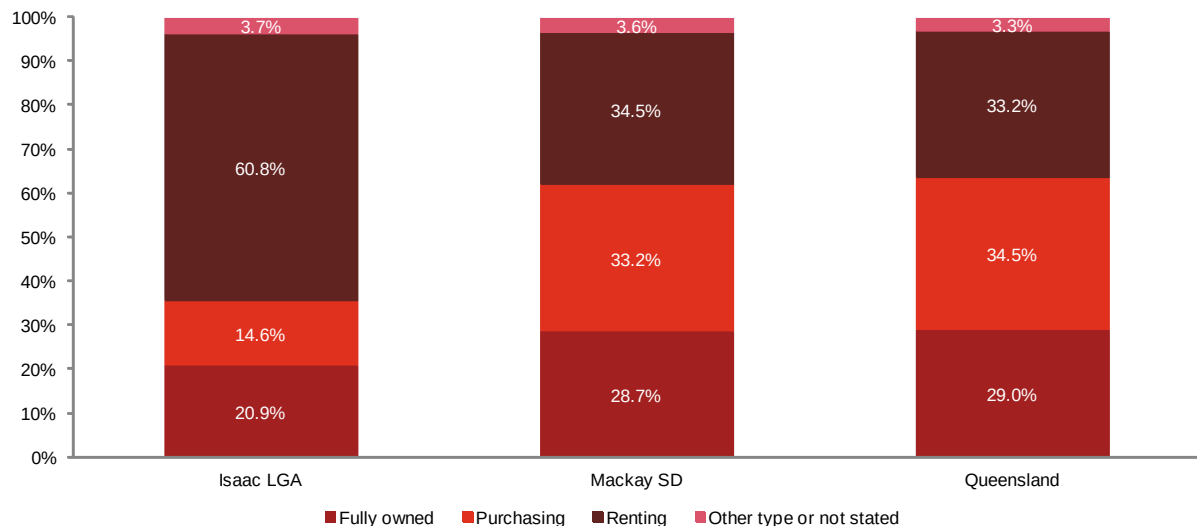
Other dwellings, which include caravans, cabins and houseboats, represented a slightly higher proportion of occupied private dwellings in Moranbah (4.6 per cent) and the Whitsunday LGA (4.8 per cent), compared to Mackay SD (2.9 per cent) and Queensland (1.3 per cent). This higher demand is likely to be driven by non-resident workers in the Mackay SD requiring suitable accommodation during their rostered stay, as well as low-income permanent residents (OESR 2010a).

Dwelling Tenure

In the Isaac LGA, the proportion of rented dwellings in 2011 is 60.8 per cent of occupied private dwellings. This is considerably higher than both the Mackay SD and Queensland (34.5 and 33.2 per cent) (**Figure 19-14**). The proportion of dwellings being purchased or fully owned is much lower in the Isaac LGA when compared to the Mackay SD and Queensland.

It is likely that this trend reflects the fact that many dwellings in the Isaac LGA are rented to mining workers as part of a rental agreement with their employer. Also, the low rate of private home ownership in the Isaac LGA could be attributed to expensive house prices and the transient nature of mining which could discourage long-term home ownership.

Figure 19-14 Tenure Type, Occupied Private Dwellings as Percentage of Total, 2011



Source: ABS (2011a)

Building Approvals

Table 19-12 details the number of new dwelling approvals for the year ended June 2012, within the Mackay SD and Queensland. Building approval statistics are used to monitor economic activity, employment and investment in a region. In particular, building approvals are an important leading economic indicator of future building activity (ABS 2012b).

Total new dwelling approvals increased in the Isaac LGA to 322 in 2011-12, representing a 100 per cent increase on the year before. In 2011-12, 49.1 per cent of new dwelling approvals were for new houses and the remainder were for new other residential buildings.

Building approvals in Belyando increased by 122 approvals, to 191 total new dwellings in 2011-12, following a 28.9 per cent drop in the year prior. Broadsound saw a 30.3 per cent growth in building approvals in with 27 new dwelling approvals in 2011-2012, up from 89 in 2010-11. In comparison, Queensland experienced a 2.1 per cent fall in the number of new dwelling approvals in 2011-12.

The Mackay LGA experienced a 59.4 per cent growth in the number of total new dwellings from 865 dwellings to 1,397 dwellings in 2010-11 to 1,379 in 2011-12. The Whitsundays LGA saw a fall of 37.7 per cent in the number of total new dwellings from 122 to 76 over the same period, while building approvals in Queensland as a whole fell by 2.1 per cent to 26,682.

Table 19-12 Building Approvals, Isaac LGA and Queensland, 2011-12

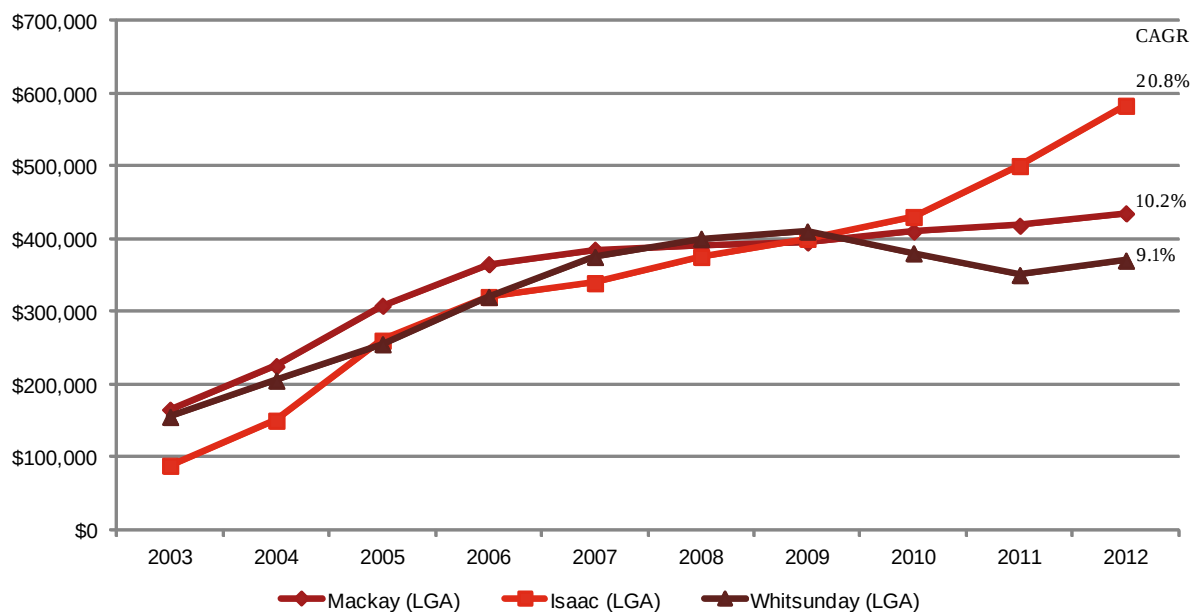
	New houses	New other residential building 2011-12	Total new dwellings	Change in new dwelling approvals from 2010-11
	2011-12		2011-12	
Belyando	29	162	191	122
Broadsound	57	59	116	27
Nebo	9	6	15	12
Isaac LGA	95	227	322	161
Mackay LGA	1198	175	1379	514
Whitsunday LGA	74	2	76	-46
Queensland	17,677	8,894	26,682	-583

Source: ABS (2012b)

House Sale Prices

Figure 19-15 shows the median sale price for a house in each LGA of the Mackay SD from 2003 to 2012. The Isaac LGA has recorded the largest increase in median house prices, from \$88,000 in 2003 to \$583,000 in 2013, representing a CAGR of 20.8 per cent. The most significant increase in house prices occurred between 2004 and 2005, with median house prices growing by \$110,000 over this period.

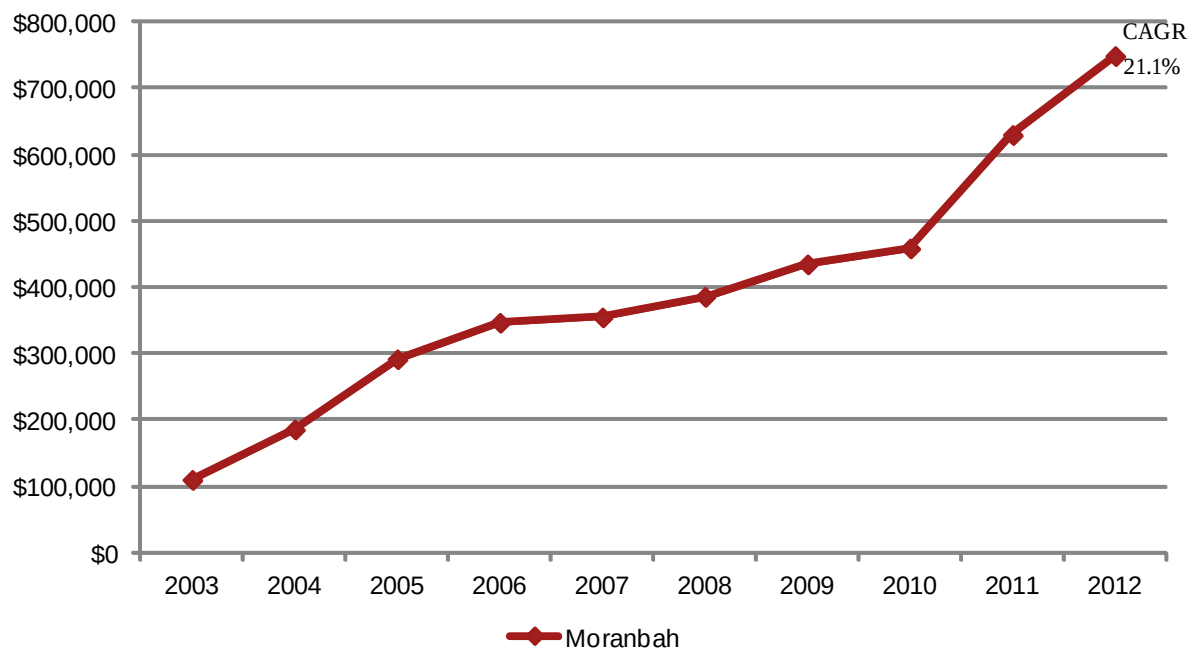
Figure 19-15 Median House Prices for the Mackay SD from 2003 to 2012



Source: Property Data Solutions (2013)

From 2003 and 2012, the median house sales price in Moranbah increased from \$110,000 to \$749,000 (**Figure 19-16**), representing a 21.1 per cent CAGR over this period.

Figure 19-16 Median House Prices in Moranbah from 2003 – 2012

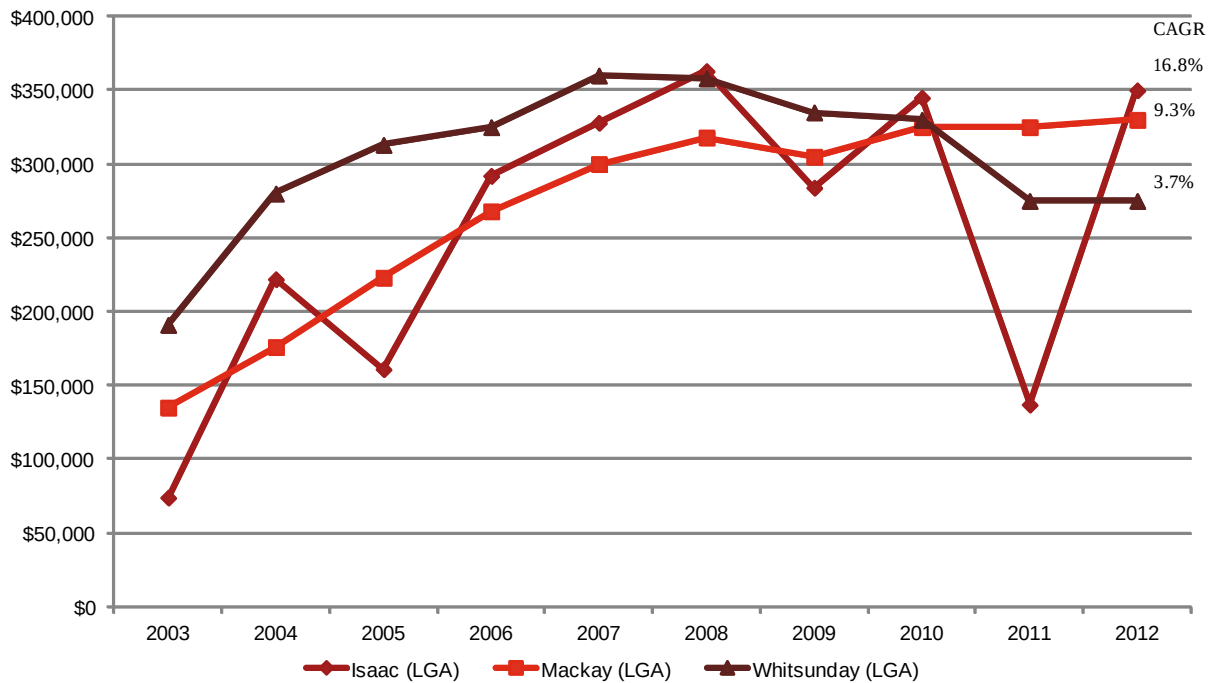


Source: Property Data Solutions (2013)

Multi-Unit Dwelling Prices

Figure 19-17 shows the median sale price for a multi-unit dwelling in each LGA of the Mackay SD from 2003 to 2012. The Isaac LGA has recorded the largest increase in median prices, from \$74,000 in 2003 to \$350,000 in 2012, representing a CAGR of 16.8 per cent. Over the past 10 years, **Figure 19-17** shows that the median multi-unit dwelling price has been more volatile when compared to median house prices.

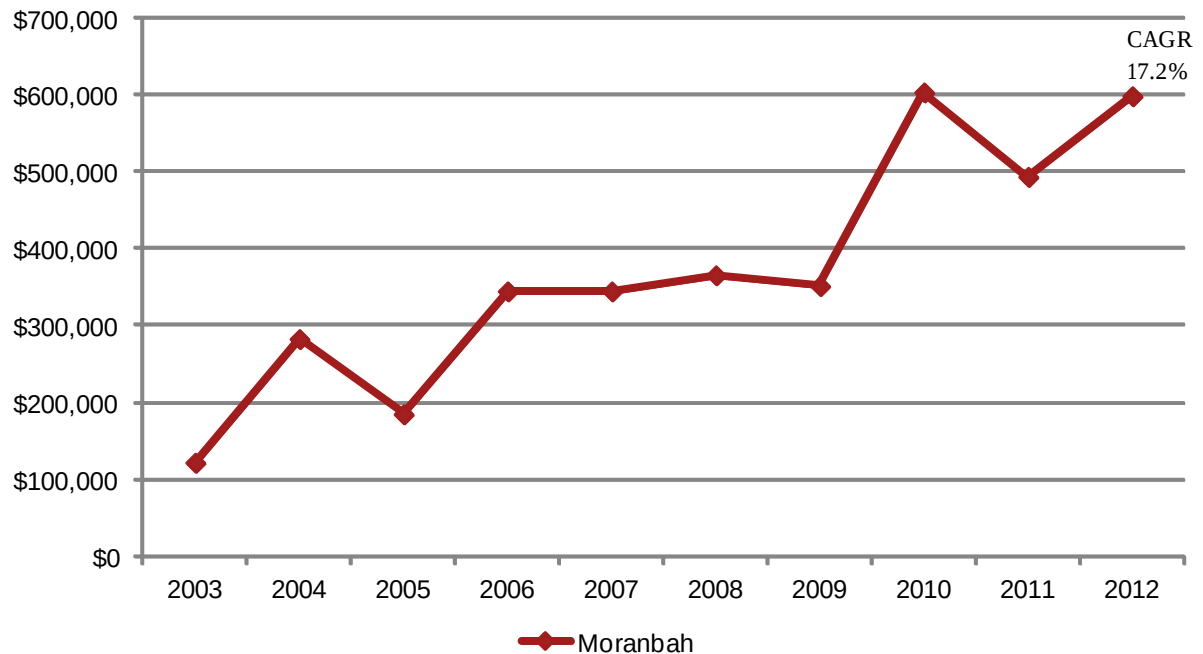
Figure 19-17 Median Price for Multi-unit Dwellings, Mackay SD, 2003 to 2012



Source: Property Data Solutions (2013)

From 2003 to 2012, the median price for multi-unit dwellings in Moranbah increased from \$122,000 to \$599,000 (**Figure 19-18**), representing a 17.2 per cent CAGR over this period. No unit sales were recorded in 2007.

Figure 19-18 Median Price for Multi-unit Dwellings, Moranbah, 2003 to 2012



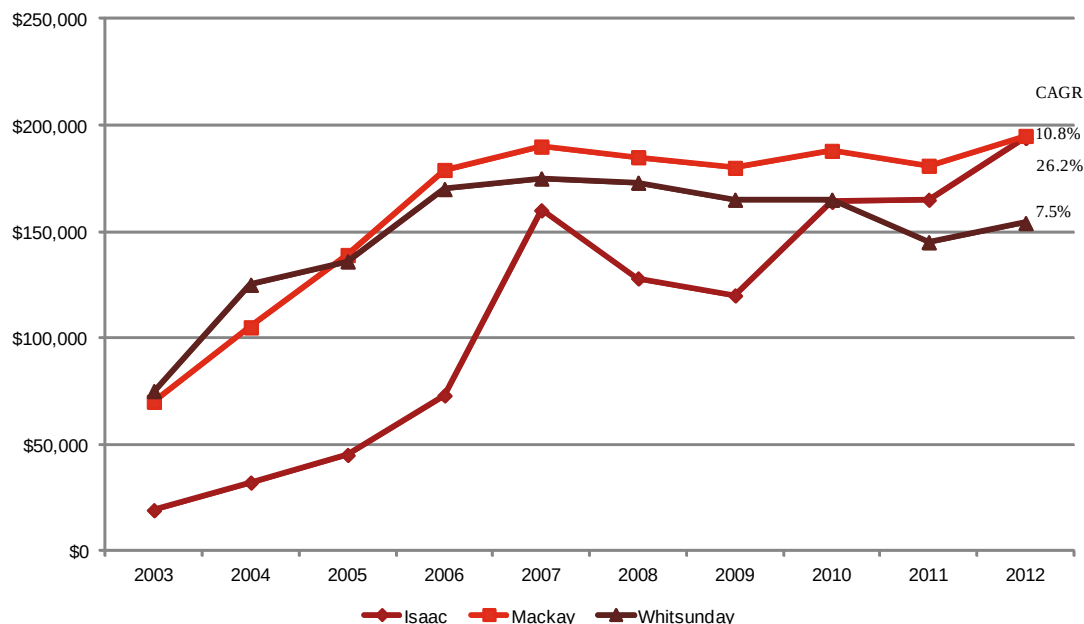
Source: Property Data Solutions (2013)

Land Prices

Land availability for residential development in Moranbah has become increasingly scarce due to rapid population growth and increased demand for land by developers and mining companies within the Mackay SD. Mining and mineral development leases to the north, east and south of the town have also placed considerable constraints on the ability of the town to expand beyond its current footprint (CQ News 2011).

Figure 19-19 shows the trend in residential land prices across the three LGAs in the Mackay SD, over the ten year period to 2012. The Isaac LGA has experienced a CAGR of 26.2 per cent, with the majority of this growth occurring in the years between 2006 and 2007. During 2008-09 and 2010-11, there was negative growth in the median sale price of vacant land, likely reflective of difficult market conditions during the global financial crisis (GFC) in 2008-09. This was followed by growth in 2012. In 2012, the Mackay LGA had the highest median sale price of vacant land (\$195,000), followed by Isaac LGA (\$194,000) and Whitsunday LGA (\$154,000).

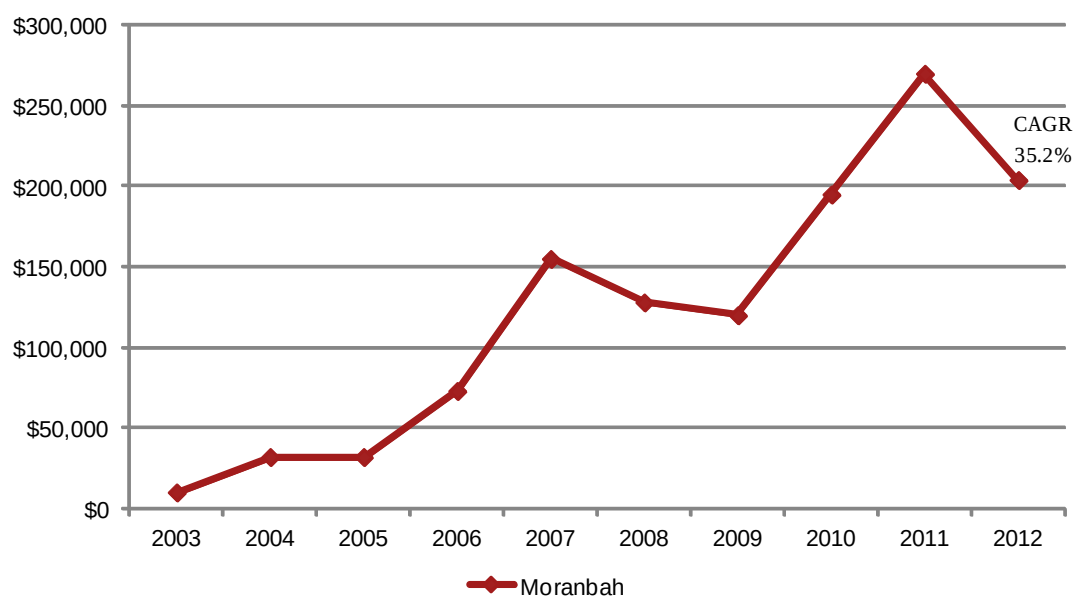
Figure 19-19 Median Sales Price of Vacant Land by LGA, 2003 to 2012



Source: Property Data Solutions (2013)

Moranbah experienced a CAGR in the median sales price of vacant land of 35.2 per cent over the 10 year period to 2012. Indicated in **Figure 19-20**, the majority of this growth occurs between 2009 and 2011, where the median sale price of land increased from \$120,000 to \$270,000. In 2012, the median sale price of land was \$204,000.

Figure 19-20 Median Sales Price of Vacant Land, Moranbah, 2003 to 2012



Source: Property Data Solutions (2013)

Rental Market

Analysis of the breakdown of median weekly rents for Moranbah and the Isaac LGA by dwelling type revealed that Moranbah had the highest median weekly rent for three bed houses and four bed houses in March 2013 (median weekly rents are based on *new* bonds lodged with the RTA in each quarter and therefore do not capture rent for existing rental properties). The median weekly rent for these dwellings was \$450 and \$650 respectively.

These rents reflect the total rent received by the property owner, rather than the amount paid by the occupier. In practice, it is likely that where the property is rented by a mine employee, the rent paid by the occupier will be a portion of the total rent, due to housing subsidies provided by mining companies, including BMA.

Large variations in rental prices can occur where there is limited rental data. Therefore some rents, including those for Moranbah, may not provide an accurate representation of the rental market overall.

Table 19-13 Median Weekly Rents in Moranbah and Isaac LGA, by Dwelling Type (\$)

Location	2 bed flat		3 bed flat		3 bed house		4 bed house	
	March 2013	% change from March 2012	March 2013	% change from March 2012	March 2013	% change from March 2012	March 2013	% change from March 2012
Moranbah	550	144%	600	-64%	450	-78%	650	-75%
Isaac LGA	550	120%	600	-40%	425	-75%	550	-73%

Source: RTA (2013)

The rental market in Moranbah and the Isaac LGA has softened in the 12 months leading to March 2013. This reflects an easing in demand for rental properties associated with closure of some mines, an increasing number of fly-in-fly-out workers and a decline in the number of new mining projects in the region (Smart Property Investment 2013). While two bed flats in Moranbah have experienced highly fluctuating median weekly rental prices for the March quarter ranging from \$700 in 2011, \$250 in 2012, and \$550 in 2013, it is important to note there were very few bonds lodged over this period.

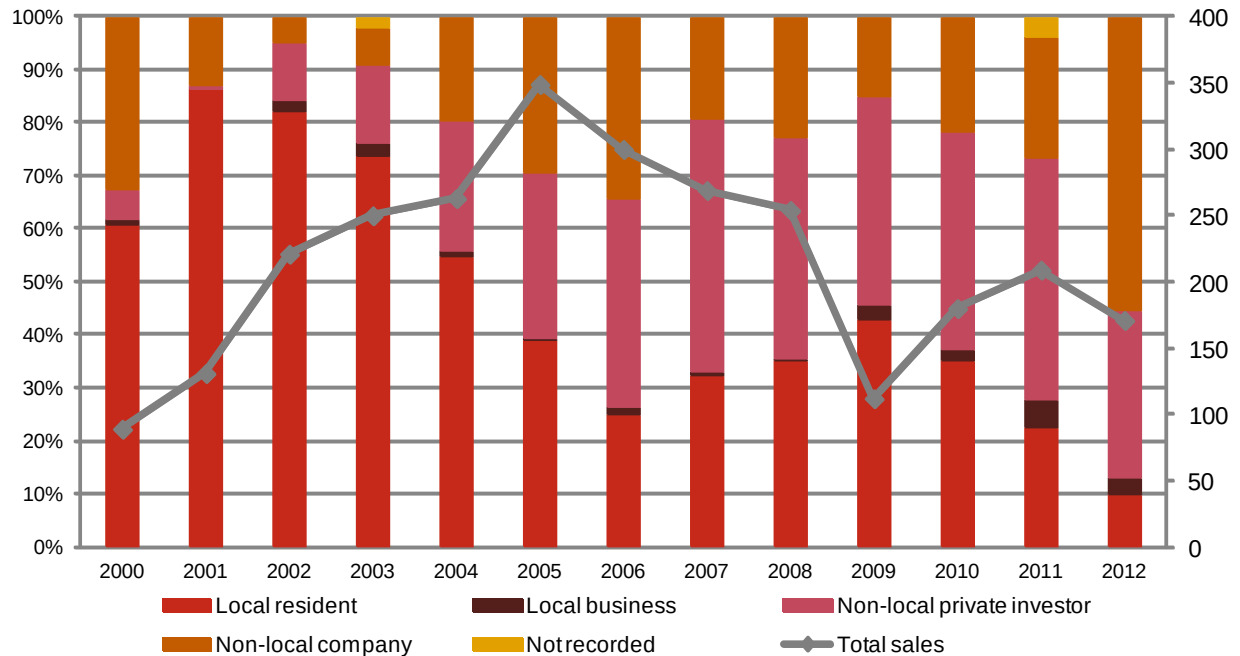
For example, in the township of Moranbah, median rent levels fell significantly from a median rent of \$2,600 for a four bedroom house in March 2012, to a median rent of \$650 for the same type of dwelling in March 2013.

Purchaser Categories in the Local Housing Market

Over the last 10 years there has been a shift in the category of purchaser acquiring stock in the Mackay SD, with the emergence of corporate purchasers, private investors and speculative developers entering the market.

Figure 19–21 reflects the percentage of annual sales of detached residential dwellings attributable to each category of purchaser in Moranbah, over the period from 2000 to 2012 (this analysis is based on categorisation of transaction level data by purchaser name and registered address).

Figure 19-21 Detached Dwelling Sold, by Category of Purchase, 2000 to 2012



Source: Property Data Solutions (2013)

Figure 19-21 shows the total number of sales saw steady growth from 89 sales in 2000 to 349 sales in 2005. In 2009 total sales dropped to 112, since then the market has recovered somewhat and 171 sales of detached dwellings were recorded in 2012.

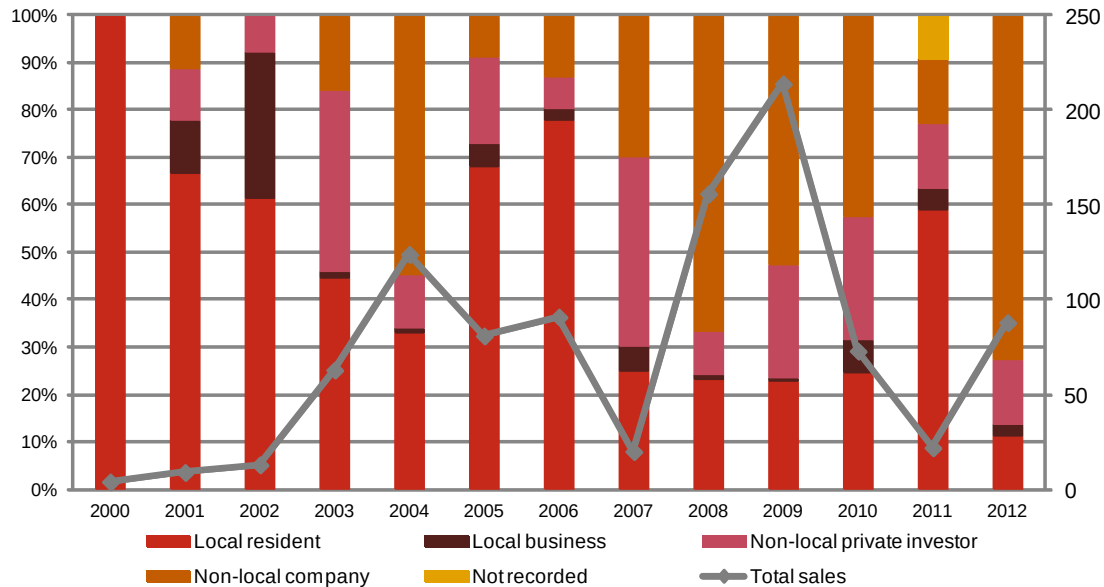
The level of activity from local purchasers decreased significantly across the period from 2000 to 2012. Total of all sales recorded to local residents and businesses fell from a high of 86 per cent of sales in 2001 to a low of 10 per cent of sales in 2012.

By comparison, the level of detached dwellings acquired by both corporate purchasers and private investors increased over this time. Between 2005 and 2011, corporate purchases accounted for more than 50 per cent of all sales recorded. In 2012, over 87 per cent of detached dwelling sold were acquired by non-local private or business investors.

There was a slight change in purchasing trends in 2009, with the proportion of detached dwellings purchased by local buyers increasing as a proportion of total sales to over 42 per cent. However, this trend has not continued.

In the residential land market, the level of local investment was more variable over the period from 2000 to 2011 compared to sales in detached dwellings (**Figure 19-22**).

Figure 19-22 Vacant Land Sold, by Category of Purchase, 2000 to 2012



Source: Property Data Solutions (2013)

As is shown in **Figure 19-22**, the level of local investment decreased significantly from 2000 through to 2004, falling from 100 to 33 per cent of all sales recorded. In 2004 and 2008, there was a high level of corporate acquisition, accounting for 55 and 67 per cent of the total land sales recorded respectively. Major corporations, including BMA, featured heavily in the total number of acquisitions made throughout the period detailed above, the most prominent year being 2012 where corporate investors accounted for approximately 72 per cent of the total sales recorded.

Total sales reached a 10-year high in 2009, with 214 plots of vacant land purchased. 88 plots of vacant land were sold in 2012. Over the period from 2000 to 2012, the total number of land sales purchased by corporate purchasers totalled 419.

Infrastructure Profile

This section provides an infrastructure profile of the Isaac LGA, with a particular focus on the town of Moranbah. Analysis of current infrastructure in the Mackay SD provides the basis for determining future infrastructure needs, to support regional population growth and achieve economic, environmental and employment objectives.

Key infrastructure in the Mackay SD includes:

- transport infrastructure;
- water infrastructure;
- energy infrastructure; and
- social infrastructure.

19.2.1.9 Transport Infrastructure

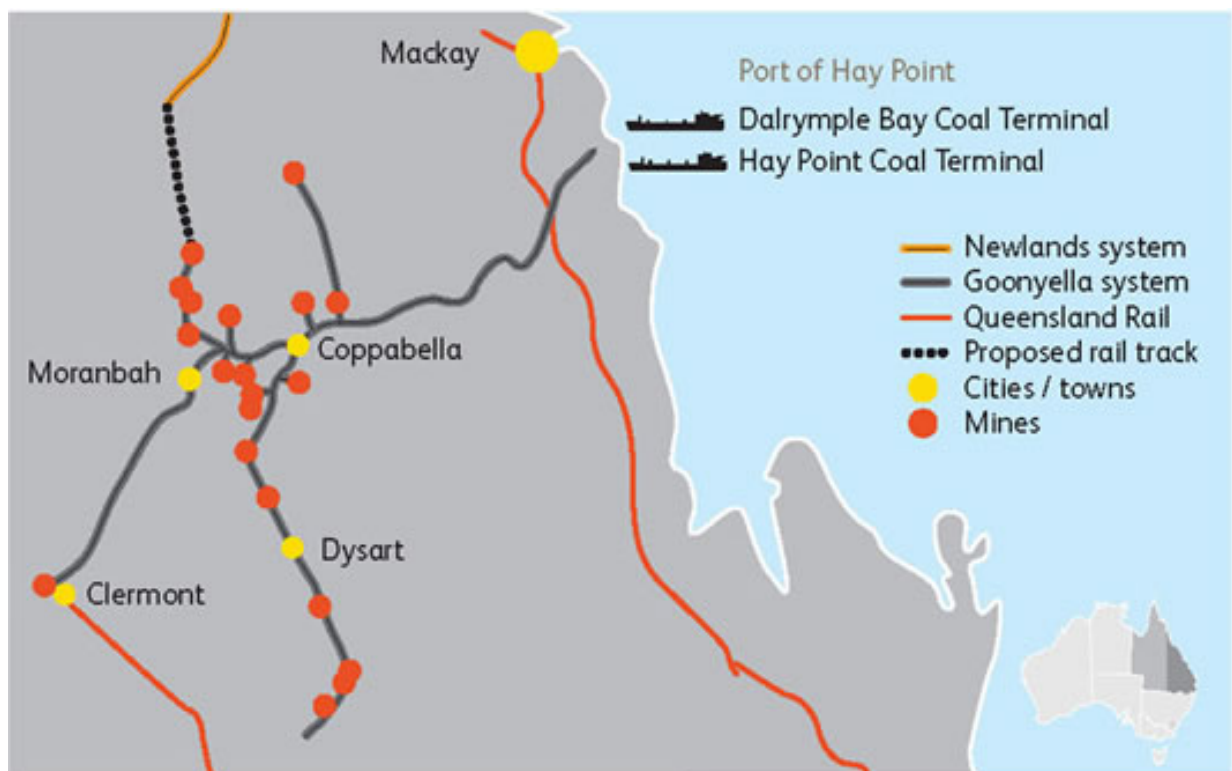
Mines located in Belyando and Broadsound are serviced by the Goonyella coal rail system. Aurizon transports coal across the Goonyella coal rail system to two export terminals at the Port of Hay Point: Hay Point Coal Terminal (HPCT) and Dalrymple Bay Coal Terminal (DBCT) (**Figure 19-23**).

HPCT is owned and operated solely by BMA, whereas DBCT is a multi-user facility. Both ports are located approximately 200 kilometres from the Goonyella mine (Aurizon 2013).

In March 2011, Aurizon (previously known as QR National) approved an expansion of the Goonyella coal rail network to support a major expansion of the HPCT (Aurizon 2013). The Goonyella to Abbot Point Expansion project was completed in June 2012, and includes the 69 kilometre Northern Missing Link, connecting the Goonyella coal rail system to the Newlands rail system and allowing trains to travel to Abbot Point Coal Terminal.

There are no passenger rail services in and out of Moranbah.

Figure 19-23 Goonyella Coal Rail System



Source: Aurizon, 2013

The main road link into Moranbah is the Peak Downs Highway. Buses travel between Emerald and Mackay (via Moranbah) daily and from Rockhampton to Moranbah twice per week.

Moranbah Airport is located 10 kilometres from the town centre on Goonyella Road. Qantas operates between one and nine flights per day from Monday through to Sunday from Brisbane to Moranbah (QANTAS 2013). The airport has recently undergone a \$46 million upgrade funded by BMA to be able to support up to 110 flights each week (Queensland Government 2013).

19.2.1.10 Water Infrastructure

Water supply to Moranbah was initially provided from Eungella Dam (83 kilometres west of Mackay), supplemented in 1992 by the Burton Gorge Dam (40 kilometres north Moranbah) and in 2008 by a pipeline from Lake Dalrymple on the Burdekin River (Burdekin to Moranbah pipeline) (RGSQ). The Connors River Dam, initially scheduled to begin construction in late 2012, has been discontinued at this time due to a lack of necessary financial commitments from customers (SunWater 2012).

SunWater operates and manages water infrastructure on behalf of BMA. The BMA network supplies water annually to mines, towns and rural consumers. The Eungella system extends from the Eungella Dam via Goonyella Mine and Moranbah township, up to the junction with the Bingegang pipeline adjacent to the Peak Downs mine.

19.2.1.11 Energy Infrastructure

Existing and approved power infrastructure in Moranbah includes:

- Moranbah North Power Station was constructed by Energy Developments Limited, an international energy company, in 2008. It generates approximately 350 gigawatt hours of electricity each year, enough to service approximately 48,000 homes (Energy Developments 2011). (Note that Moranbah is also able to source power from the Queensland Electricity Grid).
- The North Queensland Gas Pipeline is a 392 kilometre gas pipeline and 10 megawatt (MW) compression facility that transports coal seam gas (CSG) from Moranbah to Townsville.
- The Moranbah Gas Project (MGP) is a joint project between Arrow Energy and AGL Energy and is one of the largest operating CSG projects in Australia. This facility has been used to process gas for injection into the North Queensland Gas Pipeline since 2004.
- Construction of the 'Central Queensland Gas Pipeline' from Moranbah to Gladstone has been approved by the Minister for the Environment. AGL Energy and Arrow Energy (joint owners) are yet to announce when they will commit to construction of the 440 kilometre pipeline.
- Transfield Services Limited is proposing to construct a 120 MW gas-fired, intermediate power station near Moranbah. 'Significant project' declaration was repealed by the Coordinator-General in October 2012 (DSDIP 2013).

19.2.1.12 Social Infrastructure

Details regarding the social infrastructure in Moranbah and the Mackay SD are provided in **Appendix P**.

19.2.1.13 Future Infrastructure Projects

The Mackay SD is recognised as one of the fastest growing regions in Australia, fuelled by the boom in the mining industry in the Bowen Basin, resurgence in agribusiness, growth in tourism and an emerging marine sector. Mackay SD is the largest regional economy in Queensland, having the third largest GRP behind Brisbane and the Gold Coast (REDC 2012b). The region hosts much of the engineering, manufacturing and mining services industries that support the economy.

According to the Regional Development Register published by the REDC for Mackay Isaac and Whitsunday, the value of developments completed in the three months to December 2012 totalled

\$61.5 million. In December 2012, there were projects worth an additional \$22.7 billion, in progress, and \$84.2 billion not started (feasibility stage/awaiting approval or development). **Table 19–14** outlines a number of the infrastructure developments that are occurring in the Mackay SD, with a particular focus on the Isaac LGA.

Table 19-14 Infrastructure Developments – Mackay-Isaac-Whitsunday Region

Development description	Proponent	Stage	Estimated cost (\$m)
Oil, Gas and Energy			
Central Queensland Gas Pipeline from Moranbah to Gladstone	Arrow Energy	On hold	\$475
Collinsville 132 kilovolt Substation Replacement	Powerlink	Ongoing	\$23
Galilee Basin Power Station	Galilee Power	EIS phase	\$1,250
Arrow Bowen Gas Pipeline	Arrow Energy	EIS approved	\$1,000
Collinsville Solar Thermal Power Station	RATCH-Australia Corporation	Feasibility	\$60
Moranbah CSG Operation	Arrow Energy/AGL	Construction	\$160
Wind Farm Projects (Bowen and Credition)	RATCH-Australia Corporation	Feasibility	N/A
Water and Wastewater			
Pioneer Water Supply	SunWater		\$1.9
Eton Irrigation Distribution	SunWater		\$0.4
Collinsville Pipeline	SunWater		\$0.5
SunWater Connors River Dam and pipelines	SunWater	Post EIS/ Construction	\$824
Water and Sewerage Program for Whitsunday Region		Construction	\$611
Cannonvale Sewage Treatment Facility Upgrade		Construction	N/A
Proserpine Waste Water Treatment Facility Upgrade		Construction	N/A
Sarina Water Recycling Facility		Planning	N/A
Ports			
Abbot Point Coal Terminals 2&3	North Queensland Bulk Ports Corporation	Operations	N/A

Development description	Proponent	Stage	Estimated cost (\$m)
Abbot Point Terminals 4 – 7	Various	Pre-EOI	N/A
Abbot Point Multi Cargo Facility	North Queensland Bulk Ports Corporation		\$1,000
Mackay Port Development	North Queensland Bulk Ports Corporation	Construction	\$4.6
Hay Point Port Development	BMA	Construction	N/A
Dudgeon Point Coal Terminals	North Queensland Bulk Ports Corporation	EIS Phase	\$10,000
Rail			
Alpha Coal Project	Hancock Prospecting Pty Ltd	EIS approved	\$2,500
Central Queensland Integrated Rail	Aurizon	EIS phase	\$2,000
Jilalan Rail Yard	Aurizon	Post EIS	N/A
Galilee Coal Project	Waratah	EIS phase	\$2,000
Northern Missing Link	Queensland Rail	Post EIS	N/A
Project Iron Boomerang		Feasibility Complete	\$7,400

Source: Heavy Engineering Industry Reference Group (2013) and DSDIP (2013)

Table 19-15 outlines the mining developments or expansions of existing mines in the Isaac LGA.

Table 19-15 Mining Development Projects – Isaac LGA

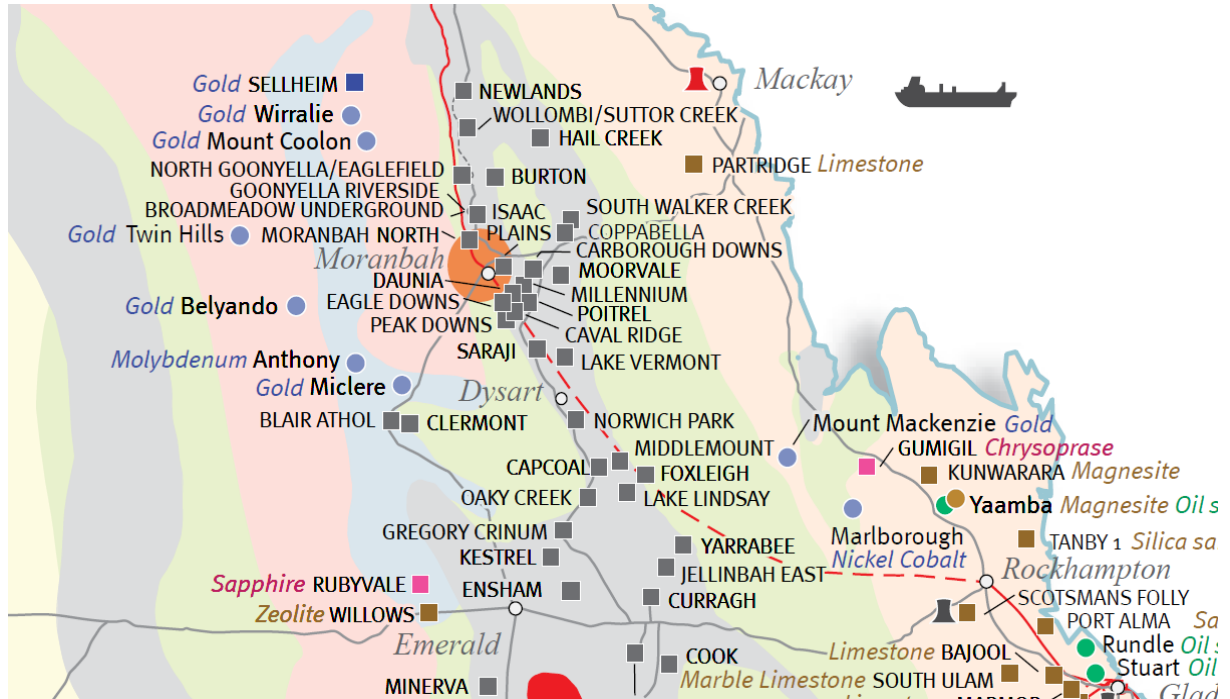
Mining development	Proponent	Stage	Estimated cost (\$m)
Anthony Molybdenum open-cut	Zamia Metals Ltd	Scoping	\$200
Burton open-cut	Peabody	Construction	\$200
Byerwen open-cut	QCoal	EIS phase	\$1500
Carmichael open-cut and UG	Adani Mining Ltd	EIS phase	\$6,800
Caval Ridge	BMA	Construction ¹	\$3,700
China Stone Coal Project	Macmines Austasia Pty Ltd	EIS Phase	N/A
Codrilla Open-cut Coal Mine	Peabody	EIS complete	\$500
Daunia Mine (open cut)	BMA	Operation ²	\$1,600
Eagle Downs Underground	Aquila Resources/ Vale Australia	Construction	\$1,254

Mining development	Proponent	Stage	Estimated cost (\$m)
Eaglefield/Denham Open-Cut Mine Expansion	Peabody	EIS complete	N/A
Ellensfield Coal Mine Project	Vale	EIS complete	\$800
Foxleigh Open-Cut Expansion	Anglo Coal Australia	EIS phase	\$180
Grosvenor Coal Mine Project	Anglo Coal Australia	Committed	\$1,700
Lake Vermont open-cut	Lake Vermont Resources	Construction	\$200
Millennium Open-Cut Mine Expansion	Peabody/Gloucester Coal	Construction	\$500
Moorvale West Expansion	Macarthur Coal	Pre-feasibility	\$180
Moranbah South Underground Coal Project	Anglo Coal Australia/Exxaro Australia	IAS released	\$1,500
New Lenton Opencut	New Hope Coal	EIS phase	\$400
North Goonyella underground expansion	Peabody	Committed	\$150
Olive Downs North open-cut	Peabody	On-hold	\$20
Talwood underground	Aquila Resources	Pre-feasibility	\$700
Twin Hills Gold-Silver underground	Evolution Mining	On-hold	\$6
Willunga open-cut	Peabody	Pre-feasibility	\$300
Winchester South Open-Cut	Rio Tinto	Pre-feasibility	\$500

Source: DNRM (2012a)

Figure 19–24 below highlights the extent of mining development within the Isaac LGA.

Figure 19-24 Mining Development Projects, Isaac LGA – Map



Source: DNRM (2013)

19.3 Economic Impacts

This section presents the direct economic impacts associated with the construction and operations phases of the GRM incremental expansion and the RHM underground expansion option.

Results are presented separately for the construction and operations phase, and include the direct economic benefits of the project. Direct impacts are those effects that are expected to occur as a direct result of the GRM incremental expansion and the RHM underground expansion option. These include:

- construction expenditure and operations expenditure (provided to the Department of State Development, Infrastructure and Planning (DSDIP) separately); and
- workforce employed during the construction and operation of the mine.

The assessment of economic impacts is based on the project scenario prepared by BMA. Economic impacts can vary depending on the location of expenditure. Accordingly, assumptions have been used to divide the percentage of estimated capital and operating expenditure in accordance with the expected location of expenditure – Mackay, Queensland and Australia. The majority of project expenditure will occur within Australia except for those elements of capital equipment which cannot be sourced within Australia.

19.3.1 Construction Phase

The assessment of the economic impacts is divided into two phases: the construction phase and operations phase. The project scenario prepared by BMA assumes a construction phase of approximately four years, commencing in FY2020 and concluding in FY2024. The operations phase is assumed to commence in FY2022, following the commencement of the first longwall.

A life of mine of about 23 years has been assumed and estimated operating expenditure (based on the project scenario) has been provided to DSDIP out to 2043-44. However, this life of mine is indicative only. The project is subject to the owner's approval, and any annual production rates and overall life of mine can be affected by a wide range of factors.

Capital Expenditure

The scenario adopted for assessing economic impacts assigns a project construction phase covering the period from 2019-20 to 2022-23. Based on the project scenario, the GRM incremental expansion and RHM underground expansion options would result in substantial capital investment. Based on the project scenario, 32 per cent of total expenditure may occur within the Mackay SD, while the remainder of the expenditure is likely to be split between the rest of Queensland (41 per cent) and Australia (7 per cent). It is estimated that approximately 20 per cent may be spent outside of Australia. This is based on the assumption that underground mine equipment and the CHPP are expected to be purchased outside of Australia.

Other direct impacts resulting from the project include royalty and tax payments to government. This is discussed further in **Section 19.4**.

Employment

Based on the project scenario, direct employment is assumed to peak at almost 2,000 employees during the construction phase. Assuming these employees are additional to the projected FTE population in Isaac LGA in 2020, this would reflect an increase in the FTE population of approximately 4.2 per cent (based on the projected 2016 FTE population of Isaac LGA of 47,560) (including non-resident workers) (OESR 2012).

The GRM incremental expansion and RHM underground expansion option are planned to be constructed and operated with an up to 100 per cent remote workforce. This means that the project, at any one time, may employ up to 100 per cent of its construction workers from non-local sources. However, there may be some circumstances where individuals or businesses in the local or regional economy may be involved in the activities of the mine as a locally-engaged contractor or supplier.

Actual employment numbers will depend on the final staging and intensity of development sanctioned by the project owners in the future. BMA has not determined the contractual arrangements for the construction phase, though it is expected that workers from a range of industries will be required to construct the mine access (drift), MIA, CHPP, rail loop and other components, including:

- civil and earthworks workers, including the drift construction as well as site preparation for the accommodation village, MIA and CHPP and construction of internal roads, pipelines and other services;
- structural and building workers to install buildings, and plant and equipment items including conveyors;

- mechanical and electrical works relating to major equipment and plant, including coal handling equipment;
- engineers and designers for all components;
- health, safety, environment and quality assurance specialists, including cultural heritage monitors;
- contract management and administration staff;
- drivers for trucks and buses; and
- accommodation village management and staff, including catering and cleaning staff.

19.3.2 Operations Phase

19.3.2.1 Capital Expenditure

The project scenario adopted for modelling purposes assumes the operations phase will commence in 2022 and operate for a period of 23 years. This assessment considers all expenditure incurred during the operations phase up to 2043-44. The operational life of the GRM incremental expansion and the RHM underground expansion options, however, may extend beyond this time. Based on the project scenario, it is estimated that around 27 per cent of project operational expenditure may occur within the Mackay SD, while the remainder of project expenditure is likely to be divided between the rest of Queensland (43 per cent) and the rest of Australia (22 per cent). It is also estimated that around 8 per cent may be spent outside of Australia.

19.3.2.2 Employment

The operational workforce is expected to peak at approximately 1,500 workers. Assuming these employees are in addition to the projected FTE population in Isaac LGA in 2020, this would reflect an increase in the FTE population of approximately 3.2 per cent (based on the projected 2016 FTE population of Isaac LGA of 47,560 (including non-resident workers) (OESR 2012).

Similar to the construction phase, BMA expects to engage a remote workforce. This means that the project, at any one time, may employ up to 100 per cent of its construction and operations workers from non-local sources. However, there may be some circumstances where individuals or businesses in the local or regional economy may be involved in the activities of the mine as a locally-engaged contractor or supplier.

The operations workforce estimates are indicative only and actual employment will depend of the intensity of mining operations at various stages across the life of mine. The final operational workforce numbers for the future RHM will be determined by BMA closer to commencement.

The operations workforce is expected to consist of:

- operators and maintainers who mainly work underground on longwall development and coal extraction but will also operate above ground equipment such as conveyors, stockpile stacker and reclaimers and other coal handling equipment (approximately 400 to 500 workers for each longwall);
- a specialist team involved in moving the equipment from one longwall to another (approximately 400 to 500 for each longwall, but required infrequently);

- management, supervisory and administrative personnel relating to mine operations (including mine planning, health, safety and environment specialists, quality control and finance management functions);
- CHPP operators or maintainers (approximately 50 workers);
- a team of drilling crew and civil construction crews who will install and maintain the incidental mine gas pre-drainage and goaf drainage systems (workers will vary);
- accommodation village management and staff, including catering and cleaning staff (approximately 100 to 150 workers); and
- additional contract maintenance workers may be required for specialist maintenance tasks throughout the operations phase of the project.

19.3.3 Indirect Employment

It has been well documented that the coal industry has the ability to generate additional employment indirectly, as a result of the flow-on or multiplier effect on those sectors which support coal mining activities. This also includes additional demand generated by the spending of wages by persons employed in the sector, which also generates more jobs.

19.3.4 Opportunities for Local Businesses

19.3.4.1 Direct Project Expenditure

The peak of economic activity is expected to occur during the construction period. This will then be followed by a sustained period of ongoing operating expenditure, including direct local spend by the mine on goods and services.

It is expected that project spending within the Mackay SD during operations will include expenditure on on-site infrastructure, including village construction and operations, maintenance activities and fuel.

In addition, it is expected that project spending, including for the Red Hill accommodation village, will generate increased economic activity in Moranbah and the Mackay SD. This is related to increased demand for local road freight providers, transport and charter services, as well as miscellaneous services such as specialist engineering, construction and related services, cleaning, food and beverage, repair and maintenance services.

Further discussion on local industry participation, and strategies to maximise this is included in **Section 18.11.4**.

In addition, there may also be increased economic activity in Moranbah and the Mackay SD due to the GRM incremental expansion and the RHM underground expansion option. This is expected to relate to:

- increased demand for local road freight providers, in light of increased demand for goods and services at the mine;
- increased demand for transport and charter services, associated with transporting workers to-and-from the mine site; and

- increased demand for services provided by local businesses, where these relate to the activities of the mine (e.g. specialist engineering, construction and related services, cleaning, food and beverage, repair and maintenance services).

Where local businesses are awarded contracts for certain services this is expected to generate increased profits and encourage businesses to invest and grow their businesses. This is also likely to encourage businesses to employ more workers, where this is possible (It is noted that labour force constraints may impede businesses from expanding in response to increased demand generated by the project).

In the longer-term, and in light of other mining and resources projects which currently operate in the region, or may commence in the region in the coming years, this may encourage sustained investment in existing businesses and attract new businesses to the area.

This could benefit the Mackay SD by increasing product choice for consumers, increasing the range of services offered locally, and lowering prices due to increased competition. Such developments would support the diversification of Moranbah and the Isaac LGA and is discussed further in **Section 21**.

However, there may be limits to the ability of local businesses to meet the requirements of BMA, in terms of scale of the business (the business may not be able to supply the volume of goods/services required) or the business' ability to meet tendering requirements.

Enhancement strategies that seek to address these constraints and increase opportunities for local and regional businesses have been developed by BMA. This includes the BMA Local Buy Program and alignment with the strategies contained in the Queensland Resources Council local content code. Further detail regarding these enhancements strategies is provided in **Appendix P**.

19.3.4.2 Local Expenditure by Project Employees

The construction and operations workforce will reside in the project accommodation village, located on the mining lease. It is therefore assumed that workers will spend most of their income in their home region.

Access by the remote workforce to the Moranbah township is likely to occur through organised bus trips by the specialist accommodation village management contractor, should demand exist. These visits will produce additional local expenditure.

19.3.4.3 Local Expenditure Due to Indirect Employment Growth

During construction it is estimated that local expenditure will occur as a result of indirect workers generated by the project moving into Moranbah.

19.4 Costs and Revenue to Government

19.4.1 Costs to Government

This section considers the potential costs to government associated with the supporting infrastructure required for the project, including rail, port and shipping, road, power, water and accommodation.

19.4.1.1 Rail

Coal from various mines in Central Queensland is transported to the HPCT and DBCT for shipping via the Goonyella to Hay Point railway line. It is expected that the future RHM (operating at peak capacity) will require four to five train loads per day, each load taking approximately 2.5 hours to complete. The GRB mine complex is serviced by an Aurizon rail network. The Goonyella system transports coal from two existing rail loops located on the west of the mine complex to the existing HPCT for shipping.

It is expected that should any additional upgrades to the existing rail line be required to accommodate these increases in train movements all costs associated with upgrades would be recovered by the operator via charges levied to BMA and other rail users for the haulage of coal.

19.4.1.2 Port and Shipping Infrastructure

Product from the project will be railed to the HPCT for shipping.

The HPCT is owned and operated by BMA. BMA is currently constructing a further expansion of its export capacity through the expansion of the HPCT. These works are to be carried out via a separate approval process and do not form part of this EIS. No costs will be incurred by Government for port capacity expansions, as the terminal is owned by BMA and will be expanded at BMA's cost.

It is expected that all port and shipping infrastructure for the project will be privately owned by BMA/BHP Billiton and there will be no costs to government associated with upgrading infrastructure to meet the project's requirements.

19.4.1.3 Roads

The project will use existing roads, including Red Hill Road, Goonyella Road, Moranbah Access Road and the Peak Downs Highway.

The impact on roads has been assessed in the **Section 14**. This assessment was based on very conservative assumptions and concluded that:

- The performance analysis undertaken for the five scoped intersections identified that the following two intersections will continue to operate within generally accepted performance thresholds irrespective of the RHM underground expansion option and associated GRM incremental expansion proceeding:
 - Goonyella Road/Riverside Access Road intersection; and
 - Goonyella Road/Red Hill Road intersection.

The analysis indicated that the existing forms of the Goonyella Road/Curtin Street, Goonyella Road/Moranbah Access Road/Mills Avenue and Peak Downs Highway/Moranbah Access Road intersections are likely to operate outside generally accepted performance thresholds irrespective of the RHM underground expansion option and associated GRM incremental expansion proceeding. It is considered that these intersections will warrant upgrading (based on traffic growth projections) regardless of the timing for the RHM underground expansion option and associated GRM incremental expansion. It is therefore reasonable for the proponent to make a proportionate contribution towards upgrade costs (i.e. not fully fund) once the project owners have determined that the project will proceed and have determined the final staging for execution.

19.4.1.4 Power

The current GRB mine complex operations have a power requirement of 50 MW. The GRM incremental expansion and RHM underground expansion options have the potential to require approximately 50 MW of additional power. New power lines are currently being constructed, which will allow a supply of 104 MW, thus covering both the existing operations and the proposed operations, should these proceed.

New power reticulation may involve:

- supply to the Red Hill CHPP and related infrastructure via a new 66 kilovolt (kV) overhead line from the existing GRM 132/66 kV substation to a new 66/11 kV substation to be located adjacent north of the existing Riverside rail loop; and
- supply to the Red Hill underground operations (RHM and MIA) will be via a connection to relocated 66 kV infrastructure on the eastern side. The supply will also require augmentation of the existing 66 kV infrastructure and construction of tie-lines around the northern lease area.

Two existing power lines may require relocation, subject to the likelihood of subsidence based on final mining plans. These are:

- Powerlink 132 kV switchyard located north of the RHM underground expansion option; and
- Powerlink 132 kV overhead line traversing the Red Hill mining lease.

BMA will directly incur the costs associated with the construction of this infrastructure.

19.4.1.5 Water

Sufficient water supply is expected to be available to meet the projected demands of the project in an average year. Raw water to the site is expected to be supplied via a network of pipelines including the Burdekin to Moranbah pipeline and Eungella Pipeline 1.

In addition to these sources, supplementary water allocations for BMA mines within the Bowen Basin include:

- Bingegang Weir, via the Saraji Pipeline;
- Selma Weir, via the Gregory Pipeline; and
- Bedford Weir, via the South Blackwater Pipeline and BHP Pipeline.

BMA also has options for additional water from the Burdekin to Moranbah Pipeline. It is not expected that any upgrades will be required to any water supply or transmission infrastructure to facilitate the project.

19.4.1.6 Other Payments

In addition to royalty payments, BMA will also be subject to a range of taxes including company income tax, carbon tax and other taxes.

BMA is subject to the Minerals Resources Rent Tax (MRRT) regime, which currently applies to the mining of iron ore and coal in Australia.

19.4.1.7 Project Workforce

The project workforce may use services provided by state and local governments such as medical and community services. An assessment of the potential impacts associated with BMA's workforce accessing these services is provided in **Section 18**.

19.4.1.8 Coal Royalties

Coal production for the RHM is expected to ramp up to a maximum of 14 mtpa, over and above the current rate of production from the GRB mine complex. This coal production will generate additional royalty payments for the Queensland Government.

Coal production may ramp up to a maximum of 14 mtpa, over and above the current rate of production from the GRB mine complex. This coal production will generate additional royalty payments for the Queensland Government.

It is estimated subject to exchange rate and coal price variations over the life of the mine that between \$2.07 billion (real AUD\$FY14) and \$7.70 billion (real AUD\$FY14) will be paid to the Queensland Government. The timing for these payments will be dependent on the rate of mining, which is influenced by a range of external factors.

19.4.1.9 Local Property Market Impacts

House and land prices, and rents in Moranbah and the Isaac LGA have grown significantly over the last 10 years, particularly in the period following 2005. Strong mining and resource activities in the region drove significant population growth, and hence demand for housing and residential land.

This has resulted in higher house and land prices, and rents, along with periods of limited housing supply (including rental properties) and residential land for development. The local property market is also quite volatile, and is highly responsive to changes in mining and resource activity, particularly where this leads to significant variations in the residential population, or in the proportion of housing being purchased (or sold) by corporate purchasers and private investors.

The use of an up to 100 per cent remote workforce is expected to minimise any potential adverse impacts on the local housing market in Moranbah, such as removing any significant additional demand for housing, which could further inflate housing costs or add to market volatility. The proposed Red Hill accommodation village is located on the proposed mining lease MLA70421, and is expected to have the capacity to accommodate up to 3,000 employees.

While it is not possible to estimate the total indirect employment associated with the activities of the mine, should this occur and it drives population growth in Moranbah and the broader region, this may place increased pressure on house and land prices, along with rents.

19.4.1.10 Implications for Future Development

Queensland has a rich endowment of high-quality coal resources, with more than 34 billion tonnes (raw coal in-situ) identified by drilling operations.

Identified resources of coking coal amount to approximately 8.7 billion tonnes, of which about 4 billion tonnes are suitable for open cut mining (DNRM 2012b). The Bowen Basin contains virtually all of the

state's hard coking coal, and is the most important source of export coal in Queensland (DNRM 2012b).

At full production, the proposed GRM incremental expansion and RHM underground expansion options have the potential to produce up to 14 mtpa of high quality hard coking coal for the export market. As a proportion of total coking coal in Queensland, the mine's expected production represents around 0.2 per cent of the total estimated resource available in the state.

The project has been identified for proposed development due to a range of factors, including the ability to share infrastructure with the existing GRB mine complex, and therefore reduces the project's footprint on land. The location of this proposed project adjacent to the existing GRB mine complex provides synergies in terms of water and wastewater management, power supply, along with the ability to share rejects and mine waste disposal facilities, and rail infrastructure, particularly rail loops.

As part of the project design, BMA undertook an exercise to define sustainability for the project and embed sustainability thinking and enhancement of sustainability opportunities in the early planning and concept development stages, with a focus on resource use efficiency. The assessment focussed on design parameters, which will guide understanding of the sustainable use of the coal resource (all seams), maximise synergies between the existing GRB mine complex and the proposed project, through mine planning, design, and shared resources / services / disturbed areas, and maximise the volume of coal extracted using Thick Seam Mining technology.

Broader project implications, including any impacts on existing agricultural land use or on disadvantaged groups, along with relevant mitigation measures, are provided in **Appendix P**.