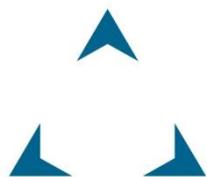


**Pre-Feasibility of a Central  
Queensland Intermodal Logistics  
Hub**

**Final Report – Baseline Analysis  
and Pre-Feasibility Assessment**

*Central Queensland Intermodal  
Logistics Hub Incorporated*

**Final Report  
July, 2012**



**AECgroup**

Outcome Driven

## Document Control

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# Executive Summary

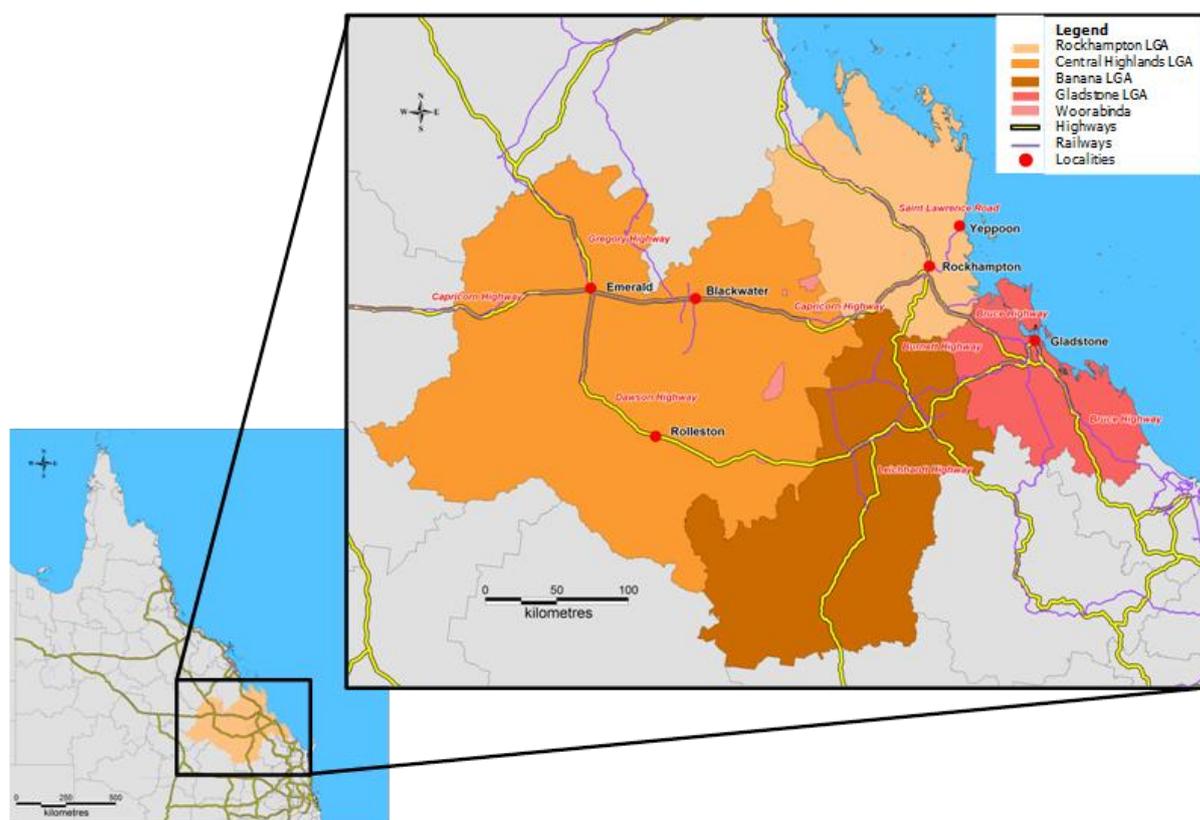
## Background

Central Queensland is experiencing a period of economic and population growth closely linked to its abundant natural resources. The transport industry has a critical role in enabling ongoing development and the potential opportunity to establish an intermodal logistics hub in Central Queensland has been discussed for several years.

Developing a logistics hub in Central Queensland may be viable, given its proximity to three major natural resource areas, the well established agricultural sector and its ability to service areas to the north, south and west. However, the initial capital investment required is significant.

The following map introduces the local government areas (LGAs) that make up the catchment for the study - the Fitzroy Statistical Division (SD).

Figure ES.1. Local Government Areas in Fitzroy SD



Source: AECgroup

An intermodal hub would provide a critical piece of regional transport infrastructure, increase efficiency in the sector and help ensure the regional economy is not constrained by high transport costs. However, the development will only proceed where there is sufficient demand to make the facility commercially viable.

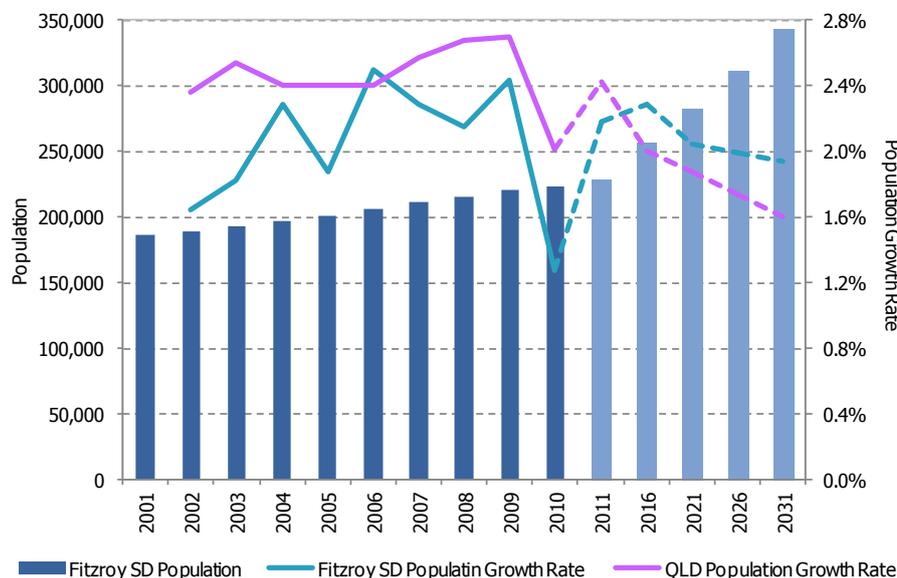
## Demand

Queensland has one of the fastest growing economies in Australia, unpinned by growth in the mining and energy sectors. Workers are moving from interstate and overseas to take up jobs. Population growth is strong and expected to continue, with an additional 2.5 million people forecast to live in Queensland by 2031 (DLGP, 2011c).

A major challenge for the Queensland Government is to actively manage the impacts of this growth. By investing in infrastructure and services to support growth in regional

areas, people will be encouraged to settle outside of South East Queensland. Attracting workers to regional Queensland, where and when they are needed, is an essential part of the government's population growth strategy. The following figure illustrates the anticipated population size and growth rate in the catchment to 2031.

**Figure ES.2. Forecast Population Growth, Fitzroy SD**



Source: ABS (2011a), Queensland Treasury (2011), DIP (2008).

Currently, the mining and energy industries are strong drivers of population growth and investment. The region is rich in high quality coking coal, much of which is exported through the Port of Gladstone. Central Queensland also produces a significant amount of the state's electricity from the Stanwell, Gladstone and Callide power stations (DEEDI, 2011). The infrastructure requirements to meet the growing needs of the region are substantial. Significant public and private sector investment is already occurring in the region (e.g. Port of Gladstone expansions). There is increasing pressure on transport infrastructure, community resources and utilities to meet industry demands.

Despite ongoing concerns over the global economic outlook, industry stakeholders remain confident of continued growth of the resources sector in the region, including forecasts of new developments and increased capacity. This is supported by state government forecasts that by 2030 the Queensland production of coal is expected to peak at approximately 340 million tonnes annually, equating to production increasing by approximately 5.5% per annum (Department of Infrastructure and Planning, 2010).

Primary industries are economically important in Central Queensland. Grazing is a major industry with Rockhampton promoting itself as Australia's beef capital. Further, grain production within Central Queensland is forecast to remain relatively stable over the coming years, in line with the ABARES (2011) estimates for Australia. The main factor for grain production which will affect the Fitzroy SD's GRP will come as a result of increases in the price for grain due to increased global demand.

## Pre-Feasibility Assessment

The pre-feasibility assessment is based on a comparison of lease rates necessary to recover a developer's capital costs compared to market expectations. Market expectations were determined through a broad stakeholder consultation exercise with reference to recent sales of industrial land. The pre-feasibility assessment is not intended to provide a full feasibility assessment of each opportunity, but seeks to provide an indication of the likely position of the development within current market expectations.

The outcomes of the consultation exercise suggest the required charges are within the market range for quality industrial facilities in each of the locations under consideration.

Stakeholders suggested there is very limited supply, in particular of larger sites, and that tenants are likely to be willing to pay a premium to access high quality lots.

The analysis found the development would be feasible at several potential locations, and there is strong demand for high quality industrial land throughout the Central Queensland region. These findings are supported by the limited availability and high prices paid for sought after locations when they do become available. However, demand and willingness to pay declines rapidly for sub-prime sites where space may be cramped, lots are smaller than would be preferred, or where there are potential conflicts of use issues.

## **Location Analysis**

Five potential locations were considered for the logistics hub: Parkhurst and Gracemere (on the outskirts of Rockhampton), Emerald, Gladstone (outside the GSDA<sup>1</sup>) and Gladstone (within the GSDA). With the possible exception of Parkhurst and the GSDA, Gracemere, Emerald and Gladstone each has the potential to accommodate a viable logistics hub. The location decision is likely to be determined by the value an organisation places on the location benefits of Gladstone (e.g., deep water access, existing related businesses) and Emerald (e.g., proximity to mine sites and existing mining services sector), and whether this is sufficient to offset the lower land and labour costs associated with the Gracemere site.

Gladstone's location adjacent to one of Queensland's major deep water port facilities would offer the opportunity to run loads from ship to destination without the need to add an additional handling point. This would reduce costs between the point of loading and the point of delivery. However, as well as having relatively high land costs and limited availability, a Gladstone location would also incur significant additional labour costs, assuming appropriate labour resources could be found. It is unlikely the value derived from a Gladstone location would offset the higher establishment and operating costs. While Emerald is at the heart of the Bowen Basin it is unlikely to be a viable location for non-resource based logistics businesses. It also has higher land and labour costs than alternative locations.

The Gracemere site at Rockhampton West was identified as the preferred location. It offers the opportunity to meet immediate demand from the mining services sector and the longer term aim of creating a viable intermodal facility. Gracemere is the preferred location given its relatively low land costs, potential for direct rail line access, greater availability of labour at a lower cost, and its location at the point at which larger vehicles are permitted from the west.

## **Recommendations**

It is recommended CQILH Incorporated:

- Move to a full feasibility stage including a detailed assessment of the feasibility of the logistics hub at the Gracemere industrial land development to the west of Rockhampton;
- Initiate a market sounding campaign to gather expressions of interest in the site as a means of communicating to the business community that the development is progressing, and as a sign to the development community that demand is strong and the development is feasible; and
- Continue to engage with rail infrastructure providers to signal the commitment to the incorporation of road: rail interchange handling capacity at the site over the medium term.

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<sup>1</sup> Gladstone State Development Area.

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# 1. Introduction and Background

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## 1.1 Background

Central Queensland is experiencing a period of ongoing economic and population growth closely linked to its abundant natural resources. The transport industry has a critical role in enabling ongoing development and the potential opportunity to establish an intermodal logistics hub in Central Queensland has been discussed for several years.

Central Queensland's location relative to three major natural resource areas, the well established agricultural sector and ability to service the north, south and west of Queensland suggest such a development might provide a viable opportunity. However, the initial capital investment required is significant.

## 1.2 Need for the Study

It is envisioned an intermodal hub would provide a critical piece of regional transport infrastructure, increase efficiency in the sector and help ensure the regional economy is not constrained by high costs. However, the development will only proceed where there is sufficient demand to make the facility commercially viable. AECgroup was engaged to undertake a pre-feasibility analysis of the opportunity. The assessment has been conducted in two parts:

- **Baseline Analysis (Chapter 2-6):** summarises the regional demographic and economic profile, planning context, case studies of similar facilities and potential demand. The analysis concludes by identifying the features of a viable facility; and
- **Pre-Feasibility Assessment (Chapter 7-9):** sets out a pre-feasibility assessment for a potential facility.

## 1.3 Approach Used

The baseline analysis (chapters 2-6), uses the following structure:

- **Central Queensland Catchment Profile:** provides an overview of the demographic and economic profile of the catchment, focussing on implications for the transport sector;
- **Strategic Freight Planning Context:** identifies the key planning strategies influencing the freight transport sector in Central Queensland;
- **Current Freight Task:** describes the freight task in the region and the contributions of rail, road and sea freight;
- **Opportunity for an Intermodal Facility:** describes of trends in intermodal facilities and an assessment of demand for a Central Queensland Intermodal facility; and
- **Demand for a Logistics Hub:** assesses the features which could be included in a viable road based logistics hub.

The pre-feasibility assessment (Chapters 7-9), uses the following structure:

- **Facility Description and Demand Assessment:** describes the facility and discusses the key drivers of demand for each component;
- **Pre-Feasibility Assessment:** assesses the anticipated costs of establishing the required facility and the likelihood these could be borne by the market;
- **Location Analysis:** identifies a set of critical location criteria and assesses potential locations to identify which best meets the needs of the facility; and

The report concludes with **findings and recommendations** (Chapter 10) from parts A & B.



## 2. Catchment Profile

### Key Findings and Implications:

- In 2011, the estimated resident population of the Fitzroy SD was 228,382 and this is anticipated to increase to 343,669 by 2031, an increase of 115,287.
- Population growth has historically been lower than the Queensland average, however future growth, between 2011 and 2031, is projected to be higher than Queensland's, with an average annual growth rate of 2.1% within the Fitzroy SD compared to 1.8% for Queensland.
- Gladstone Regional Council (2.9%) and Central Highland Regional Council (2.4%) are projected to record the highest population growth rates within the Fitzroy Statistical Division (SD) between 2011 to 2031.
- 'Technicians and trade workers' was the largest occupational group within the Fitzroy SD.
- Three of the five LGA's (Local Government Areas) in the catchment (Banana, Central Highlands and Gladstone) recorded average annual incomes greater than \$50,000 per year.
- By 2031, the Fitzroy SD will need to almost double its number of dwellings, requiring an additional 1,700 to 2,700 dwellings a year.
- The Gross Regional Product of the Fitzroy SD is \$17.1 billion, contributing approximately 6.4% of Queensland's Gross State Product.
- Mining is the largest industry within the Fitzroy SD, contributing 28.7% of Gross Value Add<sup>2</sup>, with the contribution being as high as 60.1% and 70.0% in the Banana and Central Highland Regional Council areas.
- It is anticipated the ongoing expansion and operation of the resources sector will continue to act as the key driver of economic activity in the Central Queensland region including direct mining activity as well as the associated service industries.
- The Fitzroy SD has a labour force of approximately 121,000 people, with an unemployment rate of 5.5%.

### 2.1 Catchment Definition

The following table and map introduce the local government areas (LGA's) that make up the catchment for the economic and demographic profiles - the Fitzroy Statistical Division (SD).

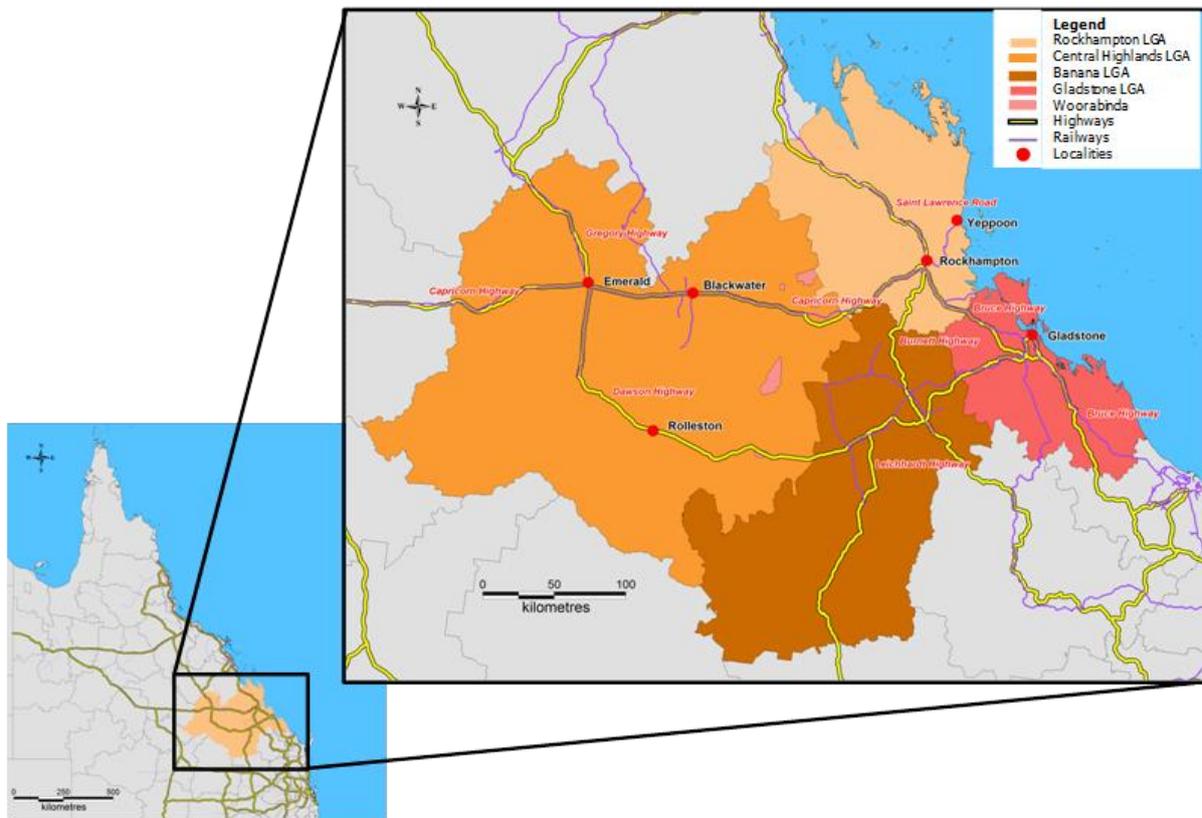
**Table 2.1. Local Government Areas in Fitzroy SD**

Local Government Area	Estimated Residential Population (2010)	Area (square kilometres)
Banana LGA	15,595	28,606
Central Highlands LGA	31,078	59,970
Gladstone LGA	60,316	10,489
Rockhampton LGA	115,526	18,356
Woorabinda LGA	1,001	391
<b>Fitzroy SD</b>	<b>223,516</b>	<b>117,812</b>

Source: ABS (2011a)

<sup>2</sup> Gross Value Add is the total value generated by the industries within the economy, excluding ownership of dwellings

Figure 2.1. Local Government Areas in Fitzroy SD



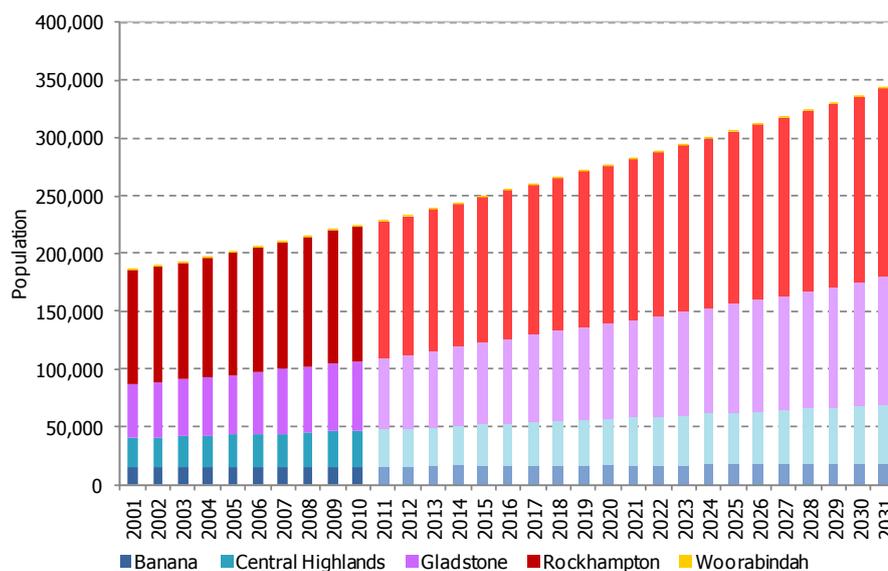
Source: AECgroup

## 2.2 Demographic Profile

### 2.2.1 Population Growth

The following figure and table summarise the historic and projected population estimates for the LGA's within the Fitzroy SD.

Figure 2.2. Fitzroy SD Population Projections



Source: ABS (2011a), Queensland Treasury (2011), DIP (2008).

Between 2011 and 2031, Gladstone LGA is projected to experience the largest growth in population with an average annual population growth of 2.9%, followed by Central Highlands LGA with 2.4% average annual population growth. These high projected population growth rates are considered to be largely due to the sustained high level of investment in manufacturing (Gladstone) and mining (Central Highlands).

The Rockhampton LGA's population is projected to increase by more than 50,000 between 2011 and 2031 and to remain the LGA with the highest population within the Fitzroy SD, containing approximately half of the region's population.

**Table 2.2. LGA Population Growth 2006-2031**

LGA	2006	2011	2016	2021	2026	2031	Av. Ann. Change
<b>Population</b>							
Banana	15,572	15,629	16,826	17,186	17,631	18,146	0.7%
Central Highlands	28,256	31,850	36,253	40,888	45,705	50,774	2.4%
Gladstone	53,941	62,220	73,556	84,612	96,971	110,315	2.9%
Rockhampton	107,517	117,670	127,998	139,050	150,600	163,055	1.6%
Woorabinda	918	1,013	1,106	1,196	1,294	1,409	1.7%
<b>Total</b>	<b>206,204</b>	<b>228,382</b>	<b>255,739</b>	<b>282,932</b>	<b>312,201</b>	<b>343,699</b>	<b>2.1%</b>
<b>5 Year Average Annual Population Growth Rate</b>							
Banana	n/a	0.1%	1.5%	0.4%	0.5%	0.6%	n/a
Central Highlands	n/a	2.4%	2.6%	2.4%	2.3%	2.1%	n/a
Gladstone	n/a	2.9%	3.4%	2.8%	2.8%	2.6%	n/a
Rockhampton	n/a	1.8%	1.7%	1.7%	1.6%	1.6%	n/a
Woorabinda	n/a	2.0%	1.8%	1.6%	1.6%	1.7%	n/a

Source: ABS (2011a), Queensland Treasury (2011), DIP (2008).

## 2.2.2 Employment by Occupation

In 2006, the Fitzroy SD contained a high proportion of technicians and trade workers compared to other occupations. The large number of technicians and trade workers, as well as the large proportion of labourers and machinery operators and drivers is consistent with regions containing heavy industries such as mining and manufacturing.

The large number of managers within the Fitzroy SD is indicative of the continued importance of the region's large agricultural base and the number of agricultural/farm owners. In contrast, the Fitzroy SD contains a relatively small number of community and personal service workers and sales workers.

**Table 2.3. Employment by Occupation, Place of Work, Fitzroy SD**

Occupation	Employees	% Employed
Managers	10,294	12.4%
Professionals	11,443	13.8%
Technicians and trades workers	15,236	18.4%
Community and personal service workers	6,766	8.2%
Clerical and administrative workers	11,049	13.3%
Sales workers	7,467	9.0%
Machinery operators and drivers	9,841	11.9%
Labourers	10,726	13.0%
<b>Total</b>	<b>82,823</b>	<b>100.0%</b>

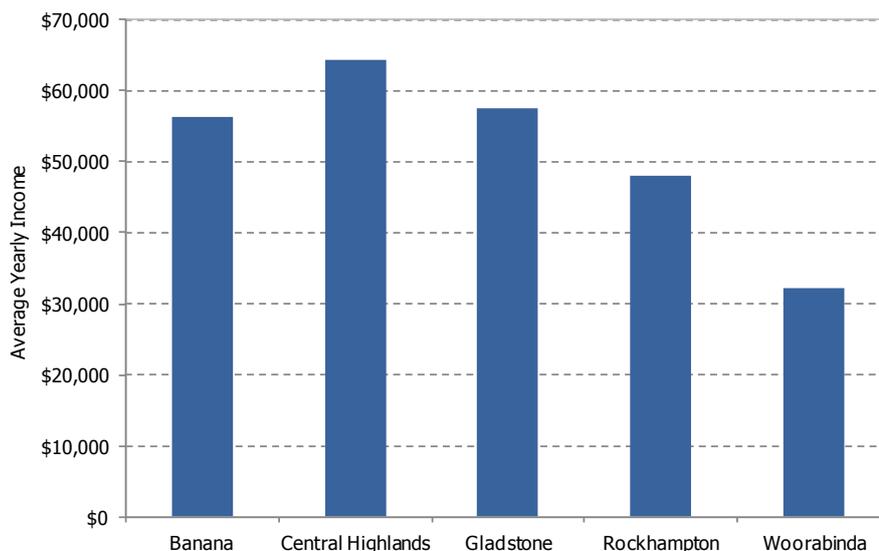
Source: ABS (2007b)

## 2.2.3 Average Incomes

In 2010-11, within the Fitzroy SD, the Central Highlands LGA recorded the highest average yearly income (\$64,291), thought to be driven by the higher incomes within the resources sector. This was followed by the Gladstone LGA (\$57,654) and the Banana LGA (\$56,231).



**Figure 2.3. LGA Estimated Average Yearly Income, 2010-11**

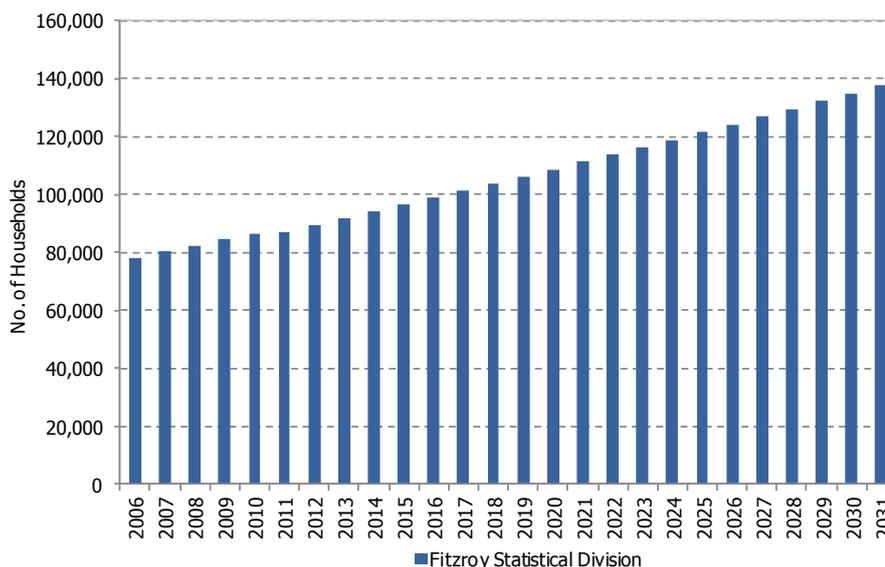


Source: ABS (2011b), ABS (2011c)

### 2.2.4 Dwelling Projections

It has been estimated that by 2031 the Fitzroy SD will require approximately 60,000 new dwellings to accommodate future population growth. This required increase in new residential dwellings indicates the potential for future construction activity within the region over the next 20 years. On this basis, the Fitzroy SD will require an additional 1,700 to 2,700 dwellings per year between 2011 and 2031 to meet projected demand.

**Figure 2.4 Dwelling Projections, Fitzroy SD (2006 to 2031)**



Source: AECgroup

## 2.3 Economic Profile

### 2.3.1 Population

The Fitzroy SD had a population of 206,204 people in 2006, which had increased to 223,516 by 2010. Between 2006 and 2010, the population of the Fitzroy SD grew at a slightly lower rate than the Queensland average, however, the Fitzroy SD is projected to



grow at a faster rate than the state average up until the year 2031, adding approximately 115,000 people to the region's population.

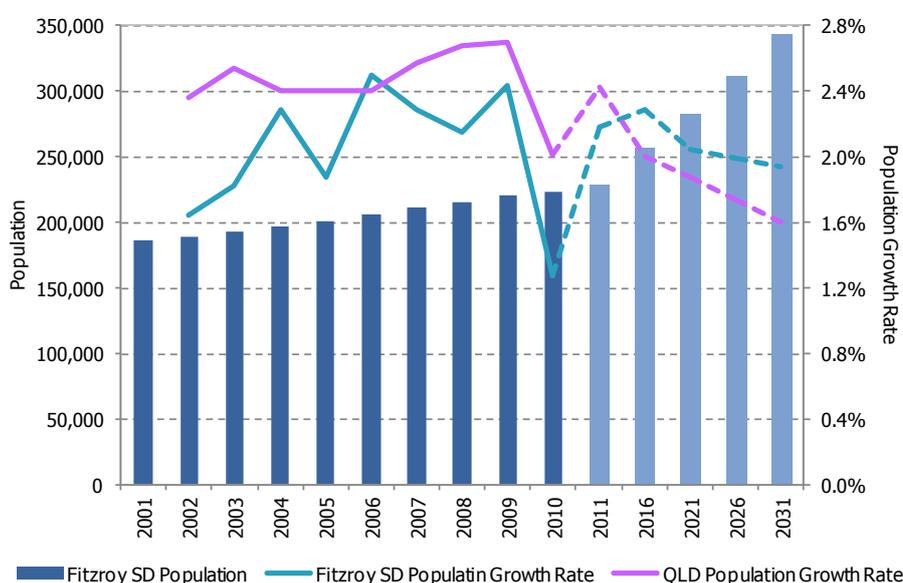
**Table 2.4. Historic Catchment Population and Projected Growth**

Region	Historic Population		Population Projections			Average Annual Growth		
	2006	2010	2016	2021	2031	2006-11	2011-16	2016-31
Fitzroy SD	206,204	223,516	255,740	282,932	343,699	2.0%	2.7%	2.0%
Queensland	4,090,908	4,513,850	5,105,892	5,602,920	6,609,730	2.5%	2.5%	1.7%

Source: ABS (2011a), Queensland Treasury (2011), DIP (2008).

The Fitzroy SD has seen steady population growth of approximately 2.0% per year over the past four years, with the annual growth rate reaching as high as 2.4% in 2009. In 2010, there was a reduction in the population growth rate to 1.3%, however the rate is projected to return to approximately 2.4% over the next several years before gradually falling to 2.0% from 2016 to 2031.

**Figure 2.5. Forecast Population Growth, Fitzroy SD**



Source: ABS (2011a), Queensland Treasury (2011), DIP (2008).

### 2.3.2 Gross Regional Product

The Fitzroy SD is estimated to have generated a gross regional product (GRP) of \$17.1 billion in 2010-11, equating to approximately 6.4% of the Queensland's gross state product (GSP). The Fitzroy SD's GRP is estimated to have grown by 8.8% per annum between 2006-07 and 2010-11, well above the Queensland economy's growth rate of 5.7% per annum in the same period.

**Table 2.5. Gross State/ Regional Product**

Region	GRP/ GSP (\$M)		Average Annual %
	2006-07	2010-11	
Fitzroy SD (GRP)	\$13,896	\$17,076	8.8%
Queensland (GSP)	\$213,629	\$266,736	5.7%

Source: AECgroup.

The following table summarises the contribution of each industry sector to the total industry value add<sup>3</sup> in the Fitzroy SD and Queensland during 2010-11. Mining makes the largest contribution to the SD's economy, accounting for almost a third of total industry

<sup>3</sup> Industry Value Add is the total value of outputs produced by each industry contributing to the Gross Regional Product for a region.

value added activity, 2.97 times higher than the contribution of the industry to the total Queensland economy. Similarly, manufacturing makes up just under 13.7% of the SD's economy, 1.76 times larger than the contribution of the industry to the Queensland total.

Information, media and telecommunication and arts and recreation services are the two smallest industries in the Fitzroy SD, accounting for 0.5% and 0.1% of the SD's economy respectively. The industries make 0.27 and 0.18 times the contribution to the Fitzroy SD's economy than they make to the Queensland economy.

**Table 2.6. Industry Contributions to Total Gross Value Add in the Study Area and Queensland, 2009-10**

Industry	Fitzroy SD	Queensland	Location Quotient <sup>(a)</sup>
Agriculture, forestry and fishing	\$329	\$8,014	0.64
Mining	\$4,560	\$24,072	2.97
Manufacturing	\$2,332	\$20,764	1.76
Electricity, gas, water and waste services	\$422	\$6,001	1.10
Construction	\$1,425	\$22,331	1.00
Wholesale trade	\$500	\$12,900	0.61
Retail trade	\$651	\$13,570	0.75
Accommodation and food services	\$298	\$6,342	0.74
Transport, postal and warehousing	\$1,077	\$16,735	1.01
Information media and telecommunications	\$90	\$5,174	0.27
Financial and insurance services	\$714	\$17,253	0.65
Rental, hiring and real estate services	\$327	\$6,434	0.80
Professional, scientific and technical services	\$465	\$14,654	0.50
Administrative and support services	\$238	\$5,076	0.73
Public administration and safety	\$456	\$14,131	0.51
Education and training	\$350	\$10,679	0.51
Health care and social assistance	\$797	\$16,195	0.77
Arts and recreation services	\$18	\$1,548	0.18
Other services	\$248	\$4,465	0.87
Ownership of dwellings	\$580	\$22,599	0.40
<b>Total Industry Value Add</b>	<b>\$15,877</b>	<b>\$248,936</b>	-
Taxes less Subsidies	\$1,199	\$17,800	-
<b>Gross Regional Product</b>	<b>\$17,076</b>	<b>\$266,736</b>	-

Note: (a) Location Quotient represents each industry's percent contribution to total Study Area GVA divided by the industry's contribution to Queensland GVA and represents the relative strength of each industry compared to Queensland as a benchmark. A location quotient of between 0 and 1 indicates an industry represents a lower proportion of the overall Study Area economy compared to Queensland. The closer the location quotient is to 0, the smaller the industry's contribution comparative to the Queensland benchmark. Conversely, a location quotient above 1 indicates an industry represents a higher proportion of the Study Area economy compared to Queensland.

Source: AECgroup.

The following table breaks down the industry contribution to GRP within each LGA in Fitzroy SD.

**Table 2.7. Industry Contributions to Total Gross Value Add, 2010-11**

Industry	RRC	GRC	CHRC	BRC	WRC
Agriculture, forestry and fishing	1.5%	0.9%	2.4%	5.3%	2.3%
Mining	3.4%	4.1%	70.0%	60.1%	0.0%
Manufacturing	10.1%	37.7%	1.9%	4.0%	0.8%
Electricity, gas, water and waste services	3.8%	3.0%	0.3%	4.1%	0.0%
Construction	9.2%	11.5%	7.4%	6.3%	5.7%
Wholesale trade	5.3%	2.5%	1.8%	2.0%	0.0%
Retail trade	6.8%	4.0%	1.9%	2.1%	2.8%
Accommodation and food services	3.0%	1.8%	1.0%	1.0%	0.8%
Transport, postal and warehousing	8.6%	10.7%	2.9%	2.2%	2.1%

Industry	RRC	GRC	CHRC	BRC	WRC
Information media and telecommunications	1.2%	0.4%	0.2%	0.2%	0.0%
Financial and insurance services	8.6%	3.3%	1.9%	2.2%	0.0%
Rental, hiring and real estate services	3.2%	2.3%	1.1%	0.9%	0.0%
Professional, scientific and technical services	4.0%	3.9%	1.3%	1.4%	0.0%
Administrative and support services	2.1%	1.6%	0.8%	1.3%	0.0%
Public administration and safety	5.3%	2.0%	1.4%	1.4%	34.9%
Education and training	4.0%	1.9%	0.9%	1.0%	5.3%
Health care and social assistance	10.1%	3.5%	1.4%	2.4%	45.2%
Arts and recreation services	0.2%	0.1%	0.0%	0.0%	0.0%
Other services	2.6%	1.2%	1.0%	0.8%	0.0%
Ownership of dwellings	7.2%	3.6%	0.6%	1.3%	0.0%
<b>Total Industry Value Add</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
<i>Taxes less Subsidies</i>	<i>6.2%</i>	<i>6.2%</i>	<i>8.3%</i>	<i>7.9%</i>	<i>6.7%</i>
<b>Gross Regional Product (\$m)</b>	<b>\$5,547</b>	<b>\$4,656</b>	<b>\$4,700</b>	<b>\$2,149</b>	<b>\$24</b>

Notes: RRC Rockhampton LGA, GRC Gladstone LGA, CHRC - Central Highlands LGA, BRC - Banana LGA, WRC - Woorabinda LGA  
Source: AECgroup.

The transport, postal and warehousing sector accounts for 8.6% and 10.7% of the Rockhampton and Gladstone economies respectively, much higher than the 2.9% to 2.1% in the remaining LGA's. Rockhampton has the most diverse economy, with the manufacturing and health care and social assistance industries being the largest contributors to the LGA's economy, despite each only contributing 10.1%. The Central Highlands and Banana LGAs are both heavily reliant on the mining industry, which accounts for 70.0% and 60.1% of their local economies respectively. Manufacturing (37.7%) is by far the biggest contributor to the Gladstone LGA's economy.

### 2.3.3 GRP Growth Drivers

Future GRP is likely to be influenced by several macro-economic factors and is difficult to forecast with accuracy given the high degree of uncertainty in particular over the long-term. However, the available data strongly supports the expectation of high levels of continued growth in the resources and related sectors in the Central Queensland economy.

#### 2.3.3.1 Mining Production

Coal production within Central Queensland area is expected to grow significantly over the short to medium term. Forecasts show that by 2030 the Queensland production of coal is expected to peak at approximately 340 million tonnes annually, equating to production increasing by approximately 5.5% per annum (Department of Infrastructure and Planning, 2010). Given the location of the Fitzroy SD and its positioning relative to the Surat, Bowen and Galilee Basins, much of this future expansion is anticipated to occur within or close to the Fitzroy SD, subsequently resulting in direct and indirect increases in GRP.

#### 2.3.3.2 Agricultural Production

Grain production within Central Queensland is forecast to remain relatively stable over the coming years, in line with the ABARES (2011) estimates for Australia. The main factor for grain production which will affect the Fitzroy SD's GRP will come as a result of changes in the price for grain. Increased demand from developing countries, driven primarily from East Asia as well as North Africa and the Middle East for wheat and sorghum has resulted in the world price increasing in the short term, however decreasing in the mid to long term as world supply begins to increase. These factors will result in the nominal value of grain produced to increase within the Fitzroy SD, however the output is forecasted to remain relatively steady in the short to medium term.

The production of livestock, specifically relating to cattle within the Fitzroy SD is forecast to increase from restocking as a result of the increased availability of feed caused by the recent above average rainfall within Central Queensland.

## 2.3.4 Labour Market Characteristics

### 2.3.4.1 Labour Force and Employment

The Fitzroy SD's unemployment rate was 5.7% in the June quarter 2011, approximately 2.0 percentage points higher than the corresponding quarter in 2007.

**Table 2.8. Labour Market Characteristics, June Quarter 2007 to June Quarter 2011**

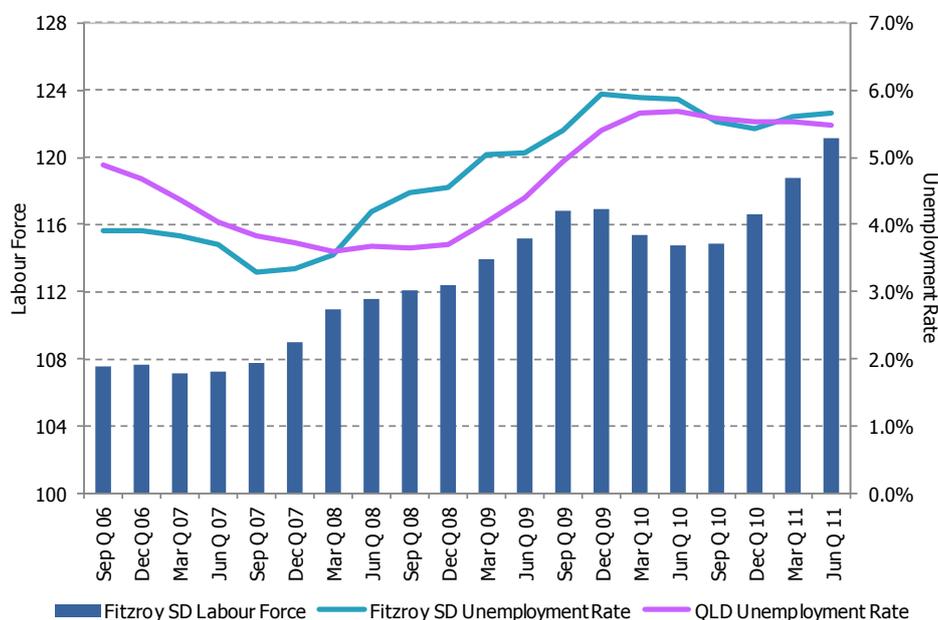
Region	Unemployed	Labour Force	Unemployment Rate
<b>Fitzroy SD</b>			
June 2007	3,966	107,289	3.7%
June 2010	6,722	114,739	5.9%
June 2011	6,854	121,151	5.7%
Average Annual % Growth 06-10	14.7%	3.1%	0.49ppt
<b>Queensland</b>			
June 2007	90,311	2,234,655	4.0%
June 2010	137,200	2,410,700	5.7%
June 2011	134,600	2,461,000	5.5%
Average Annual % Growth 06-10	10.5%	2.4%	0.36ppt

Source: DEEWR (2011).

The following figure shows the Fitzroy SD's labour force has increased significantly over the past five years, with over 10,000 people being added over this period. The last three quarters have seen growth of 5.5% or approximately 6,300 people.

The SD's unemployment rate has steadily risen over the past few years from a low of 3.3% in the September 2007 quarter. Unemployment has fluctuated between 5% and 6% since the March 2009 quarter, reaching a high of 5.9% in the December 2009 quarter.

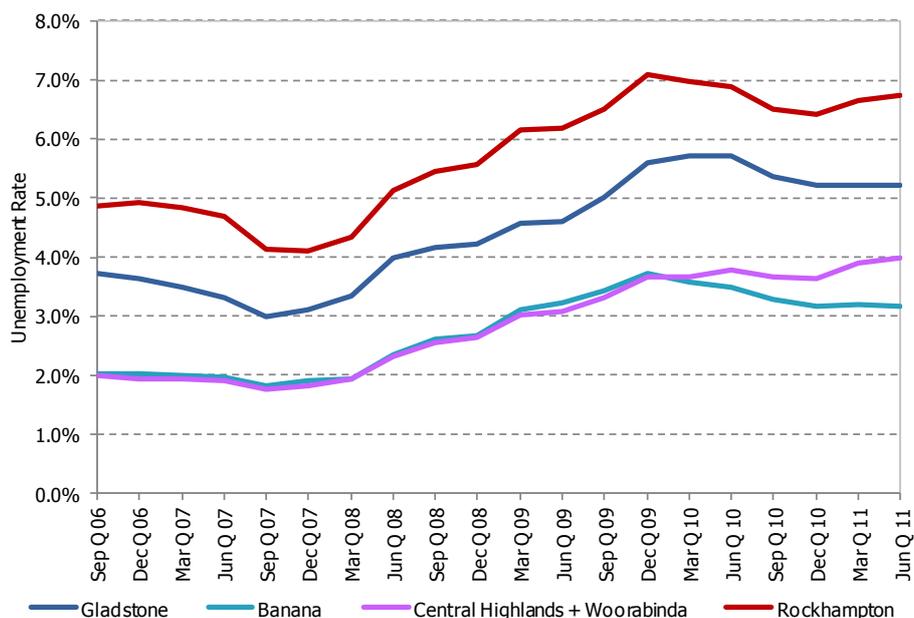
**Figure 2.6. Labour Force and Unemployment Rate, Fitzroy SD**



Source: DEEWR (2011).

The following figure shows the unemployment rates over the past five years of the individual LGAs that make up the Fitzroy SD. The Rockhampton LGA had the highest unemployment rate of the LGAs with unemployment fluctuating between 6.5% and 7.0% over the past two years. The Banana LGA has the lowest unemployment rate in the region, with unemployment being recorded at 3.2% in the June 2011 quarter. The LGA's unemployment rates all follow a similar pattern, recording lows towards the end of 2007 before steadily rising until the December 2009 quarter.

**Figure 2.7. Figure 2.6 Unemployment Rates, Fitzroy SD**



Source: DEEWR (2011).

### 2.3.5 Employment by Industry

The three largest industries by employment in the Fitzroy SD are 'retail trade', 'manufacturing' and 'health care and social assistance', which is similar to the State wide average. However, relative to the Queensland average the Fitzroy SD has particularly large 'mining' (location quotient of 4.23), 'electricity, gas, water and waste services' (location quotient of 2.32) and 'agriculture, forestry and fishing' (location quotient of 1.55) industries. The smallest industry in the catchment relative to state wide average is the 'arts and recreation services', which recorded a location quotient of 0.45.

**Table 2.9. Employment by Industry, Place of Work, Fitzroy SD (2006)**

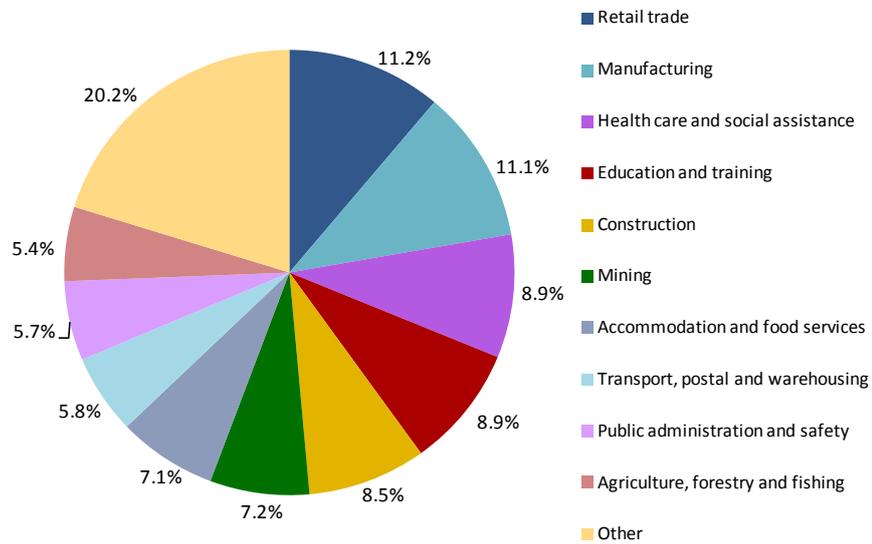
Employment by Industry	Fitzroy SD	Queensland	Location Quotient <sup>(a)</sup>
Agriculture, forestry and fishing	4,455	60,336	1.55
Mining	5,931	29,413	4.23
Manufacturing	9,190	175,179	1.10
Electricity, gas, water and waste services	2,031	18,371	2.32
Construction	7,060	157,056	0.94
Wholesale trade	2,555	70,793	0.76
Retail trade	9,244	208,044	0.93
Accommodation and food services	5,914	123,583	1.00
Transport, postal and warehousing	4,769	89,163	1.12
Information media and telecommunications	665	26,154	0.53
Financial and insurance services	1,446	51,915	0.58
Rental, hiring and real estate services	1,456	37,937	0.81
Professional, scientific and technical services	3,101	102,231	0.64
Administrative and support services	1,811	53,821	0.71
Public administration and safety	4,759	120,347	0.83
Education and training	7,337	137,950	1.12
Health care and social assistance	7,391	183,554	0.84
Arts and recreation services	516	24,198	0.45
Other services	3,188	67,575	0.99
<b>Total</b>	<b>82,820</b>	<b>1,737,619</b>	-

Note: (a) The Location Quotient represents each industry's percent contribution to total employment in the Study Area divided by the industry's contribution to Queensland's total employment and represents the relative proportional size of workforce for each industry compared to Queensland as a benchmark.

Source: ABS (2007a), AECgroup

The following figure shows the breakdown of the ten largest industries in the catchment area by employment. Approximately half of the catchment area's labour force is employed in the five largest industries.

**Figure 2.8. Industry of Employment, Place of Work, (2006)**



Source: ABS (2007a)

## 3. Strategic Freight Planning Context

### Key Findings and Implications:

- There is increasing recognition of the need for an integrated freight network throughout Queensland, and Australia, in order to:
  - Avoid duplication of key infrastructure;
  - Identify infrastructure gaps; and
  - Increase productivity.
- Transport infrastructure has a key role in regional development activity.
- Forward thinking provision of land for industrial growth and freight corridors is essential.
- Partnerships between all levels of government and industry are required to achieve optimal outcomes.
- Consideration of environmental factors (including sustainability, greenhouse gas emissions and air quality) is increasing and is likely to continue to do so.

The following sections summarise the implications of a series of key documents including:

- Queensland Regionalisation Strategy;
- Integrated Freight Strategy for Queensland;
- Brisbane–Cairns Corridor Strategy;
- National Land Freight Strategy Discussion Paper;
- Queensland Infrastructure Plan;
- Bruce Highway Upgrade Strategy;
- Transport Coordination Plan for Queensland; and
- Queensland Coal Transport – Coal Infrastructure in Queensland.

Summaries of the documents reviewed are provided in **Appendix A**.

### 3.1 Queensland Growth

Queensland has one of the fastest growing economies in Australia, unpinned by growth in the mining and energy sectors. Workers are moving into the State from interstate and overseas to take up jobs. Population growth is strong and expected to continue, with an additional 2.5 million people forecast to live in Queensland by 2031 (DLGP, 2011c).

A major challenge for the Queensland Government is to actively manage the impacts of this growth. By investing in infrastructure and services to support growth in regional areas, people will be encouraged to settle outside of South East Queensland. Attracting workers to regional Queensland, where and when they are needed, is an essential part of the Government's population growth strategy.

Primary industries are economically important in Central Queensland. Grazing is a major industry with Rockhampton promoting itself as Australia's beef capital. Currently, the mining and energy industries are strong drivers of population growth and investment. The region is rich in high quality coking coal, much of which is exported through the Port of Gladstone. Central Queensland also produces a significant amount of the state's electricity from the Stanwell, Gladstone and Callide power stations (DEEDI, 2011). The infrastructure requirements to meet the growing needs of the region are substantial. Significant public and private sector investment is already occurring in the region (e.g. Port of Gladstone expansions). There is increasing pressure on transport infrastructure, community resources and utilities to meet industry demands.

### 3.2 Impacts of Infrastructure Investment on Productivity

The total value of known investment projects in Queensland, either committed or under construction, surpassed \$78 billion in the March quarter 2011, the highest on record (DLGP, 2011b). Infrastructure investment drives productivity and competitiveness by reducing the costs of doing business, and finding new ways of producing and delivering goods and services. It is estimated that each dollar of infrastructure investment boosts economic activity by between \$1.00 and \$1.60. The International Monetary Fund estimates gross domestic product (GDP) multipliers from infrastructure investments can be as high as 1.8 (DPLG, 2011b).

Productivity and competitiveness are inhibited by constraints to freight (Infrastructure Australia, 2011). This was highlighted by the 2011 floods and cyclones, which affected numerous rail and road freight routes throughout Queensland. ABARES (2011) estimates that Queensland's coal exports between December 2010 and March 2011 reduced export earnings by around \$2.0–2.5 billion.

Australia's total freight task will double between 2006-2020 and triple by 2050 (Mirvac, n.d.). Transport networks must be efficient – every 1.0% increase in productivity to the freight transport network saves the economy \$1.5 billion (Mirvac, n.d.). In Queensland, the challenge lies in accommodating this rapid growth in freight when exposure to ageing, inadequate infrastructure including sections of the Bruce Highway and the North Coast Railway are high.

### 3.3 Impacts on Central Queensland

Freight management trends are towards higher efficiency freight solutions focused on faster freight carriage and transfer, low inventory levels, automated warehousing and integrated logistics systems (Mirvac, n.d.). The Queensland and Australian governments recognise the importance forward planning and integrated transport strategies (DLGP 2011b, DLGP 2011c, DOTARS 2007, Infrastructure Australia 2011, TMR 2008, TMR 2010). In Central Queensland, direct air and freight routes make Rockhampton the key logistics and freight hub connecting the Capricorn and Bruce highways. Proximity to the Bowen Basin makes Rockhampton a key service and logistics hub for the coal industry, providing road, rail and air services.

The Rockhampton Regional Council (2010) outlines strategic economic, environmental and social goals for the region. This includes making Rockhampton a prosperous and self sustaining region through:

- Effective infrastructure management that delivers ongoing growth; and
- Regional development that occurs as a result of increased investment and the attraction of new, diverse industries.

These goals align to Queensland Infrastructure Plan (QIP) (DLGP 2011b) which include:

- Upgrades to the Dawson, Leichhardt, Bruce, Capricorn and Landsborough highways. A planning project will be finalised in 2011–12 to investigate options to improve the flood immunity of the Bruce Highway between the intersection with the Burnett Highway and Rockhampton;
- Improving heavy vehicle access in Rockhampton to the Bruce Highway, facilitate the Surat Basin Rail project, improve freight access to the Gracemere Stanwell Industrial Corridor, improve freight movement efficiency to and from the Surat Basin, respond to resource growth in the Galilee Basin, support economic and urban growth in key regional centres, and facilitate and manage freight between the Port of Gladstone and industrial precincts; and
- Developing and improving access to the Stanwell Gracemere Industrial Corridor. Enabling industrial development at this location will require significant investment in transport.

### 3.4 Transport Externalities

All modes of transport impose external costs on the community and the transport network. Transport externalities are generally:



- Environmental (e.g., GHG emissions, air quality issues); or
- Social: (e.g., congestion, wear and tear on roads, noise, accidents).

External costs are significantly lower for rail transport compared to road. In planning future infrastructure, the impact of these costs on modal choice and route are likely to be the source of significant future debate (TMR, 2009).

Transport produced 14.8% Australia's GHG emissions in 2009 and is one of the fastest growing sources. Between 1990 and 2009, transport emissions grew by 34.6%. While most emissions are associated with personal travel, those from freight are increasing at a higher rate (DCCEE, 2011).

Climate change policy suggests that freight should increasingly shift from road to rail where possible. Rail requires one third of the amount of fuel and produces less than one third of the emissions compared to road transport. One freight train between Melbourne and Sydney replaces 150 semi-trailers, saves 45,000 litres of fuel, and 130 tonnes of GHG emissions (OEH, 2011).

Australia's overarching climate change policy is the Carbon Price Mechanism (CPM). The CPM will place an impost on every tonne of GHG emissions produced by large emitters from 1 July 2012. For the first three years, the carbon price will be fixed. It will then transfer to an emissions trading scheme (ETS) on 1 July 2015 (Australian Government, 2011).

Transport fuels used in domestic aviation, domestic shipping, rail, off-road transport and non-transport use of fuels are covered under the scheme. Transport fuels used by for on-road transport by vehicles are excluded. The government is proposing to include heavy vehicles in the scheme from 1 July 2014, however, this has not been agreed to by all members of the Multi-Party Climate Change Committee. The impact of a carbon price on the freight industry remains unknown.

## 4. Central Queensland Freight Task

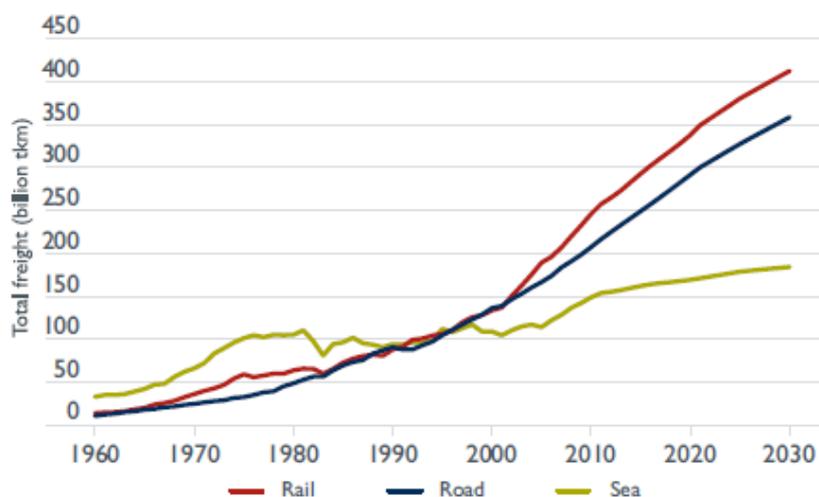
### Key Findings and Implications:

- There has been a very large increase in the total freight task across all modes of transport and in particular road and rail.
- Not all commodities can be carried efficiently by all transport modes.
- Intermodal logistics facilities are characterised by the need for large, continuous, throughput volumes.
- Inland ports have been successfully established in several countries and these are reliant upon high quality road and rail connections to major port facilities and close proximity to large markets.
- In Australia, major intermodal facilities tend to be located at the major port facilities although smaller road and rail facilities are beginning to emerge associated with the development of large industrial areas which provide a ready source of freight flows in to and out of the facility.
- Intermodal facilities can act as a keystone for other transport and industrial infrastructure.
- Several intermodal facilities have reached feasibility planning stages but have not yet proceeded to implementation.

### 4.1 Australian Freight Task

Prior to the 1960s, rail was the predominant form of land-based freight transport in Australia. Through improving infrastructure and capabilities of road transport since this time, road freight transport has grown significantly, although rail still remains a significant form of freight transportation. In 2007, total Australian freight levels reached 521 billion tonne kilometres, of which 40.0% was transported by rail. These levels had doubled over the previous 20 years, averaging 3.5% growth annually (BITRE, 2009). Between 2005 and 2030, both rail and road freight is expected to double again, at an average growth of 3.0% annually (BITRE, 2009). The growth in rail freight is largely based on the minerals and resources boom increasing demand for bulk haulage, whilst road freight growth is largely underpinned by manufactured goods.

Figure 4.1. Long Term Australian Freight Trends



Source: Department of Infrastructure and Transport (2009)

Rail freight largely comprises of bulk freight, defined as large quantities of homogenous goods. These goods are usually characterized by being a high quantity, low value

product. Rail accounted for 48% and shipping 36% of the bulk freight services in 2006-2007, with major cost benefits in rail transport over road transport in coal and iron ore (BITRE, 2009). During this period, the rail task totaled 102 billion tonne kilometers, of which 67.6 billion tonne kilometers was bulk freight, and 34.4 billion was intermodal freight (BITRE, 2008). This increased significantly in the 2007-08 period, with total task at 197.6 billion tonne kilometers, of which 171.7 billion was bulk freight and 25.9 billion was intermodal freight (BITRE, 2010).

In some bulk products, such as grains, sands and uranium, road and rail can both compete and cooperate in freight transport. Whilst rail freight is a cost effective option when the required infrastructure is in place, where it is not, road transport can effectively compete with rail, and act as a link between the rail infrastructure and the departure point of the good.

Significant economies of scale are also present for rail in terms of cost related to volume and distance travelled. This gives the rail freight mode a significant advantage over the road freight mode over longer distances, as road transport costs per distance are largely fixed. This is compounded by the rising oil prices driving cost per distance up for road transport at a higher rate than rail freight costs (BITRE, 2009). This gives a significant advantage to rail freight transport in the future given that oil price trends continue to rise. Rail is however hindered by the inability to service freight to locations beyond the infrastructure in place.

## **4.2 Rail**

### **4.2.1 Coal**

The Central Queensland Blackwater Coal System is the largest system operated by QR National and carries the second highest tonnages on the network. The System services the Bowen Basin linking mines to the export terminals at the Port of Gladstone. The Blackwater System also services domestic users including Stanwell and Gladstone Power Station, Cement Australia and the Comalco Refinery. The Port of Gladstone has stockpiling facilities which provide some supply flexibility. The System is a mix of electrified and non-electrified track including single and duplicated sections. At the Port of Gladstone QR National has a dangerous cargo spur line and direct access to the port and its container facility.

In 2010-11, a year in which production was significantly reduced due to flooding, the Blackwater System still hauled a total of 45.8 million tonnes of coal, having previously moved in excess of 50 million tonnes in previous years. A range of macro-economic factors, coupled with planned infrastructure investments, indicate the volume of coal moved will continue to increase over the medium to long-term and that track capacity will be the limiting factor rather than demand.

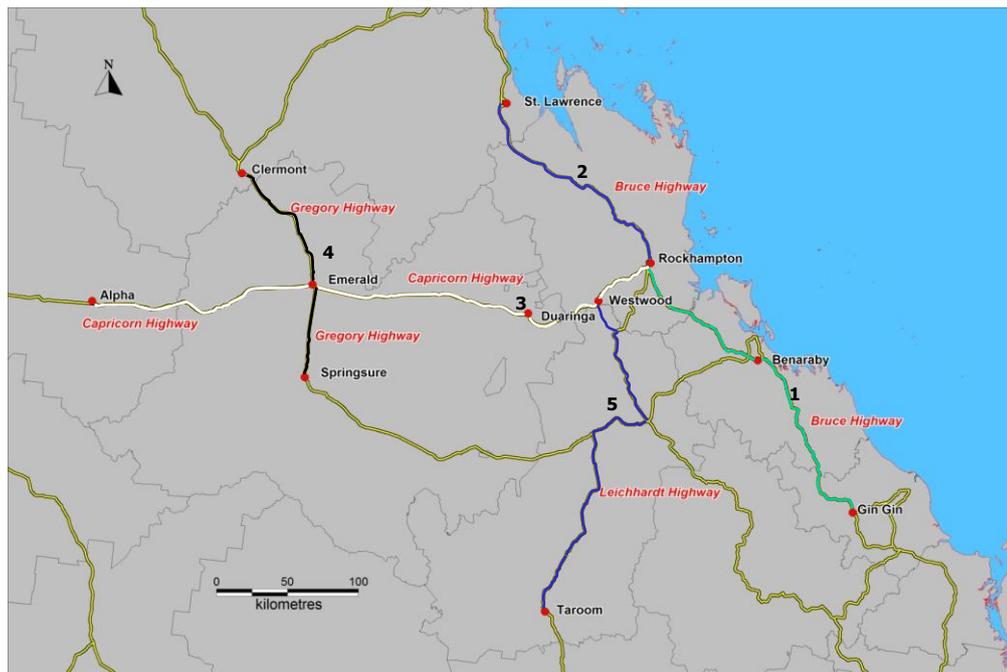
### **4.2.2 Other Freight**

The North Coast Line system is the principal freight and passenger line within the Queensland Rail network, running the length of Coastal Queensland between Brisbane in the south and Cairns in the north, a distance of 1,680 km. The system caters for all traffic tasks including containerised freight services, high speed tilt trains, commuter services, heavy haul single commodity trains of sugar, grain or minerals and cattle trains. Freight services are operated by QR National and Pacific National. The North Coast Line system carries in excess of 11.0 million tonnes of various products annually (QR National, 2012).

## **4.3 Traffic Counts**

The Department of Transport and Main Roads collect traffic data for principle routes around Queensland and have provided data for selected routes in Central Queensland which are highlighted in the following figure.

**Figure 4.2. Central Queensland Traffic Count Routes**



Source: TMR (2011)

The average daily traffic flow of heavy vehicles along the Bruce Highway between Gin Gin and Rockhampton was between 600 and 1,100 heavy vehicles per day, depending on the section of highway. The heavy vehicle numbers along the Bruce Highway peak entering Rockhampton and north of Gladstone, with over 1,000 vehicles per day travelling along this route. In contrast, vehicle numbers along the Bruce Highway drop to their lowest levels along the Bruce highway to the south of Gladstone. This indicates that a large proportion of regional freight flows between Gladstone and Rockhampton.

The average annual number of heavy vehicles what travel between Rockhampton and St. Lawrence average between 400 and 800 vehicles, depending on the segment of road. The number of heavy vehicles travelling along this route gradually decreases from a maximum of 770 just north of Rockhampton to 423 at the Rockhampton-Mackay Shire Boundaries.

West from Rockhampton, along the Capricorn Highway, total heavy vehicle numbers between Rockhampton and Alpha are constant along the majority of the highway, with decreases in traffic volumes offering at major intersections. Between Rockhampton and Duaringa, the average annual daily number of heavy vehicles is approximately 350. This number decreases after Duaringa, where vehicles turn off the Capricorn Highway onto the Fitzroy Development Road, accounting for approximately 100 heavy vehicles. The number of heavy vehicles remaining on the Capricorn Highway does not significantly change until the road reaches Emerald, where the Capricorn Highway intersects with the Gregory Highway, which accounts for another large decrease in heavy vehicles travelling along the Capricorn Highway. After this point, the number of heavy vehicles slowly decreases until Alpha.

Heavy vehicles along the Gregory Highway, between Springsure in the south and Clermont in the north, were highest around Emerald, with total annual average vehicles amounting to 237 heavy vehicles to the north of Emerald. In contrast, Springsure recorded 10 heavy vehicles per day. This indicates that the vehicles which travel along the Gregory Highway between Springsure and Clermont originating from either the Capricorn Highway or to the north of Clermont.

**Figure 4.3 Central Queensland Total Average Daily Traffic Counts**

Highway Route	Start	Midpoint	Final	Distance
<b>Vehicle Counts</b>				
Bruce Highway (Gin Gin to Rockhampton)	694	757	1071	268km
Bruce Highway (Rockhampton to St. Lawrence)	679	661	533	178km
Capricorn Highway (Rockhampton to Alpha)	606	262	50	434km
Leichhardt Highway (Westwood to Taroom)	165	201	121	257km
Gregory Highway (Springsure to Clermont)	10	217	123	172km
<b>Tonnage</b>				
Bruce Highway (Gin Gin to Rockhampton)	23,920t	26,699t	37,206t	268km
Bruce Highway (Rockhampton to St. Lawrence)	23,725t	24,251t	18,970t	178km
Capricorn Highway (Rockhampton to Alpha)	21,333t	10,348t	1,986t	434km
Leichhardt Highway (Westwood to Taroom)	6,415t	8,960t	4,712t	257km
Gregory Highway (Springsure to Clermont)	227t	8,300t	4,904t	172km

Source: Queensland Government Department of Transport and Main Roads (2010) Traffic Analysis and Reporting System, AADT Segment Reports, Traffic Year 2010, Queensland Government, Brisbane

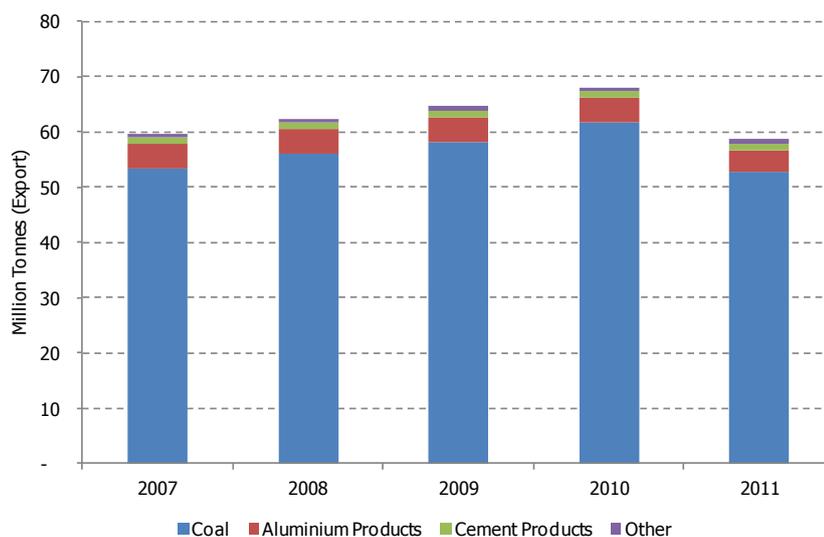
## 4.4 Port Volumes

Much of the freight moving around the Central Queensland region is heading for or coming from the Port of Gladstone, and to a lesser extent Port Alma. The following sections summarise the type and volume of freight imports and exports at each facility between 2007 and 2011.

### 4.4.1 Port of Gladstone

The following figure shows the tonnage of exported goods from the Port of Gladstone. The port is predominantly used for exports, with approximately 80% of the tonnage traffic consisting of exports.

**Figure 4.4. Export Tonnage – Port of Gladstone**



Source: Port of Gladstone

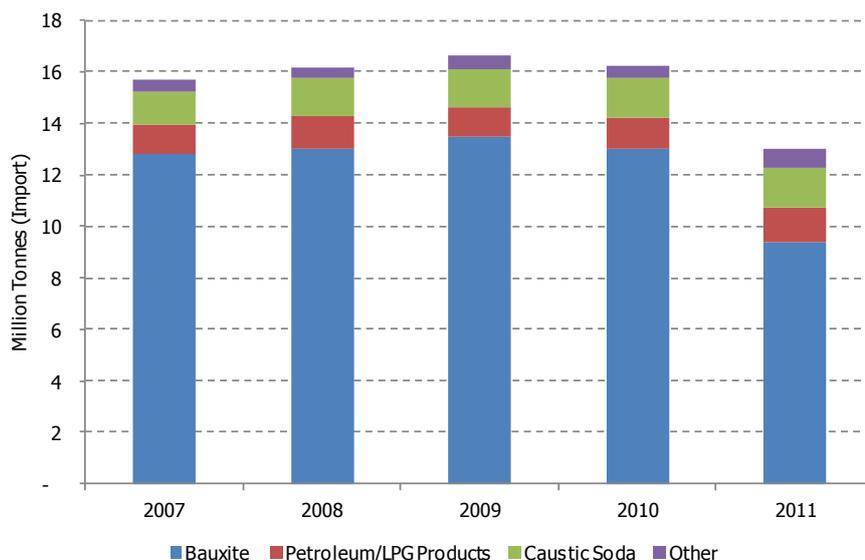


Coal accounts for the majority of exports, contributing to an average of 56 million tonnes (over 85% of total) of exports annually. Coal exports between 2008 and 2010 showed consistent growth (5.21%, 3.29%, and 6.37% respectively), with 2011 showing a decline as a result of the January floods and associated production delays.

Aluminium and alumina are the second largest exports, averaging four million tonnes annually. Cement products and other exports make up less than five percent of the total exports with tonnage of under two million annually most years over the five year period.

The following figure summarises the import tonnage into the Port of Gladstone. As reflected in exports, 2011 shows a significant reduction in total imports following the January floods.

**Figure 4.5. Import Tonnage – Port of Gladstone**



Source: Port of Gladstone

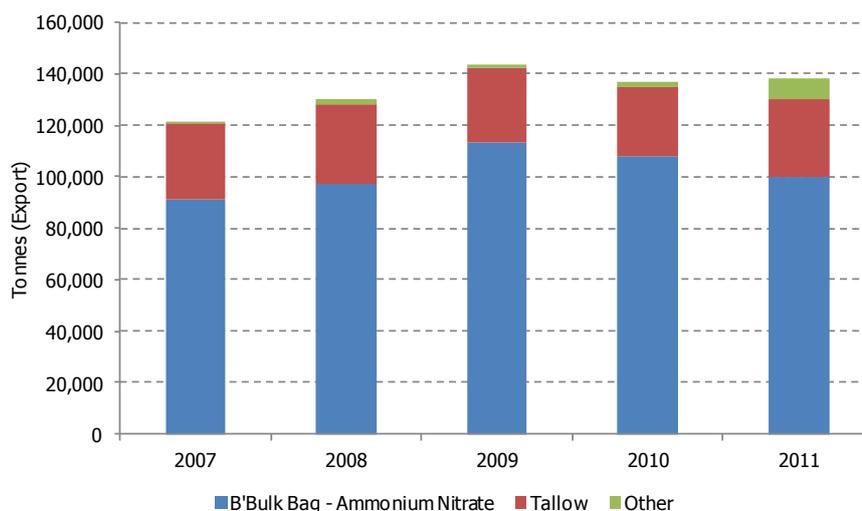
Bauxite is the largest import into the port, with an average of 12.3 million tons imported annually. This represents 79% of total import tonnage, with petroleum and LPG products, caustic soda, and other products making up the remaining 21% of imports.

Before 2010, bauxite imports were increasing at an average of 2.51%, after which bauxite imports declined in 2010 (3.25%) and 2011 (27.89%). Caustic soda, and Petroleum and LPG product imports are the second and third largest imports to the port averaging 1.46 million tons (9.39%) and 1.23 million tons (7.93%) respectively over the five year period. Caustic soda imports grew by approximately 5% between 2007 and 2011, with petroleum and LPG imports over the five years showing an average growth rate of 4.43%. Both caustic soda, and petroleum and LPG product imports continued to grow in the 2011 by 4.79% and 9.34% in contrast to the contraction of bauxite imports in the same year.

#### 4.4.2 Port Alma

Port Alma shipping traffic is largely dominated by ammonium nitrate movements in and out of the port. The following figure demonstrates that over a 5 year period between 2007 and 2011, bulk-bagged ammonium nitrate accounted for 76.22% of export traffic in the port, with an average of 102,083 tons per year.

**Figure 4.6. Export Tonnage – Port Alma**

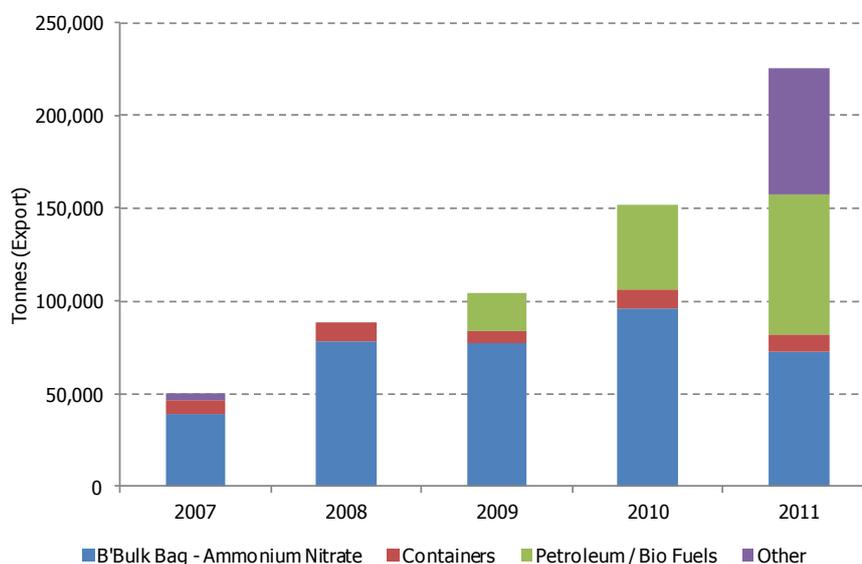


Source: Port of Gladstone

Over the 5 year period there was an average export growth rate of 2.72% in ammonium nitrate, with the peak traffic by tonnage in 2009 at 113,671 tons. The only other export of significance in the port is tallow, of which the average tonnage per year was 28,055, and a growth rate of 1.06% over the five year period.

Imports into Port Alma also largely consist of ammonium nitrate shipping, with a recent increase in petroleum and bio fuels imports in the last three years.

**Figure 4.7. Import Tonnage – Port Alma**



Source: Port of Gladstone

Ammonium nitrate imports over the five years averaged at 72,545 tonnes annually, at a growth rate of 25.2%. This growth was characterised by a large growth of 102.6% between 2007 and 2008 and a contraction in import tonnage of 24.80% between 2010 and 2011. The import of petroleum and bio fuels into the port from 2009-2011 grew rapidly, at an average rate of 94.5% over the three years to reach 75,777 tonnes per year. The other significant feature of imports over the 5 year period was the increase in other shipping imports in 2011, largely due to salt imports of 67,936 tons during the year.

## **4.5 Summary**

There are already significant freight movements in the region and these are forecast to continue to increase. Freight is transported by road, rail, and sea as well as a small volume by air. The choice of mode is determined by the characteristics of the commodity to be transported including its size, uniformity, value as well as its destination. It is important to recognise that not every commodity is suitable for transport by every available mode.



## 5. Opportunity for an Intermodal Facility

### Key Findings and Implications:

- There are existing facilities with intermodal capability in the Central Queensland region which appear to operate on a financially viable basis.
- These facilities have significant site constraints and conflict of use issues but both sites also have major sunk costs.
- Much of the current and forecast increase in freight in the region is not suitable for intermodal transport.
- There are a series of currently unknown factors that may improve the feasibility of an intermodal facility over the medium to long-term.
- Unless the existing operators were compensated for their sunk investments, the intermodal component of the facility is not considered viable and should not be considered further in the pre-feasibility study.
- The remainder of the study should focus upon a road based logistics precinct.

### 5.1 Trends in Intermodal Transport

#### 5.1.1 Current National Issues

In the past, infrastructure planning has often paid insufficient attention to intermodal freight transport. A major cause of inefficiencies in rail freight transport is the location of intermodal terminals. Most terminals are located in the inner metropolitan areas and all freight transport has to enter and exit through these highly congested areas.

Road and rail services are often complimentary with investments in one mode having effects on the utilisation of the other. Reviewing and developing road, rail, urban congestion and land use policies in isolation is unlikely to solve problems issues facing the rail industry or the problems facing cities as they continue to grow.

The growth and geographic expansion of cities has brought formerly outer suburbs to terminals that were built outside the city area and many terminals are now being encircled by residential and commercial areas. Consequently, urban growth has reduced the productive potential of existing terminal assets.

The demand for non-bulk freight transport is forecast to grow faster than the rate of economic growth. However, the rail industry's ability to address this increased demand is constrained by the adequacy and location of corridors and freight facilities. Terminals are needed with optimal road and rail links, ability to handle long trains with minimal shunting, and scope for long-term capacity growth.

The rail industry has proposed strategies to address these issues that would see:

- The promotion of the development of a network of intermodal terminals in outer urban industrial centres with efficient rail and road links; and
- Encouragement for container storage, packing and other value adding activities to be progressively located at or near these outer-urban terminals, away from the central port precinct towards rail, and reduce urban road congestion costs caused by having a sub-optimal over-use of roads.

#### 5.1.2 Future Developments

Freight handling methods continually evolve, seeking new and more efficient ways to move goods from point A to Point B. The key drivers of these developments include:

- **Economy of scale** - larger parcels for handling can generally be more cost effective;
- **Advances in technology** - containerisation, roll-on/roll-off methods, packaging of loose products;

- **Increases in ship size** – largely driven by the need for economies of scale;
- **Increased cost of labour** – observed in all markets and in developed world in particular;
- **Increased energy costs** – likely to become increasingly important post peak oil; and
- **Legislation and standards** - particularly safety, emissions and materials handling.

These drivers have resulted in larger cargo handling equipment and changes to operating practices and the storage and transport of cargo. Increases in the cost of commodities and goods and increases in the cost of fuel have led to shippers and cargo handlers wanting to increase the average parcel size. This has also been driven by increases in ship sizes again in response to the need to make cost savings by economies of scale. Of particular note for the Central Queensland Intermodal Logistics Hub:

- Cargo handling equipment in ports, storage areas and at manufacturers has changed considerably and it is envisaged cargo handling equipment will continue to have increased lifting capacity, to be able to lift with greater reach and to lift at increased speeds (within limitations). Cargo handling equipment in the storage yard is also increasing in size and number due to the increase in parcel size.
- Currently the majority of cargo handling equipment is powered by non-renewable energy sources including diesel fuels and electricity from coal or gas fired power stations. In order to reduce green house gases equipment will need to be powered in future from renewable energy sources. Diesel powered equipment is slowly being converted with fuel saving hybrid systems but these are only a stop-gap solution as the equipment still emits carbon dioxide. The amount of legislation and regulations related to environmental improvement and reducing green house gases will increase and will affect the type of cargo handling equipment and cargo handling methods that are employed.
- Hydrocarbon fuels will be phased out and more attention will be paid to reducing noise levels of equipment both to protect operators and neighbours. Safety regulations will be tightened to further reduce injury and death with increasingly sophisticated control and sensing systems to reduce human error. The use of automated equipment will continue to rise as a way of eliminating man/machine interfaces and hence injuries.
- Cargo handling equipment will increase in size and sophistication and more functions will be automated. Prime movers will take energy from renewable sources and energy management will be included in all equipment. In 50 years time most mobile equipment and transport will be powered by fuel cells or hydrogen. Cargo parcels and units will continue to get larger and hence heavier.

## 5.2 Intermodal Facilities

The following table summarises the key characteristics of some examples of existing intermodal facilities in Australia.

**Table 5.1. Characteristics of Selected Intermodal Facilities**

Facility and Description
<p><b><u>Brighton Transport Hub Tasmania</u></b></p> <ul style="list-style-type: none"> <li>• The Brighton Transport Hub is a \$79 million Intermodal Transport hub covering 50 hectares currently under construction in conjunction with the Brighton Bypass on the northern fringes of Hobart. The Bridgewater Industrial Estate was chosen as the preferred site of the Inland port because of its close proximity with the Midland Highway and the State's southern railway line.</li> <li>• On completion the facility facilitate the transfer of freight between road and rail transport and increase freight efficiencies between Tasmania's southern and northern ports (The Department of Infrastructure, Energy and Resources 2012). The Brighton Bypass is a critical part of the development will provide improved connections to and support for the development of the new freight transport hub. The \$79 million hub is expected to be operational by September 2011 and the \$164 million Bypass is scheduled for completion by June 2012.</li> <li>• This project aims to provide: <ul style="list-style-type: none"> <li>○ A highway system to accommodate Tasmania's growing freight task, which is projected to double by 2022.</li> <li>○ A highway system that supports the changed direction of trade from southern Tasmania to the northern ports.</li> <li>○ A more consistent operating environment for freight traffic and passenger vehicles.</li> <li>○ Reduced freight travel times and improved transport efficiencies for freight vehicles, travelling between the Southern Region and northern destinations.</li> <li>○ Reduced conflict between the through traffic function of the Highway and the local access requirements of the Brighton area.</li> <li>○ Benefits to industrial and warehousing activities, supporting economic growth in southern Tasmania.</li> <li>○ Seamless connections between road/rail freight via the Brighton Transport Hub.</li> <li>○ Improved access to the developing Brighton Industrial Estate.</li> <li>○ Safer road network for all users by addressing many safety issues associated with the deficiencies of the existing highway.</li> <li>○ Reduced road trauma and the associated economic costs of crashes to the community</li> <li>○ Significant social benefits through improved amenity in Brighton and Pontville.</li> </ul> </li> <li>• The projects are considered fundamental to the long-term importance for the future of transport in the region and will provide a modern road-rail interchange and freight distribution hub to improve the efficiency of freight movement into and out of southern Tasmania.</li> </ul>
<p><b><u>Western Sydney Intermodal Hub</u></b></p> <ul style="list-style-type: none"> <li>• P&amp;O Trans Australia and QRN operate a domestic and international rail hub at Yennora in western Sydney.</li> <li>• The hub includes an intermodal terminal which will cater for QR's national intermodal business and also a new port shuttle service carrying international cargo to and from Port Botany. The shuttle service has the capability for 10 train services per day to and from Port Botany and domestic capital cities.</li> <li>• The Yennora hub provides industry with an all-rail service linking Port Botany to western Sydney via the port shuttle and throughout Australia using a domestic rail service.</li> <li>• The port shuttle can handle container traffic to and from Port Botany by rail in larger volumes and more reliably than is currently possible by road, given congestion levels.</li> <li>• A critical advantage of the Yennora development was the opportunity to allow customers access to a fully integrated rail transport solution with the ability to connect from vessel to rail to terminal to customer to national distribution.</li> <li>• The Yennora development includes rail-based warehousing at the site, allowing for the distribution of domestic and international product throughout Australia from a single facility. The site also includes empty container storage, repairs and handling facilities to remove unnecessary road legs from the transport chain and make international containers readily available to exporters. Other benefits include a central receipt terminal for container packing of domestic and international loads and the provision of a full range of Customs and AQIS handling services, removing the need to deliver boxes to third party facilities for inspection and treatment. There will also be a transport fleet on site to provide on time pickup and delivery for customers in the area.</li> </ul>
<p><b><u>Acacia Ridge</u></b></p> <ul style="list-style-type: none"> <li>• Primarily used for interstate and intrastate rail freight movements.</li> <li>• Lack of capacity to accommodate some train lengths.</li> <li>• Some space limitations at precinct.</li> <li>• Links to surrounding road network north, south and west.</li> <li>• Hub is landlocked and prone to flooding.</li> <li>• Key industrial areas are in proximity to major roads that service the hub.</li> </ul>

Facility and Description
<p><b>Bomen Business Park Wagga Wagga</b></p> <ul style="list-style-type: none"> <li>• The Bomen Business Park aims to be a high-quality and nationally renowned place for transport and logistics-based enterprises, well-designed and integrated with existing industry, which meets the requirements of a targeted range of businesses and supporting activities; to complement and nurture a more sustainable City of Wagga Wagga and Riverina Region.</li> <li>• Bomen Business Park straddles either side of railway between Melbourne &amp; Sydney and also has excellent access to state and national road network. Close proximity to Wagga's airport.</li> <li>• More land area available and it is proposed to establish the Riverina Intermodal Freight and Logistics (RIFL) Hub at the Bomen Business Park involving the construction of integrated rail, road and freight logistics infrastructure.</li> <li>• The RIFL Hub will provide freight consolidation, logistics support and open access rail transport services for businesses throughout the Riverina and will include a grain packing service and container storage site</li> <li>• The Hub will initially focus on providing bulky goods long line-haul rail services to and from the ports of Melbourne, Sydney, Port Kembla and Brisbane.</li> </ul>
<p><b>Parkees</b></p> <ul style="list-style-type: none"> <li>• Parkees sits on Newell Highway, the major freight route between Melbourne &amp; Brisbane (1400 heavy vehicles per day).</li> <li>• Road train access from Adelaide as well.</li> <li>• Planning to develop strategic road transport plan, that meets access needs of Parkees hub while also protecting the local residential amenity.</li> <li>• Linked by rail to Sydney, Perth, Melbourne, Brisbane, Adelaide.</li> <li>• Steep topography and curfew in metro areas provide constraints.</li> <li>• Hub provides rail access to numerous ports.</li> <li>• Main industries of town are copper &amp; gold mining, wheat, wool, transport &amp; storage.</li> </ul>

Source: Various

## 5.3 Central Queensland Intermodal Logistics Hub

### 5.3.1 Demand

Central Queensland is traversed by the main north south rail line between Brisbane and Cairns and includes the current intermodal facilities in the centre of Rockhampton and at Port Curtis. Freight trains heading north from Brisbane and south from Cairns and Townsville collect and drop off wagons on their onward journey which are then transported to their final destination throughout the region using road haulage.

While the worldwide growth in containerisation has been reflected in the region, many of the major commodities which move through the region are unsuited to being transported in this way including:

- **Coal and other bulk commodities** – coal and other bulk commodities are moved through and around the region in specialist vehicles (road or rail) with no benefit, and potentially significant additional costs, from transshipment at an intermodal facility.
- **Mining equipment** – the high value of some mining parts and equipment and more importantly the opportunity costs of lost time waiting for parts means that many pieces of equipment are moved between suppliers and the consumers on a courier type basis. There is very limited opportunity to move these types of equipment by intermodal transport.
- **Fuel** – fuel is landed at Port Alma and the Port of Gladstone and then distributed by road based transport. While historically many smaller settlements maintained their own fuel bunkering facility, additional environmental controls and improvements to vehicles and the road network mean these operations are no longer viable. There is no benefit from collecting fuel supplies at the quayside and moving them by rail to a separate storage facility from which final distribution is made by road. Instead, fuel is loaded from large storage tanks at the port and driven straight to the final consumer or retailer.
- **Cattle** – the Central Queensland region is renowned for its beef production but very little now moves by rail. Increased competition for space on some networks and the additional flexibility offered by road based haulage has significantly reduced the volumes of cattle and beef products moved by rail. Discussion with industry suggests this is very unlikely to change in the foreseeable future.
- **Grains** – as with cattle, grain transport has shifted away from rail as a result of competition for space with bulk commodities. While some storage and consolidation is

required, this is undertaken in the primary grain growing areas before transport to domestic markets or for export.

- **Horticultural production** – the absolute volume of horticultural production in the region is too small and too seasonal to support an intermodal facility. Goods would need to be loaded at the farm gate, brought to the intermodal hub put onto a train then unloaded and driven to the wholesale markets or processors. This double handling would be uncompetitive compared to road only transport.

It is not as simple as identifying total freight demand in the region and deciding that this alone can justify an intermodal facility. However, two such facilities exist in Rockhampton. Discussions with the operators suggest both facilities are viable although constrained in terms of future growth at their current location. The principle goods which are moved through the facility include:

- **Food** – much of the food supplies for Central Queensland are brought into the region by rail for onward distribution into stores by road. This supply line is in addition to supplies which are brought in by road straight from supermarket distribution centres and smaller producers.
- **Retail Supplies** – supplies for other retailers, other than food, are also brought in by rail and again are then distributed around the region by road.
- **General Cargo** – some consolidated loads are also brought into the region by rail for sorting/destuffing/consolidation and onward distribution by road.

### 5.3.2 Construction Costs

Preliminary discussions with stakeholders suggests the estimated capital investment needed to establish the intermodal equipment needed, excluding all other development costs is estimated to be between \$35-\$40 million. Unlike the development of a logistics hub, or other warehousing and industrial development, there could be very limited opportunity for staging the development to match any ramp up in demand over time. The facility would need to be established at its final scale with future expansion through duplication of the equipment on the ground.

For these types of facility to be successful, it would need to be operating on a continuous 24 hour basis all year round. While some seasonality could be accommodated, the operating model would need to be centred around a few key high volume products which would account for the majority of throughput with additional seasonal demand a bonus.

### 5.3.3 Barriers to Entry

Given the apparent success of the existing facilities it might appear logical that they should be relocate to a new site in the region where the current constraints and conflict of use issues are removed. However, this fails to recognise the investment both organisations have made in their existing infrastructure. Although constrained these issues are not so severe that they would consider moving without some form of compensation. Stakeholders recognise the value in the move but from a practical point of view understandably are unwilling to walk away from their investment.

### 5.3.4 The Future

The freight industry has changed significantly in the last twenty years and the intermodal sector in particular. The advent of satellite tracking systems, optimisation software and the move towards automated just in time inventory management systems have all had major impacts on the logistics sector. It is unlikely the pace of this change will slow down and indeed might increase. Future changes are likely to impact upon the feasibility of an intermodal facility, including:

- **Carbon price** – The Carbon Price Mechanism places an impost on every tonne of Green House Gas emissions produced by large emitters from 1 July 2012. For the first three years, the carbon price will be fixed. It will then transfer to an emissions trading scheme on 1 July 2015. While transport related emissions are currently largely exempt, it is almost certain that in the medium to long-term a market based carbon price will be applied to the transport sector. While these prices are likely to be passed on the end consumer, the relative carbon contribution of different transport

modes is likely to have a significant impact on the volume (and value) of freight moved. It is likely that rail and sea freight (containerised and bulk) will become more competitive with road freight over shorter distances.

- **Planning and development** - An investment of the magnitude needed to establish an intermodal facility is almost certain to be a long-term consideration with operating profits needed to provide an appropriate return on investment over the long-term. In considering investment of this nature one of the key considerations is the major infrastructure developments likely of take place in the payback period and the impact of these developments on the feasibility of the investment.

## **5.4 Summary**

There is limited opportunity to establish a viable intermodal logistics hub in the Central Queensland catchment. There are existing facilities operating in the region and many of the goods which are required as a result of the expansion of the resources sector are not suitable for intermodal transport. If it were possible to relocate the existing facilities out of Rockhampton to a new purpose built facility, it is likely this new consolidated facility would be viable. However, given the capital investment in the existing facilities there is strong resistance to moving unless appropriate compensation was available.

The impact of carbon pricing and peak oil on the price point at which rail becomes a more cost effective transportation option than road is unknown although it is widely agreed these macro factors will improve the competitiveness of rail. It is important the logistics hub is capable of incorporating a rail component over the long-term but in the short-term this should not be considered further in this assessment.

A road based logistics precinct, which seeks to service identified demand for warehousing, secure storage and other industrial sites as well as accommodating a series of ancillary industries may offer a more realistically viable opportunity.

## 6. Demand for a Logistics Hub

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### **Key Findings and Implications:**

- There are large and growing freight flows through the Central Queensland.
- The majority of these flows are South-West and North-South.
- The majority of these flows (excluding bulk commodities) are undertaken by road.
- There may be an opportunity to establish a facility which meets the needs of the transport sector as well as pursuing other related opportunities which have been identified.
- There is widespread support for the concept of a logistics hub and stakeholder recognise the potential advantages of a purpose built and well located facility as well as the opportunities to benefit from locating nearby customers and suppliers.
- Some existing operators are reticent to move from the existing locations where they have made significant investment in capital improvements.

### **6.1 Potentially Viable Opportunities**

The following table summarises stakeholder comments on potential freight flows through a logistics hub in the region and the ancillary suppliers likely to be attracted to of such a facility.

**Figure 6.1. Potentially Viable Opportunities at a Logistics Hub**

Opportunity	Benefits from Location in CQ	Benefits to Other Users	Risks	Future Prospects
<b>Mining Services Parts Storage and Distribution</b>				
<ul style="list-style-type: none"> <li>The opportunity costs of mining operations being held up while waiting for parts can run into millions of dollars</li> <li>Equipment and parts come in many sizes and configurations and may be needed at very short notice</li> <li>Efficient transport, storage and access to a wide range of parts and equipment is critical</li> </ul>	<ul style="list-style-type: none"> <li>CQ is well positioned to service three major resource provinces (Surat, Bowen and Galilee)</li> <li>Parts can be kept at a readily accessible central location for rapid delivery when needed</li> <li>Centralised offsite storage is cheaper and easier to coordinate than maintaining a very large inventory at mine sites where available space may be limited</li> <li>There is an established network of mining equipment service providers in the CQ region as well as new entrants</li> </ul>	<ul style="list-style-type: none"> <li>Mining support services could act as a potential anchor for the development</li> <li>The presence of a major mining support services facility would be very likely to attract freight operators and other ancillary service providers</li> </ul>	<ul style="list-style-type: none"> <li>Existing operators are unlikely to abandon current sites but future growth is constrained and facility would offer an opportunity to expand</li> </ul>	<ul style="list-style-type: none"> <li>There is a strong expectation of sustained increased mining activity in the region and therefore additional demand for equipment and parts</li> <li>Increasing use of web based procurement and inventory management tools is likely to offer efficiency savings from centralised parts storage and distribution</li> </ul>
<b>Food Distribution Centre</b>				
<ul style="list-style-type: none"> <li>CQ region is currently predominantly serviced from SEQ based distribution centres (including fruit and vegetables grown further north)</li> <li>The anticipated increased permanent and temporary population is almost certain to increase demand for food products in the region</li> </ul>	<ul style="list-style-type: none"> <li>CQ distribution centre could also be used to service areas further north and west</li> <li>Far enough away from existing facilities in SEQ</li> <li>CQ has strong agriculture sector which could tie into the distribution facility</li> <li>Central location offers opportunity for smaller supermarket operators to establish a foothold in region as part of broader expansion strategy</li> </ul>	<ul style="list-style-type: none"> <li>Food distribution centre could become an anchor tenant for the site</li> <li>The presence of a food distribution centre would be very likely to attract freight operators and other ancillary service providers</li> </ul>	<ul style="list-style-type: none"> <li>Dependent on strategic plans of supermarkets little can be done to influence this decision making process</li> <li>Amongst the larger supermarkets, the trend is towards increased centralisation of distribution centres</li> </ul>	<ul style="list-style-type: none"> <li>Population growth is a major driver so strong expectation of increased demand for food products in the region</li> <li>CQ may not be preferred location due to strategic planning of major operators</li> </ul>



Opportunity	Benefits from Location in CQ	Benefits to Other Users	Risks	Future Prospects
<b>Construction Materials Storage and Distribution</b>				
<ul style="list-style-type: none"> <li>Forecast increased in construction activity to support mine establishment and anticipated additional housing demand as a result of population increase</li> <li>Requirement for storage and distribution facility</li> </ul>	<ul style="list-style-type: none"> <li>Close to mines and residential centres limiting travel times</li> </ul>	<ul style="list-style-type: none"> <li>Provides footfall for ancillary services</li> </ul>	<ul style="list-style-type: none"> <li>As mining moves to operating phase there may be a downturn in construction demand but unlikely to occur in short-medium term</li> </ul>	<ul style="list-style-type: none"> <li>Anticipated construction demand (and therefore demand for materials) will be strong over the short-medium term</li> </ul>
<b>Bus Terminal, Maintenance Facility and Car Parking</b>				
<ul style="list-style-type: none"> <li>The mining sector is increasingly using bus companies to transport workers between residential centres, major transport interchanges and mines</li> <li>Key drivers include: <ul style="list-style-type: none"> <li>Air transport is not appropriate for all sites</li> <li>Increasing awareness of OH&amp;S issues (workers driving long distances before or after long shifts)</li> <li>Limited parking at mines</li> <li>High volumes of freight traffic on major road routes</li> </ul> </li> <li>Potential opportunity to establish a bus terminal at any future development incorporating: <ul style="list-style-type: none"> <li>Terminal</li> <li>Car parking</li> <li>Maintenance facility</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>CQ is well positioned to service three major resource provinces (Surat, Bowen and Galilee) via Rockhampton airport</li> <li>Could also provide space of car parking and bus maintenance at one site</li> <li>Addresses issues with neighbours unhappy at worker's cars being parked for long periods in residential areas</li> <li>Allows servicing and maintenance of vehicles at hub (no need to drive bus while empty to another site)</li> </ul>	<ul style="list-style-type: none"> <li>Location of bus hub provides footfall for retail and other services at the development</li> <li>Maintenance facilities almost certain to make the development more attractive to ancillary business for example tyre and parts distributors</li> <li>Car parking provides additional revenue stream from land with limited alternative uses or which has been earmarked for future expansion</li> </ul>	<ul style="list-style-type: none"> <li>Bus operators are likely to operate from one site in the region – if it is established elsewhere opportunity may be lost entirely</li> <li>Car parking may require significant land and may be difficult to resume for future expansion</li> </ul>	<ul style="list-style-type: none"> <li>Continued expansion of mine sites and ongoing application of OH&amp;S legislation likely to continue to drive demand for bus services in the region</li> <li>Location critical factor</li> </ul>
<b>Secure Equipment and Materials Storage</b>				
<ul style="list-style-type: none"> <li>Identified shortage of secure storage space for industrial supplies</li> <li>The high value of many of the inputs used in mining and related development operations drives demand for secure facilities in particular for copper wire, tools and other materials</li> </ul>	<ul style="list-style-type: none"> <li>CQ is well positioned to service three major resource provinces (Surat, Bowen and Galilee Basins)</li> <li>Reduced losses due to theft</li> </ul>	<ul style="list-style-type: none"> <li>Location of secure storage and exposure to users of these facilities likely to attract equipment and supplies companies including plant hire and other related businesses</li> </ul>	<ul style="list-style-type: none"> <li>As mining shifts from the establishment to operating phase the demand for secure storage may diminish. Given scale and timing of planned developments unlikely to be a significant risk</li> </ul>	<ul style="list-style-type: none"> <li>Development of new mines and associated infrastructure projects in the region are likely to continue to drive demand for secure storage facilities</li> </ul>



Opportunity	Benefits from Location in CQ	Benefits to Other Users	Risks	Future Prospects
<b>Motel Accommodation</b>				
<ul style="list-style-type: none"> <li>The application of driver fatigue management legislation and the chain of responsibility has increased awareness of the shortage of suitable rest areas for heavy vehicle drivers</li> <li>An opportunity exists to establish an accommodation facility which addresses this shortfall providing low cost overnight accommodation</li> </ul>	<ul style="list-style-type: none"> <li>There may be significant advantages if the accommodation is adjacent to related facilities allowing a one-stop approach (fuel, maintenance and supplies)</li> <li>Providing an appropriate interchange and rest facility would ensure heavy vehicles are parked appropriately in a secure facility and avoid conflict of use issues with vehicles encroaching on residential areas</li> </ul>	<ul style="list-style-type: none"> <li>Accommodation would provide a critical mass of transport operators at the site all of whom would be potential customers for transport support services businesses at the site</li> <li>If co-located with bus terminal could attract workers going to mines and returning</li> </ul>	<ul style="list-style-type: none"> <li>The transport and logistics sector is highly price sensitive and operates on low margins. For cost reasons drivers may prefer to sleep in their vehicle rather than use the motel</li> <li>Some operators consciously try to avoid drivers having to sleep away from their home and adopt schedules and routes to achieve this</li> </ul>	<ul style="list-style-type: none"> <li>Forecast increase in road based freight transport and the enforcement of driver hours legislation are key demand drivers for this type of facility</li> </ul>
<b>Vehicle Coupling and De-Coupling</b>				
<ul style="list-style-type: none"> <li>Limitations on vehicle configuration through major settlements mean drivers need a coupling and de-coupling site where loads can be made up and broken down</li> <li>This activity could take place at the logistics hub providing an appropriately designed and configured site as well as additional potential consumers of other ancillary service providers</li> </ul>	<ul style="list-style-type: none"> <li>CQ is the ideal point from which to create larger vehicles out to the mine sites and decouple before transferring through areas where larger vehicles are prohibited</li> <li>CQ has heavy freight volumes often involving the carriage of dangerous goods making road safety a high priority</li> </ul>	<ul style="list-style-type: none"> <li>Vehicles stopping on a regular basis would provide a critical mass of potential customers for ancillary businesses</li> </ul>	<ul style="list-style-type: none"> <li>It can be difficult to monetise these facilities if they are available on an open access agreement although this can be overcome through charges to ancillary businesses</li> </ul>	<ul style="list-style-type: none"> <li>The need for coupling and de-coupling is largely driven by the relevant legislation</li> <li>While vehicle sizes are likely to increase in the long-run it is very unlikely these will be permitted through major settlements thereby increasing the need for these facilities</li> </ul>
<b>Ancillary Development</b>				
<ul style="list-style-type: none"> <li>A logistics hub is likely to attract significant numbers of transport operators with spin off opportunities for a range of service providers including fuel supplies, maintenance and parts suppliers, plant hire and retail opportunities</li> </ul>	<ul style="list-style-type: none"> <li>The critical factor for ancillary development would be the number and location of operators as this will be the key driver of demand for their services</li> </ul>	<ul style="list-style-type: none"> <li>Collocating with transport service providers offers onsite servicing removing the need to move between locations</li> </ul>	<ul style="list-style-type: none"> <li>If the logistics hub is poorly located demand from transport service sector will be limited and therefore the volume of customers for ancillary developments</li> </ul>	<ul style="list-style-type: none"> <li>Increases in road freight traffic will require additional direct and indirect support services</li> </ul>



Opportunity	Benefits from Location in CQ	Benefits to Other Users	Risks	Future Prospects
<b>Public Weighbridge</b>				
<ul style="list-style-type: none"> <li>• There is currently a shortage of publically available weighbridge facilities in Queensland</li> <li>• Weighbridge operator might be willing to absorb capital costs in return for peppercorn lease and profit share</li> <li>• Weighbridge facilities are likely to become more important as vehicle mass increases</li> </ul>	<ul style="list-style-type: none"> <li>• A major logistics hub would be a prime location for a weigh bridge facility as vehicle would already be stopped at the facility and therefore would not need to make a special journey or detour</li> </ul>	<ul style="list-style-type: none"> <li>• Other users would benefit from the additional traffic through the site</li> </ul>	<ul style="list-style-type: none"> <li>• Advances in vehicle technology may offer medium term alternative means of weighing the vehicle</li> <li>• Needs a changing mindset for carriers who do not current pay for a weighing service</li> </ul>	<ul style="list-style-type: none"> <li>• Increased awareness of OH&amp;S issues is likely to increase demand for these types of facilities</li> </ul>

Source: AECgroup

Several other opportunities were considered as part of the preliminary assessment but were ruled out of further consideration. These opportunities and the reasons for their rejection are summarised in the following table.



**Figure 6.2. Potentially Viable Opportunities**

Opportunity	Benefits from Location in CQ	Benefits to Other Users	Risks	Future Prospects
<b>Bulk Storage</b>				
<ul style="list-style-type: none"> <li>• CQ region imports large quantities of several bulk materials which are then distributed throughout the region</li> <li>• These commodities include fuel and chemicals in particular those used in the manufacture of explosives as well as the explosives themselves</li> </ul>	<ul style="list-style-type: none"> <li>• CQ logistics hub could offer a properly designed and managed facility purpose built to handle these commodities</li> </ul>	<ul style="list-style-type: none"> <li>• The high volumes of materials in question would generate significant additional traffic through the facility</li> </ul>	<ul style="list-style-type: none"> <li>• Handling and storage of bulk materials (especially hazardous materials) would create a major disincentive for several other users</li> <li>• There would be significant additional planning requirements</li> <li>• Most of these bulk materials are landed by sea at the Port Of Gladstone and Port Alma, unless the facility were on the quay side there would be limited value in transshipping by road further to store then put back onto the road it would be much more economic to continue the journey</li> </ul>	<ul style="list-style-type: none"> <li>• Volumes likely to continue to increase but limited value in breaking journey at a logistics hub</li> <li>• Increasing health and safety legislation and environmental compliance costs likely to prove prohibitive</li> </ul>
<b>Armed Forces Supply and Logistics</b>				
<ul style="list-style-type: none"> <li>• Rockhampton has a major base which generates significant freight flows including both military equipment and associated supplies as well as supplies necessary to support operations including food and other consumables</li> </ul>	<ul style="list-style-type: none"> <li>• Rockhampton has major base as provide logistics support for major exercises at Shoalwater Bay</li> <li>• Rockhampton has existing long-term agreement to train Singaporean air force and potential to attract US forces to the region as part of training program</li> <li>• Rockhampton well placed to act as a storage location for emergency (military and civilian) response equipment for use to the north or south</li> </ul>	<ul style="list-style-type: none"> <li>• Limited benefits as civilian and military uses would be need to be formally separated and limited opportunity to provide services outside defence procurement practices</li> <li>• Some small benefit to small service providers e.g. food retailers as a result of increase footfall in the area</li> </ul>	<ul style="list-style-type: none"> <li>• Freight flows are highly variable with periods of intense activity followed by periods of very little freight movement</li> <li>• There is land surrounding the defence base which would be developed to increase capacity of needed removing the need to coordinate movements between two sights</li> </ul>	<ul style="list-style-type: none"> <li>• The region has been identified as a potential location for additional troop numbers in particular in partnership with allied forces</li> <li>• Even with additional troop numbers the underlying risk are unlikely to be overcome in the short to medium term</li> </ul>



Opportunity	Benefits from Location in CQ	Benefits to Other Users	Risks	Future Prospects
<b>Grain</b>				
<ul style="list-style-type: none"> <li>Large grain flows in the region traditionally moved by rail</li> <li>Maybe possible to establish the logistics hub as a consolidation point prior to delivery to the port for export</li> </ul>	<ul style="list-style-type: none"> <li>CQ logistics hub would provide a central consolidation point from which loads could be ferried to the port as required</li> </ul>	<ul style="list-style-type: none"> <li>The flow of drivers into and out of the logistics hub would increase the customer base for ancillary users</li> </ul>	<ul style="list-style-type: none"> <li>There is very little opportunity to transport grain by rail due to capacity constraints</li> <li>Consolidation is now undertaken either up country or at the port of export prior to direct ship loading. There is no value in stopping vehicles elsewhere in the region to consolidate loads at the logistics hub prior to consolidating again at the port</li> </ul>	<ul style="list-style-type: none"> <li>As food security becomes a higher profile issue demand for grains is likely to increase and the appropriate transportation and storage of grains, and other food products, is likely to become increasingly important</li> <li>Basic operating model of consolidation up country and at port is unlikely to change and little value (and significant costs) in double handling</li> </ul>
<b>Cattle/Beef</b>				
<ul style="list-style-type: none"> <li>CQ recognise as the beef capital of Australia with large flows</li> <li>CQ logistics hub could become storage and distribution centre</li> </ul>	<ul style="list-style-type: none"> <li>Centralised distribution point to service Queensland</li> </ul>	<ul style="list-style-type: none"> <li>The flow of drivers into and out of the logistics hub would increase the customer base for ancillary users</li> </ul>	<ul style="list-style-type: none"> <li>There is limited opportunity to transport beef by rail due to capacity constraints</li> <li>There is no value in stopping vehicles elsewhere in the region to consolidate loads at the logistics hub prior to consolidating again at the port</li> </ul>	<ul style="list-style-type: none"> <li>As food security becomes a higher profile issue demand for beef is likely to increase</li> <li>Current road based transportation model is unlikely to change due to higher costs and little value in double handling</li> </ul>

Source: AECgroup



## 6.2 Summary

The following table summarises the options considered and identified those which are recommended to be included in the facility feasibility assessment.

**Table 6.1. Options Assessed and Recommended Course of Action**

Option	Interchange	Storage	Include in Feasibility Assessment
Construction Materials	x	✓	✓
Secure Storage	x	✓	✓
Mining Services Parts and Distribution	✓	✓	✓
Food Distribution	✓	✓	✓
Coupling and De-coupling Area	✓	x	✓
Motel Accommodation	✓	x	✓
Bus Depot and Maintenance	✓	x	✓
Car Parking	✓	x	✓
Explosives	x	x	x
Fuel	x	x	x
Cattle	x	x	x
Grains	x	x	x
Armed Forces Supply and Logistics	x	x	x

Source: AECgroup



## 7. Site Description & Demand

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The following chapter provides a generic description for similar facilities elsewhere in Australia and goes on to describe the requirements, operations and physical form of the developments for which there is existing demand in the Central Queensland region. The chapter concludes by examining anticipated growth scenarios for the Central Queensland economy and the implications for future demand at the Logistics Hub.

### 7.1 Existing Examples

There are many examples, within Australia and overseas, of similar developments to that proposed for Central Queensland. The sites selected are chosen as they offer particular sets of competitive advantages which add value to the businesses that locate there. These advantages often include: easy access to major transport networks, proximity to suppliers and key markets, a readily available labour force with appropriate skills and wage expectations, separation from conflicting land uses and available land at a relatively low cost.

#### 7.1.1 South Brisbane Industrial Park

South Brisbane Industrial Park in Heathwood is an example of a similar facility in South East Queensland. The site is close to the boundary of Brisbane City Council and Logan City Council and offers easy access to the Pacific Highway, is located in an area of relatively high unemployment compared to the South East Queensland average and is close to a total population of over 3 million residents. The site was constructed in a sparsely populated suburb meaning tenants could avoid potential conflict of use issues with neighbouring properties.

#### 7.1.2 The Paget Industrial Estate

The Paget Industrial Estate in Mackay provides approximately 450 hectares of industrial land and has proven highly attractive to engineering services and the manufacturing industry. The precinct is also home to a number of international mining and engineering firms. Industrial activities suited to the site include the mining services industry, engineering, machining and equipment manufacturing, transport and warehousing. Discussions with local real estate agents suggest there has recently been growth in demand for warehouses, transport facilities and the mining services sector. Large blocks with two-street frontage, allowing large vehicles access and egress without the need to turn around on site are said to be in particularly high demand.

The development of the Paget facility tapped into very strong demand for suitable industrial land in the region, largely driven by mining support services. The site has proven so popular there are already preliminary plans to make additional space available in the Mackay region. There is anecdotal evidence larger mine service companies are currently seeking to expand their presence in the region in order to position themselves to capitalise on the infrastructure and equipment requirements of new and expanding mines in the Bowen and Galilee basins. The demand is being driven by both the expansion of existing operators and new service companies moving into the region.

#### 7.1.3 The Citiswich Business Park

The Citiswich Business Park in Ipswich is another significant development catering for industrial businesses. The estate covers an area of 350 hectares and is one of Queensland's largest industrial developments. Pre-construction, the objectives for the site included providing affordable, well-connected industrial land for transport, manufacturing, distribution, construction and wholesale retail companies.

The attractiveness of the development was boosted by the completion of over \$5 billion of transport and services infrastructure upgrades which directly benefit businesses located at the estate. The key benefits the site offers include:

- Superior access to major highways (located on the junction of the Warrego and Cunningham Highways and the Ipswich Motorway);



- Proximity to major population centres (8 kilometres from Ipswich, 25 kilometres from Brisbane CBD);
- Major transport upgrades limiting travel time to the Brisbane CBD to 25 minutes; and
- Design developed to facilitate use by transport operators.

## **7.2 The Central Queensland Logistics Hub**

At full capacity, the Central Queensland Logistics Hub could cover a total area of up to approximately 150 hectares and be composed of a combination of uses as set out in the table of opportunities in the previous chapter. Many of the tenants would be expected to provide complimentary services and it is likely the site would grow organically around a core of anchor tenants.

Over time, it would be anticipated the site would become established as one of the premier locations for new industrial development in the region. The Logistics Hub would be expected to attract business with an existing regional presence which are seeking to expand in a purpose built facility and new entrants to the region. In recognition of the anticipated greater role of rail freight in the distribution task in the region and throughout Australia, it is proposed the Logistics Hub should offer high quality road and rail connections, although the rail component is unlikely to be developed in the short term.

The following sections outline the potential activities and businesses which could operate out of the Central Queensland Logistics Hub, based on the findings of the baseline analysis. These activities have been identified through a series of stakeholder consultations, assessment of likely future demand in the region and analysis of existing supply chains. The majority of the activities could be undertaken at several locations in the region although some, in particular the coupling and de-coupling activities, are location specific. Stakeholder consultations suggest there is existing demand for the following activities.

### **7.2.1 Construction Materials**

Although activity in the Queensland residential and commercial building sectors has declined in recent years, engineering construction is experiencing a major increase in activity. A significant rise in resource-led engineering construction and improvement in the residential building activity is predicted for the industry over the short to medium term particularly in resource regions (Construction Skills Queensland, 2012).

A wide range of materials is needed for construction including some which are loose such as aggregates, pipes and steel sections and others which may be palletised or otherwise packaged. While some materials can be stored effectively outdoors, without affecting performance or appearance characteristics, some other materials must be stored in controlled conditions or they quickly become unusable. Materials storage facilities can include entirely outdoor, covered but not enclosed and totally enclosed facilities. Within these facility types there may also be racking systems for palletised, or other uniformly sized goods, as well as free storage areas for non-packaged goods.

It would be expected the types of materials stored at the Logistics Hub would be primarily to service construction activity at mines sites. Equally, as mining impacts flow through the rest of the regional economy, it would be anticipated demand for residential and other industrial and commercial buildings would also increase and could be serviced equally well from this type of facility.

Materials needed on industrial construction projects – from the initial pouring of the slab through to internal fit out – could be stored at this type of facility and are likely to include:

- Bricks;
- Cement (bagged);
- Sand;
- Aggregates;
- Roofing materials;



- Plumbing materials; and
- Electrical materials.

The speed at which mine sites are developed is influenced by many local and macro factors. However, the major projects list for the region (see Appendix C) provides an indication of the pipeline of known potential activity in the region.

A possible staging option for the Logistics Hub would be to initially include an outdoor uncovered storage space for some materials alongside a scalable indoor development, which could be expanded over time to cater for additional demand. This approach would allow the proponent to undertake a smaller initial capital investment while retaining the opportunity for future expansion to meet additional demand.

This type of development is likely to be attractive to construction companies seeking to secure a reliable supply of materials. However, given the initial capital investment required, it is more likely this would be pursued by materials wholesalers that would then supply a range of construction sector clients.

The construction cost estimate for the facility has been based on the following assumptions:

- High bay (of either 6,500 mm or 9,000 mm high);
- Single story industrial warehouse construction of precast or tilt up concrete external walls and metal roof;
- Roller shutters;
- Small offices and amenities;
- Connection to all services; and
- No ventilation or fire sprinklers.

On the basis of these assumptions, the estimated construction cost would be \$860 per square metre before regional loading<sup>4</sup>. The costs for this structure include the builder's preliminary costings, substructure works, superstructure including: columns, external walls, windows and doors, finishings and service fittings (Rawlinsons 2011).

### **7.2.2 Secure Storage**

Just as some materials need to be appropriately stored in order to prevent damage others must be stored securely to prevent their theft. The high value of construction plant and materials and the nature of a construction site, with its constant change and movement, increase the risk of theft. Vandalism is also common.

Demand for this type of facility is likely to be led by construction activity. It is understood there is currently a significant shortage of suitable storage facilities, which has resulted in relatively high levels of theft from some sites. The limited available space at mine sites has placed a premium on the secure storage that is currently available. Further, in addition to on mine construction there are major infrastructure upgrade and capacity increases going on which also have a need for secure facilities.

It has been assumed secure storage facilities would use a similar construction type to the materials storage facility. Additional passive and active security control measures may be necessary where the materials being stored are of very high value for example large amounts of wire or plant and equipment. The structure would include:

- High bay (of either 6,500 mm or 9,000 mm high);
- Single story industrial warehouse construction of precast or tilt up concrete external walls and metal roof;
- Roller shutters;
- Small offices and amenities;

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<sup>4</sup> These costs are based on published construction industry benchmarks for state capitals. To reflect the additional costs of materials and labour outside State capitals a regional loading factor is applied. The appropriate factor has been used in pre-feasibility assessment. The figure quoted above relates to the cost of construction in Brisbane.

- Connection to all services; and
- No ventilation or fire sprinklers.

On the basis of these assumptions, the estimated construction cost would be \$860 per square metre before regional loading. The costs for this structure include the builder's preliminary costings, substructure works, superstructure including: columns, external walls, windows and doors, finishings and service fittings (Rawlinsons 2011).

### **7.2.3 Mining Services Parts & Distribution**

Parts back-up is of critical importance to mine operators where even small, relatively low value components may be essential to mine operations. Most major manufacturers have a range of parts available both at the point of manufacture and at strategically located parts depots. Given that manufacturing plants are sometimes located far from mine sites, regional distribution points are critical in ensuring stoppages are kept to a minimum.

A parts distribution centre would require racked shelving for palletised loads as well as areas for larger out of gauge items. Some storage could be undertaken outdoors in particular where the equipment can withstand the prevailing climatic conditions, is difficult to store and or manoeuvre indoors and would be difficult to steal given its physical dimensions.

Central Queensland is well positioned to service the Bowen, Surat and Galilee Basins. Given the scale of the expected development in each of these resource provinces over the next 10 to 20 years, it is almost certain there will be major increase in demand for parts distribution services.

Stakeholder consultations identified it is unlikely operators that already have premises in the region will relocate to the Logistics Hub in the short-term. However, were an appropriately configured and located facility to become available it would be highly attractive for future expansion and for new operators moving into the region. Demand is likely to be boosted further by capacity constraints and conflicts with surrounding users at some of the longer established facilities in the Central Queensland region.

It has been assumed the required structure would include:

- High bay (of either 6500mm or 9000mm high);
- Single story industrial warehouse construction of precast or tilt up concrete external walls and metal roof;
- Roller shutters;
- Small offices and amenities;
- Connection to all services; and
- No ventilation or fire sprinklers.

On the basis of these assumptions, the estimated construction cost would be \$860 per square metre before regional loading. The costs for this structure include the builder's preliminary costings, substructure works, superstructure including: columns, external walls, windows and doors, finishings and service fittings (Rawlinsons 2011).

### **7.2.4 Plant Hire**

During the consultation phase, plant hire companies contacted expressed a firm interest in the potential development. They reported being highly constrained at their current sites in and around Rockhampton, several of which are now surrounded by residential development. Operators suggested they were actively seeking opportunities to invest in new industrial facilities which would remove these constraints on growth and associated conflict of use issues.

Their primary demand driver was to service the mining sector to the west of the region. The opportunity to locate at a site which offered easy access to mine sites as well as to a range of complementary business activities, which would also have demand for plant hire services, offered a highly attractive proposition.



As with the parts distribution facility, it has been assumed the required structure would include:

- High bay (of either 6,500 mm or 9,000 mm high);
- Single story industrial warehouse construction of precast or tilt up concrete external walls and metal roof;
- Roller shutters;
- Small offices and amenities;
- Connection to all services; and
- No ventilation or fire sprinklers.

On the basis of these assumptions, the estimated construction cost would be \$860 per square metre before regional loading. The costs for this structure include the builder's preliminary costings, substructure works, superstructure including: columns, external walls, windows and doors, finishings and service fittings (Rawlinsons 2011).

### **7.2.5 Food Distribution**

Over the last twenty years, there have been significant changes in the Australian food retail sector arising from a series of macro trends including:

- Globalisation of food production and retail markets;
- Changing trends in consumer preference and shopping patterns; and
- The development and application of highly sophisticated supply chain management strategies in response to ongoing pressure to reduce operating expenses.

While there is considerable debate about the costs and benefits of centralised distribution versus direct store distribution (DSD), for many fast moving consumer goods and specialty foods markets, the use of DSD as a primary channel to move goods to market is highly inefficient. Some retailers have already made strong progress in this area. WalMart reportedly moves 85% of its cost of goods through its own network of 147 highly efficient retail distribution centres across the U.S., which is well above its competitors that are closer to 50%. While US comparisons do not provide a direct benchmark for Australia, given the different population densities and absolute freight volumes, they are indicative of emerging trends in the food distribution sector.

The opportunity to establish a food distribution facility at the Central Queensland Logistics Hub recognises the rapidly expanding population in the region as well as the opportunity to service retailers further west and north. Stakeholder consultations identified two views of this opportunity, mirroring the discussion around DSD versus centralised distribution which was introduced above. The national distribution companies, which often operate these facilities, suggested the major supermarkets are moving towards a distribution model with fewer, larger distribution centres. This approach would make greater use of deliveries direct from suppliers. Developers with experience in completing similar projects with major retailers suggested the Central Queensland region had fundamental advantages as the location of a distribution centre in particular the opportunity to also service regional areas as well as the immediate population.

Unlike the previous examples, a food distribution facility would require a more specialist construction approach including:

- A multi story industrial warehouse;
- Reinforced concrete construction with brick walls and metal roof;
- Office and amenity areas;
- Loading dock;
- Goods lift; and
- Standard lighting, fire sprinklers, mechanical ventilation/filtered air.

The estimated construction cost for this structure is \$1,395 per square metre and includes all preliminaries required for construction, substructure works including: External



walls, windows, external doors, internal walls, internal screens and doors, all finishings and service fittings (Rawlinsons 2011).

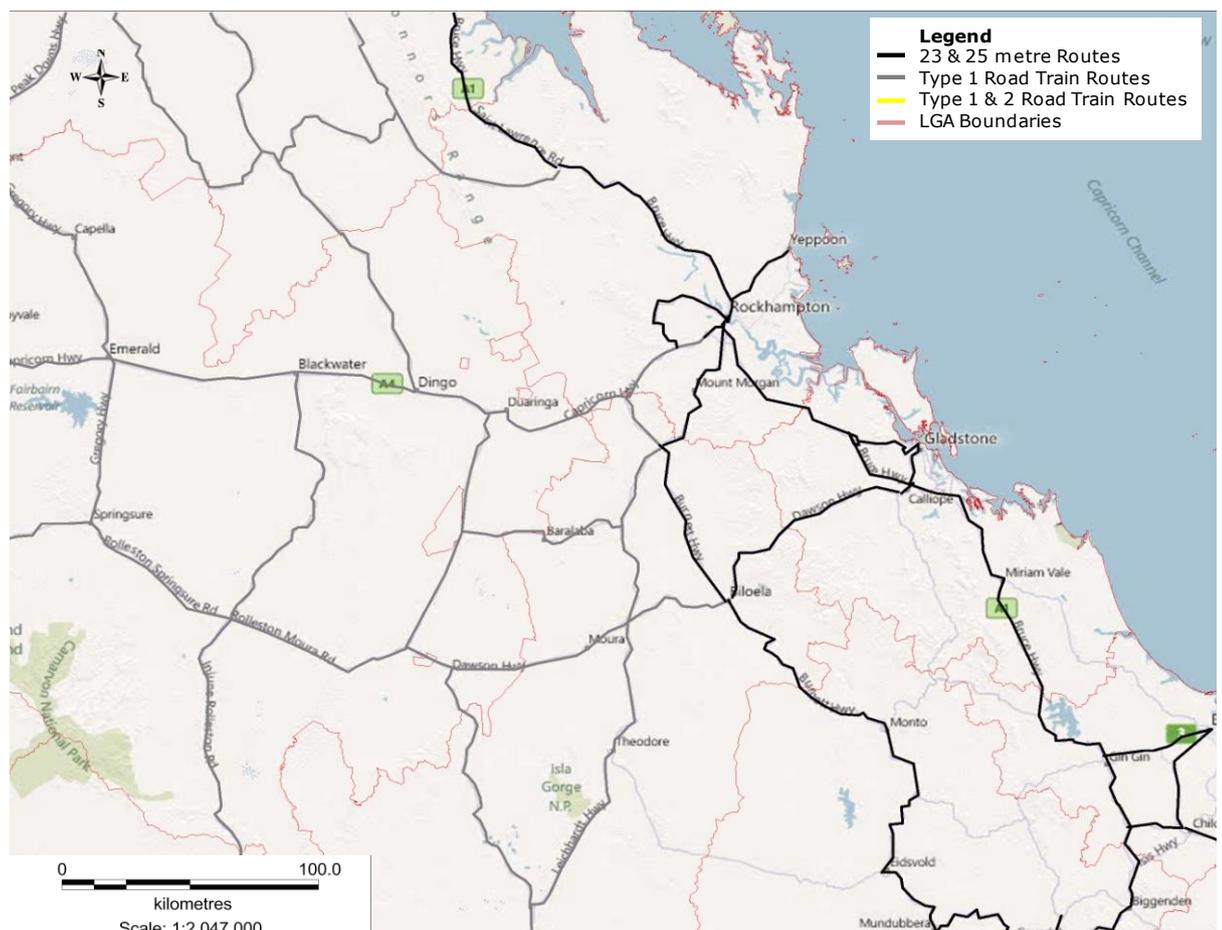
### 7.2.6 Coupling & De-coupling Area

Current restrictions on the movement of large vehicles around the State create the need for staging sites. Additional trailers are hitched and unhitched at these sites to allow their legal passage through controlled areas, including residential areas and the coastal road network, while larger loads can be made up for vehicles heading into regional areas where larger vehicles sizes are permitted.

Stakeholder consultation with the transport industry identified very high demand for this type of facility but only at an appropriate location i.e. on the boundary between areas where the larger vehicles are allowed. It is understood this type of activity currently takes place in a variety of unmonitored sites in the region.

In Queensland, heavy vehicles such as B-double trucks and road trains have restrictions on which major roads they can use. These restrictions are stipulated by the Department of Transport and Main Roads. The following figure outlines the different restrictions placed on heavy vehicles within central and southern Queensland. The figure demonstrates large heavy vehicles, such as type 1 and 2 road trains, are only permitted inland, with 23 and 25 metre B-double vehicles permitted to travel along the east coast's main routes.

Figure 7.1 Heavy Vehicle Road Routes, Central and Southern Queensland



Source: DTMR (2008)

While there would not be a direct revenue stream from providing an activity of this type, it would attract additional flows to other road transport service providers at the site. Providing this facility would also provide a risk control by bringing this activity into an appropriately controlled environment. Given many of the loads being consolidated are volatile this is a particularly important criteria.



### **7.2.7 Motel Accommodation**

The high level of non-resident workforce used in Central Queensland requires large numbers of workers to fly or drive into the region's main settlements before continuing their journey to specific mine sites. In addition, Central Queensland's location relative to South East Queensland means it is located on the boundary of the area which drivers can access before the need to stop overnight.

These demand drivers have placed significant pressure on the regional short-term accommodation sector. While the demand for accommodation is a bonus for short term accommodation property owners, it creates a series of conflict of use issues and is a barrier to the development of other sectors of the economy.

For example, Rockhampton acts as a service centre for a very large area including health services. It is understood from consultations, there are often significant issues for families in securing sufficient short term accommodation while relatives are undergoing treatment. There is also clear evidence of heavy vehicles entering residential areas in order for drivers to access accommodation. This has created conflict of use issues including inappropriate parking of large vehicles and the associated noise often very early in the morning. As well as the aesthetic impact, there are also potentially significant safety issues in relation to having to manoeuvre these vehicles through residential streets.

A regional tourism industry group claims caravan parks and motels across Central Queensland are being forced to accommodate more workers than tourists. Beds are sometimes booked out by workers for months at a time.

It has been assumed the motel development would be aimed at drivers seeking overnight accommodation before continuing their journey. The facility would be constructed and fitted out to a basic standard, seeking to keep costs low in keeping with market expectation. The motel would not be in competition with existing suppliers for tourist or other visitation types and would cater almost exclusively to users of the Logistics Hub.

Construction would be of standard grade for motel accommodation including:

- A single or two story building;
- Accommodation units;
- Reception, dining and kitchen areas;
- Standard finishes;
- Individual facilities; and
- Unit air conditioning.

The cost for this building is estimated to be equivalent to approximately \$2,080 per square metre and would include all preliminary works, substructure, superstructure elements including external and internal doors and walls, internal screens and windows and all services and fittings (Rawlinsons 2011).

### **7.2.8 Bus Depot**

The low population density of the Bowen, Galilee and Surat Basins and their relative proximity to major coastal centres compared to WA mines, means that fly in fly out operations are less common in Queensland than in WA where the distances covered are much larger and inland cities like Kalgoorlie offer a suitable concentration of mining activity nearby to act as a flight node.

Increasingly, bus in and bus out is being used in Queensland mines with similar trends seen in South Australia and some Western Australia resource regions. Consultation with the Greyhound Company indicated that while three years ago they operated two 'drive in drive out' coaches in the Bowen Basin, this has now increased to 50 with further expansion plans in the near future. The key drivers of this change include limited car parking at mine sites, capacity issues on roads out to the mines and health and safety issues around fatigue management associated with miners coming off long shifts and then driving several hours to get back to the coast.



Consultation with Greyhound Buses Australia identified a potential opportunity to establish the Logistics Hub as a depot where miners would be collected and driven out to mine sites and dropped off ahead of their onward journey to their final destinations. It is understood the industry is currently seeking to identify such a facility. The hub would be expected to provide basic amenities with opportunities to establish a convenience retail outlet to meet miners' food and beverage needs.

Broader stakeholder consultations also identified that if a bus depot could be attracted to the site, there are likely to be opportunities for additional services. It would make commercial sense for bus companies to establish maintenance facilities near to a depot. This would offer the opportunity to reduce the costs of moving an empty bus to and from another site for it to be maintained.

It has been assumed the construction of the depot and maintenance workshop would include:

- A large span for heavy use;
- Brick walls and metal roof;
- Service pits;
- Lubrication areas;
- Small office and amenities areas; and
- All services, but no ventilation, fire sprinklers or special equipment.

The cost of this work is estimated to be approximately \$1,190 per square metre and would include all preliminary works, substructure, superstructure elements including external and internal doors and walls, internal screens and windows and all services and fittings (Rawlinsons 2011).

Another potential opportunity associated with the bus depot includes opportunities to provide long-term car parking for those miners using the bus depot. Several stakeholders raised the issue of conflicts between miners who had begun parking their cars for weeks at a time in residential streets before catching busses or flights or car pooling out to mines. This approach would offer a solution to these issues while also providing a revenue source on land which may be held for staged development or which may not have an alternative use.

It is assumed that up to five hectares would be given over to car parking initially although this would be reduced over time as additional demand for space comes online. It is assumed that the permanent car parking areas would be uncovered with bitumen paving, stormwater drainage, minimal lighting and some landscaping. The estimated cost of establishing the facility would be approximately \$80 per square metre.

### **7.2.9 Other Service Providers**

The creation of a logistics hub is almost certain to attract a range of service providers to the site. The types of services provided is likely to include those directly related to logistics and transport activity, for example vehicle workshops and tyre shops as well as more general service providers for example food and beverage providers.

The list of opportunities above is not exhaustive. Discussions with local governments, development agencies, real estate agents in the region suggest demand far outstrips supply and it is likely that additional investors would come forward in particular once the site was anchored by major tenants. Several additional potential uses were suggested during the consultation stages. While it is unlikely these would be pursued at the start of the development they are illustrative of the additional services which might be attracted to the site once the initial tenants had become established.

During the consultation process, a company which manufactures industrial weighing scales indicated its interest in locating at the Logistics Hub. A business model was proposed under which the operator would be given a ten year lease on the land required for the weighbridge at a peppercorn rent and in return the operator would pay for the constructional and operation of the weighbridge. The benefit to the site would be the additional traffic the facility would draw including potential customers for the range of service providers on site. There would be limited risk exposure given the operator would



be responsible for the construction and operation of the site. However, the weighbridge would take up space which could be occupied by another higher paying tenant and may significantly increase through traffic on the surrounding roads.

An investor has also made an approach about the opportunity to locate a concrete batching plant within the Logistics Hub at one potential location. This would be expected to provide a close fit with other users including vehicle maintenance facilities and plant hire providers.

Throughout the consultation stages operators from several industry sectors which are currently surrounded by residential areas in the region have been suggested as potential tenants at a logistics hub. These operators have consistently identified the high level of sunk costs invested in their current facilities as the primary barrier to their moving. In their view, the investments they have made outweigh the obvious potential benefits from a purpose built location. However, it would be expected conflict of use issues are likely to increase overtime. Therefore, initial demand is likely to come from new operators coming to the region, and the expansion of existing operators. In the medium term there may be a process of consolidation on one site.

### 7.3 Summary

The following table summarises the development scenario under discussion, the site area and area of the site developed as well as the construction type.

**Table 7.1. Summary of Site and Construction by Development Opportunity**

Opportunity	Site Area (sqm)	Built Area (sqm)	Construction Description
Construction Materials	10,000	5,000	<ul style="list-style-type: none"> <li>High bay (6500mm/9000mm high)</li> </ul>
Secure Storage	10,000	6,000	<ul style="list-style-type: none"> <li>Single story industrial warehouse construction</li> <li>Metal roof</li> </ul>
Mining Services Parts and Distribution	20,000	12,000	<ul style="list-style-type: none"> <li>Roller shutters</li> <li>Small offices and amenities</li> </ul>
Plant Hire	10,000	6,000	<ul style="list-style-type: none"> <li>Connection to all services</li> <li>Precast or tilt up concrete external walls</li> </ul>
Food Distribution	30,000	21,000	<ul style="list-style-type: none"> <li>Multi story industrial warehouse</li> <li>Up to a maximum of six stories</li> <li>Reinforced concrete construction with brick walls and metal roof</li> <li>Office, toilet and amenities areas</li> <li>Loading dock and goods lift</li> <li>Standard lighting, fire sprinklers, mechanical ventilation/filtered air</li> </ul>
Coupling and De-coupling Area	10,000	10,000	<ul style="list-style-type: none"> <li>Concrete slab 50MPa</li> <li>300mm thick, which can withstand heavy loaded trucks</li> <li>Includes holding area for trailers as well as an area for the trucks to park</li> </ul>
Motel Accommodation	5,000	3,750	<ul style="list-style-type: none"> <li>Standard construction grade for motel accommodation</li> <li>Single or two story building</li> <li>Standard finishes</li> <li>Individual facilities</li> <li>Unit air conditioning</li> <li>Reception, dining and kitchen areas</li> </ul>
Bus Depot and Maintenance	10,000	5,000	<ul style="list-style-type: none"> <li>Maintenance workshop with large span for heavy vehicle use</li> <li>Brick walls, metal roof</li> <li>Service pits and lubrication areas</li> <li>Small office, toilet and amenities areas</li> <li>All services but no specialist ventilation or other equipment</li> </ul>
Car Park	20,000	20,000	<ul style="list-style-type: none"> <li>Open parking area</li> <li>Storm water drainage</li> <li>Minimal lighting</li> <li>Basic landscaping</li> </ul>
<b>Total</b>	<b>125,000</b>	<b>88,750</b>	



Source: Rawlinsons 2011 and AECgroup

The table is indicative of current demand in the region based on the outcomes of the stakeholder consultations. It should be noted though that not all components would proceed at all locations. The actual building sizes used are based on a review of similar facilities in nearby regions.

## 7.4 Future Growth Expectations

### 7.4.1 Development Activity

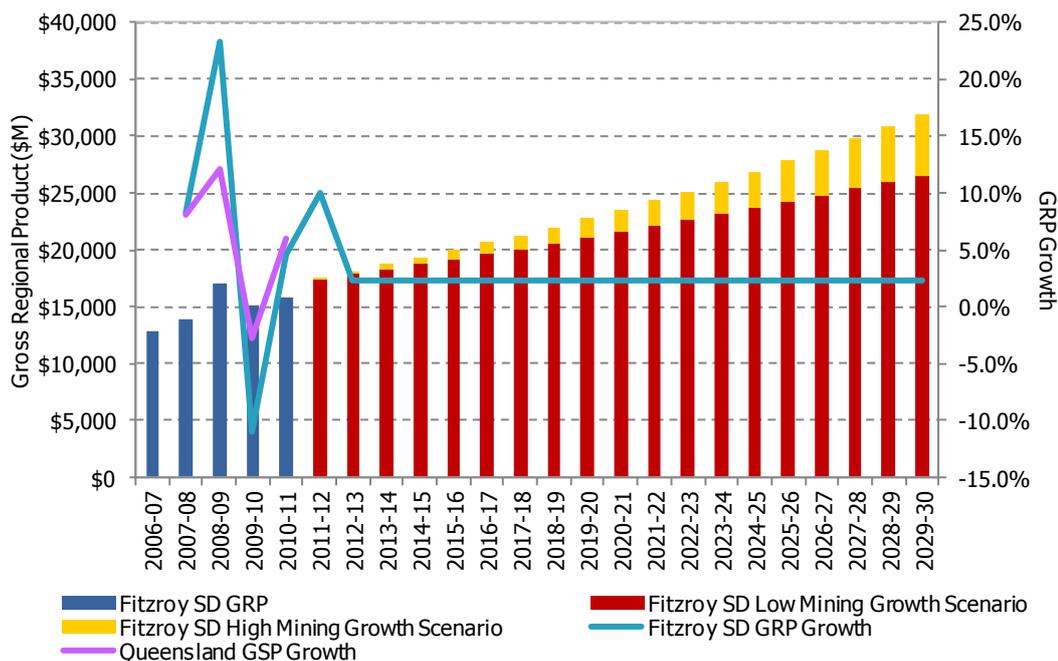
Although it is important to recognise the resource sector is not the only contributor to the Central Queensland economy, it is likely to be the primary driver of demand for the Logistics Hub. The future growth of the sector is likely to be influenced by a series of macro factors but growth indicators are positive and there are significant amounts of investment being made in the region. There are currently four coal mines under construction in the region (Caval Ridge open-cut, Ensham underground, Eagle Downs underground and Daunia open-cut). A further 36 are under consideration. There are eight coal mine expansion/extension projects under construction (Kestrel underground, Lake Vermont open-cut, Dawson South Stage II open-cut, Curragh open-cut, Burton open-cut and Broadmeadow underground) and a further 13 under consideration (Department of Natural Resources and Mines 2012). The scale of this investment is indicative of a long-term commitment to the region and an expectation of ongoing demand for both the primary product and associated service industries.

### 7.4.2 Gross Regional Product

The Fitzroy Statistical District has experienced significant growth in its gross regional product (GRP) between 2006-07 and 2010-11. In 2010-11, the region recorded an estimated total GRP of \$15.9 billion, an increase of 4.5% compared to 2009-10. Since 2006-07 the Fitzroy SD's GRP has increased at an average annual rate of 5.5%, from \$12.8 billion.

The region's GRP is primarily driven by the mining and construction industries, together these two industries contribute to 35.5% of the region's total gross value add. As a result, much of the economy is in some way affected or related to the mining industry, through inter industry linkages and supply chains with the performance of other industries directly or indirectly linked to the mining and construction industry.

Figure 7.2 Fitzroy SD Gross Regional Product (2006-07 to 2010-11)



Source: AECgroup, DPI (2010)

The Bowen Basin extracted 180 million tonnes of coal (thermal and metallurgical) in 2009-10, 87% of Queensland's coal production (205.7 Mtpa). According to the Queensland Government's coal forecasts (CoalPlan 2030) total Queensland coal production is forecast to increase by between 16.7% and 65.3% by 2030 (under their low and high growth scenarios) with most of this growth occurring within the Bowen Basin. As a result of this increased production, the gross value add of mining is expected to increase in line with the production forecasts. This increase in mining gross value add will have flow on effects throughout the Fitzroy SD's economy, with the remaining industries subsequently increasing either directly or indirectly as a result of the increased mining production. Holding all other industries consistent, by 2029-30 the forecast increase in mining production results in the Fitzroy SD's GRP increasing to approximately \$26.6 billion (low growth scenario) and \$30.8 billion (high growth scenario).

### **7.4.3 Demand for Industrial Land**

There is significant demand for quality industrial land in the Central Queensland region and this is reflected in the rapid turnover of the sites which come onto the market, the evidence of organisations buying up land to bank for future expansion at their current sites and through stakeholder consultations. There is a clear expectation amongst stakeholders of ongoing expansion of the resources sector with flow on impacts to the regional economy. This continued expansion is almost certain to drive additional demand for industrial land.

Several stakeholders identified a shortage of appropriate land (size, cost and location) as a significant impediment to additional development. This finding aligns with earlier commentary around preliminary planning for the successor to the Paget site in Mackay and the overall high level of demand for industrial land in resource regions. Industrial rents in the resource towns of Port Hedland, Karratha and Newman in Western Australia are reaching in excess of \$400 per square metre. While these rates are higher than anywhere else in Australia, a recent Colliers International industrial land study noted 'Gladstone and Chinchilla and the nearby Bowen Basin in Queensland are seeing a similar pattern emerge ...' (Colliers 2012).

The estimated \$80 billion of resources projects either under construction or in advanced feasibility stages including significant gas projects and the expansion of the port are pushing industrial rents in Gladstone up by approximately 30% in the past 12 to 14 months (Colliers 2012). Given that many of the projects have development timelines of 10 years or more it is unlikely the investment and associated demand for industrial land is going to decline over the short to medium term.

It is anticipated with development of these projects will come the need for more industrial warehouse premises and associated hardstand and gravelled laydown for the storage of transport, machinery and equipment. However, supply cannot meet demand and consequently when existing stock becomes available or new premises are constructed there is significant competition for space which in turn has increased rents. The supply of existing industrial and residential stock in these areas is very limited, and councils and state development agencies are struggling to keep up with the demand for appropriately zoned and serviced land (Colliers 2012).

## **8. Pre-Feasibility Assessment**

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The following sections summarise the estimated land and construction costs of establishing each of the potential initial components of the facility and the annual lease payments needed to achieve a rate of return which might be attractive to potential investors. This approach is similar to that which any developer would be expected to undertake as part of their preliminary analysis.

While a more detailed financial model could be developed for the site, it could only be undertaken once a specific site had been identified and following more in-depth consultation with businesses which had formally expressed an interest in locating at the facility. It would be expected anchor tenants would be heavily involved in the design stages of the final development.

### **8.1 Potential Locations**

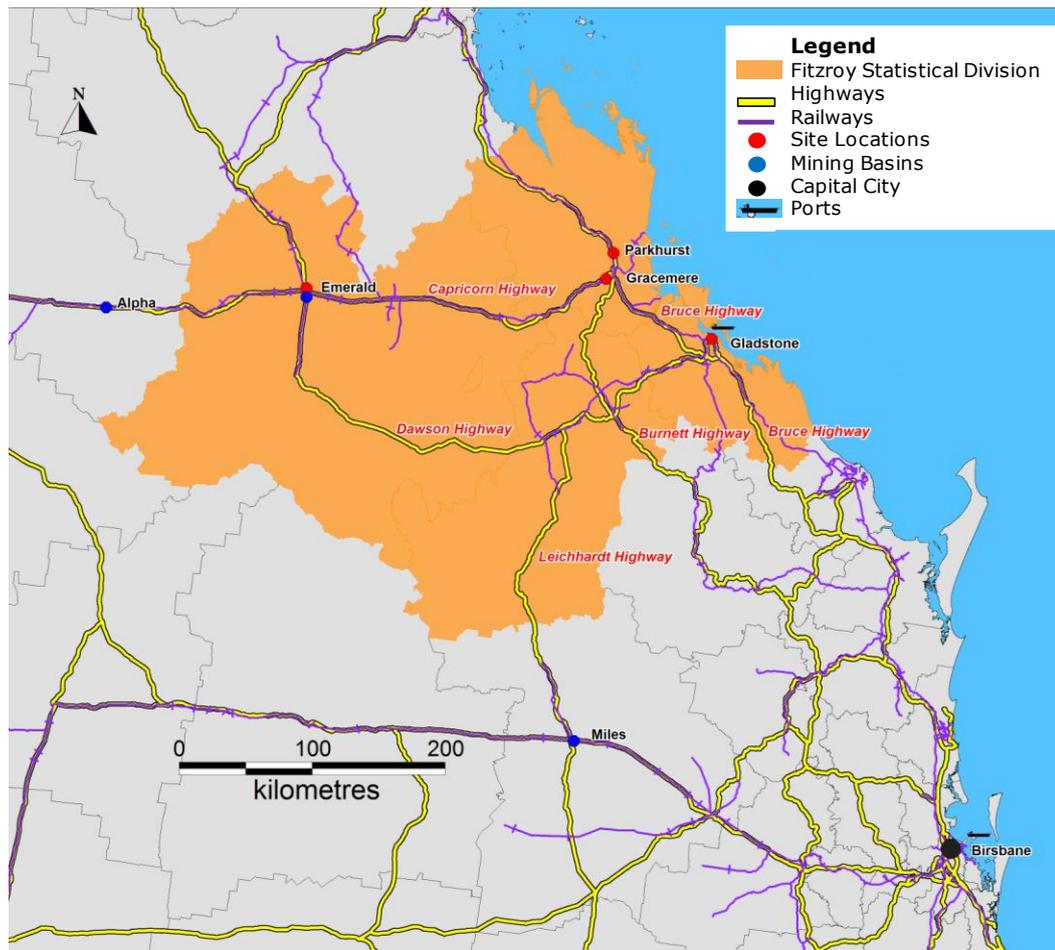
Several potential sites were identified during the stakeholder consultation exercise. Initially, four sites were chosen to provide a broad geographic distribution around the region and to highlight differences in key variables. The Gladstone State Development Area (GSDA) was excluded as it was understood the site had been reserved for much larger projects than the Logistics Hub. However, it has subsequently emerged there may be an opportunity for sub-division of some parts of the GSDA and this location has been added to the analysis. The sites which have been assessed are:

- Parkhurst;
- Rockhampton West (Gracemere);
- Gladstone;
- Gladstone (SDA) and
- Emerald.

These locations are identified in the map below.



**Figure 8.1 Locations for the Potential Site**



Note: Mining Basins refer to the most central town within each basin. Emerald identifies the central location of the Bowen Basin, Alpha the Galilee Basin and Miles the Surat Basin. Each mining basin is much larger than the dots on the map which are provided as a point of reference rather than to map the geographic extent of the basins as a whole.

### 8.1.1 Parkhurst

The existing Parkhurst Industrial Estate is located approximately 10 kilometres north of Rockhampton along the Bruce Highway. The potential site location has excellent connections to the transport network with the Bruce Highway and North-South railway within close proximity, allowing for easy access to road or rail freight. Its proximity to the City of Rockhampton provides the site with the benefit of drawing on a large labour force, with a relatively high unemployment rate and lower wage rates compared to the rest of Central Queensland.

### 8.1.2 Rockhampton West

The Rockhampton West location is located approximately 10 kilometres southwest of Rockhampton near the town of Gracemere. The site has been earmarked for future industrial development and is currently undergoing major road infrastructure works to improve access to the site. Gracemere is situated close to the City of Rockhampton providing it with access to the available labour force within the City. The potential site is located along the Capricorn Highway, with direct access to the Blackwater Coal System railway. The Gracemere site is located on the boundary of the area where road trains are permitted to the west and the area is currently used as an informal staging point for the creation and break up of larger vehicles before they continue on to the mines to the west or on to Gladstone and Brisbane to the south.



### **8.1.3 Gladstone**

Gladstone has experienced a prolonged period of rapid expansion due to significant investments in LNG facilities and other heavy engineering. These developments have resulted in the significant inflation of land and labour prices brought about by the increased demand for these resources.

Gladstone's major port infrastructure has attracted major international industrial operators to locate there, including some of the world's largest processing facilities for aluminium smelting and refining, industrial grade ammonium nitrate production and alumina refineries. In 2009-10, more than 30 products are handled via the Port of Gladstone and total port trade was 83.4 million tonnes. The Gladstone Region has an established industry support sector which provides engineering and supply services to the region.

### **8.1.4 Gladstone State Development Area**

The Gladstone State Development Area (GSDA) is an industrial land bank located 15 kilometres north west of Gladstone. The purpose of the GSDA is to secure and protect a large area of suitable land with ready access to a deep water port for large scale industrial development over a 30-50 year timeframe. The GSDA comprises the Clinton, Yarwun, Aldoga, Targinie and Curtis Island precincts in the Gladstone Regional Council area and totals approximately 28,000 hectares. The GSDA is well serviced by transport infrastructure including main roads, rail links and a Materials Transportation and Services Corridor which connects the GSDA to established and developing port facilities. The GSDA is managed under a dedicated development scheme which is designed to streamline the project approvals process and facilitate the timely and orderly provision of infrastructure needs.

Previously it had been assumed the GSDA was specifically for very large scale developments but it is now understood smaller developments, such as a logistics hub, could be accommodated in specific parts of the site. This includes land near to the Bruce Highway at Mount Larcom. While a formal decision on potential subdivision is yet to be made, it is apparent such a location would be of particular benefit to a logistics hub. Discussions with the relevant planning authority confirmed the potential for this type of activity although the initial preference for activities related to the principle land uses but other uses may be considered.

### **8.1.5 Emerald**

Emerald is located at the heart of Queensland's resource sector and is a major service centre for the mines and settlements in the Bowen Basin as well as offering close proximity to the Galilee Basin.

Emerald has good access to the Capricorn Highway and Blackwater Coal System rail line, which runs through the town and is well positioned as a service centre to the Central Queensland mining regions with an established cluster of mining supply chain businesses. The location also provides access to road freight options, with type one road trains permitted to operate in all directions. Recently, some industrial land has already been developed to the western side of the Gregory Highway and it is understood there is significant demand for high quality sites.

## **8.2 Assessment Approach**

The assessment assumes a developer purchases the land, constructs the facility and then leases the completed development back to an operator. This is by no means the only operating model and it is likely several different models would be used at any development. However, it should also be noted, if an operator were to develop the facility themselves it is almost certain they would seek to generate a similar return on their capital invested in the development.

The assessment is based on a comparison of how the charge per square metre to access the site compares to market expectations. Market expectations have been determined through stakeholder consultations and with reference to recent sales of industrial land in each location. This pre-feasibility assessment is not intended to be a full feasibility of



each opportunity, but seeks to provide an indication of the likely position of the development within current market expectations. The following table sets out the estimated average current market rates for vacant industrial land in each location.

**Table 8.1. Average Industrial Land Costs and Lease Rates (\$/square metre)**

Location	Parkhurst	Gracemere	Gladstone	GSDA	Emerald
Vacant Industrial Land	\$80	\$80	\$180	N/a	\$160
Average Lease (with industrial building)	\$140	\$140	\$180	N/a	\$170

Sources: DEEDI, Industrial Land Queensland, Property Services Group

GSDA rates are currently unavailable. It is understood the very large sites have an estimated sale price of between \$20-\$50 per square metre, dependent upon topography and location within the SDA. However, this price is for unimproved land. Consultation with the Property Services Group (a commercialised business unit of the Queensland Government) suggests a further \$100 per square metre of capital improvements would be required in order to bring this land up to a point at which construction could begin. It would be anticipated that once the required capital improvements were completed, the final market value would be similar to land currently available in Gladstone itself. For the purposes of this assessment, it has been assumed the average land cost will be approximately \$150 per square metre.

Average land costs in Gladstone (outside the GSDA) are more than twice as high as the equivalent cost in Rockhampton. This reflects higher demand, the additional value some industries can extract from the location and the higher quality of industrial development which is currently available. Discussions with stakeholders in all locations suggest there is very high demand with new sites frequently selling prior to their completion.

There is less variation in terms of the lease rates for established industrial premises although Rockhampton is again the lowest cost location and Gladstone the highest. It is important to recognise these rates are averages and it is understood prime facilities in sought after locations can incur significantly greater lease rates.

### 8.3 Options to be Assessed

Stakeholder consultations have indicated strong immediate demand for a logistics hub in the Central Queensland region with the potential to supplement these initial facility users with a more diverse range of tenants once the facility is established. Specific components are likely to be more suited to some potential locations than others. The following table identifies the opportunities under assessment in each location.

**Table 8.2. Opportunities Under Assessment by Location**

Facility Component	Parkhurst	Gracemere	Gladstone	GSDA	Emerald
Construction Materials	Yes	Yes	Yes	Yes	Yes
Secure Storage	Yes	Yes	Yes	Yes	Yes
Mining Services and Parts Distribution	Yes	Yes	Yes	Yes	Yes
Plant Hire	Yes	Yes	Yes	Yes	Yes
Food Distribution	Yes	Yes	Yes	Yes	Yes
Coupling and De-Coupling Area	No	Yes	No	No	Yes
Motel Accommodation	Yes	Yes	Yes	Yes	Yes
Bus Depot and Maintenance Facility	Yes	Yes	Yes	Yes	Yes
Car Park	Yes	Yes	Yes	Yes	Yes

Source: AECgroup

The coupling and de-coupling facility is the component most affected by location. Current legislation would prohibit the largest vehicles travelling through Parkhurst and Gladstone. Other opportunities, for example the food distribution centre would be less likely to proceed in Emerald, but cannot be ruled out and have been included in the analysis.



## 8.4 Pre-Feasibility Assessment

### 8.4.1 Land Costs

Land costs are likely to be a major factor in determining the feasibility of any development. Estimated land costs have been developed based on discussions with local stakeholders and analysis of recently completed sales in the vicinity of each site. These costs have then been applied to the estimated site area for each component of the development.

**Table 8.3. Estimated Site Area and Land Purchase Price (\$ millions)**

Facility Component	Site Area (sqm)	Parkhurst	Gracemere	Gladstone	GSDA	Emerald
Construction Materials	10,000	\$0.8	\$0.8	\$1.8	\$1.5	\$1.6
Secure Storage	10,000	\$0.8	\$0.8	\$1.8	\$1.5	\$1.6
Mining Services & Parts Distribution	20,000	\$1.6	\$1.6	\$3.6	\$3.0	\$3.2
Plant Hire	10,000	\$0.8	\$0.8	\$1.8	\$1.5	\$1.6
Food Distribution	30,000	\$2.4	\$2.4	\$5.4	\$4.5	\$4.8
Coupling & De-Coupling Area	10,000	\$0.0	\$0.8	\$0.0	\$0.0	\$1.6
Motel Accommodation	5,000	\$0.4	\$0.4	\$0.9	\$0.8	\$0.8
Bus Depot & Maintenance Facility	10,000	\$0.8	\$0.8	\$1.8	\$1.5	\$1.6
Car Park	20,000	\$1.6	\$1.6	\$3.6	\$3.0	\$3.2
<b>Total</b>	<b>125,000</b>	<b>\$9.2</b>	<b>\$10.0</b>	<b>\$20.7</b>	<b>\$17.3</b>	<b>\$20.0</b>

Source: AECgroup

It has been assumed, an estimated 12.5 hectares would be developed immediately with further expansion in response to the anticipated ongoing economic growth in the region. The two Rockhampton based sites would be significantly cheaper than either the Gladstone or Emerald sites.

### 8.4.2 Construction Costs

Construction costs have been developed based on the preceding site descriptions and construction industry benchmarks. The benchmarked costs have been inflated to reflect the additional costs associated with construction activity in each location relative to state capitals. For the sites in question, this means Rockhampton prices (Gracemere and Parkhurst) are 10.0% higher than Brisbane, Gladstone (both GSDA and non GSDA) 15.0% and Emerald 20.0% respectively (Rawlinsons 2011). The unitary and total construction costs of each site component are set out in the following table.

**Table 8.4. Unitary and Total Construction Costs (\$ millions)**

Facility Component	\$/sqm	Parkhurst	Gracemere	Gladstone	GSDA	Emerald
Construction Materials	\$860	\$4.7	\$4.7	\$4.9	\$4.9	\$5.2
Secure Storage	\$860	\$5.7	\$5.7	\$5.9	\$5.9	\$6.2
Mining Services & Parts Distribution	\$860	\$11.4	\$11.4	\$11.9	\$11.9	\$12.4
Plant Hire	\$861	\$5.7	\$5.7	\$5.9	\$5.9	\$6.2
Food Distribution	\$1,395	\$32.2	\$32.2	\$33.7	\$33.7	\$35.2
Coupling & De-Coupling Area	\$80	\$0.0	\$0.9	\$0.0	\$0.0	\$1.0
Motel Accommodation	\$2,080	\$8.6	\$8.6	\$9.0	\$9.0	\$9.4
Bus Depot & Maintenance Facility	\$1,190	\$6.5	\$6.5	\$6.8	\$6.8	\$7.1
Car Park	\$80	\$1.8	\$1.8	\$1.8	\$1.8	\$1.9
<b>Total</b>		<b>\$76.6</b>	<b>\$77.4</b>	<b>\$80.0</b>	<b>\$80.0</b>	<b>\$84.5</b>

Source: Rawlinsons (2011)

The total construction costs of the first stage of the development are estimated to be between \$76.6 million (Parkhurst) and \$84.5 million (Emerald). The variances reflect the greater cost associated with construction (materials and labour) in these locations. It should be remembered, all components of the developments would not necessarily proceed simultaneously.



### 8.4.3 Pre-Feasibility Outcomes

Having purchased the land and completed construction, it is assumed the developer(s) would then seek to lease out the facilities. The table shows the average annual return per square metre each developer would seek to recover (assumed 15% margin) in order to make their investment worthwhile. Where an investor is likely to be able to recover this lease fee the investment is likely to be attractive, but if the required lease is too great, it is unlikely to proceed.

**Table 8.5 Required Annual Return to Developer \$/square metre**

Facility Component	Parkhurst	Gracemere	Gladstone	GSDA	Emerald
Construction Materials	\$166	\$166	\$202	\$193	\$203
Secure Storage	\$162	\$162	\$193	\$186	\$195
Mining Services & Parts Distribution	\$162	\$162	\$193	\$186	\$195
Plant Hire	\$162	\$162	\$194	\$186	\$195
Food Distribution	\$247	\$247	\$279	\$273	\$285
Coupling & De-Coupling Area	\$0	\$25	\$0	\$0	\$38
Motel Accommodation	\$359	\$359	\$395	\$389	\$406
Bus Depot & Maintenance Facility	\$220	\$220	\$259	\$250	\$262
Car Park	\$25	\$25	\$41	\$36	\$38

Source: AECgroup

#### **Industrial Land**

A review of properties currently on the market and discussions with local real estate agents suggest these charges are within the market range for quality industrial facilities in each site area. Real estate agents and other stakeholders suggest there is very limited supply, in particular of larger sites, and that tenants are likely to be willing to pay a premium to access high quality lots.

As noted earlier, evidence from other resource regions suggests the supply of high quality industrial buildings and lay down areas often struggles to keep up with demand. Given the very high levels of investment committed and in the planning phase it is likely this level of demand will continue in the short to medium term at least.

The food distribution centre is the most marginal of the developments. The location criteria for the distribution centre are focused on its location relative to major markets and suppliers and the cost of land and labour. There would be limited benefit from locating in a logistics hub focused on servicing the mining industry and this would be unlikely to proceed in areas where there is a premium on land values due to its proximity to major infrastructure such as a port or where labour costs are high.

#### **Motel**

A separate model has been developed to test the feasibility of the motel. It uses a series of simple assumptions:

- 100 bedrooms (available 365 nights per year);
- The average room rate is \$125 per night;
- The gross profit margin is 50% (before lease costs); and
- The average occupancy rate is 80%.

On this basis, each room would generate an operating surplus (before lease costs) of \$18,250 per annum – equivalent to a total of \$1.8 million per annum or \$487 per square metre of gross floor area. An analysis of current room rates for motels in each of the site locations identifies very limited availability, in particular on week nights, and rates in excess of \$200 per room per night (wotif.com and stayz.com 2012).

#### **Coupling and De-Coupling Area**

The impacts of fatigue management legislation and associated chain of responsibility issues means drivers and all other stakeholders in the road transport supply chain are increasing aware of the need to carefully manage driver fatigue. Further, the strict



control of vehicle movements by size means there is strong demand for the coupling and decoupling area.

In other regions with high volumes of heavy vehicle traffic, providers of this type of facility have begun charging for access to these facilities as they must incur the initial capital costs and the ongoing maintenance and risk management compliance costs. It is estimated that on average in 2010 more than 1,000 heavy goods vehicle passed the Gracemere site every day (DTMR 2011). Assuming 5% stopped to couple or de-couple their loads, this would equate to an average daily throughput of approximately 50 vehicles. Anecdotally, other operators charge \$100 per stop, on this basis the daily revenues would be \$5,000 per day, equivalent to revenues of \$1.8 million per annum. Assuming operating costs account for 50% of revenues, the facility would generate \$0.9 million in gross operating profit per annum, approximately three times greater than the required return to a developer at a 15% margin.

It should be noted some transport operators currently use a site to the rear of the Rockhampton saleyards to couple and decouple these loads. Access to the current site would need to be removed.

### **Car Parking**

There are currently two types of long stay car parking available at Rockhampton Airport: premium long stay and long stay. Fees are applied on a sliding scale. A 10 day period in the current premium long stay area costs \$130, while the same period on the long stay car park costs \$62. At Gladstone Airport, long-term parking is charged at \$10 per day and at Emerald the charge is also \$10 per day.

On the basis that each parking space equates to approximately 15 square meters, including access points, and based on 70% percent occupancy rate and a daily rate of \$5.00, each car parking space would generate \$1,278 per annum, equivalent to \$64 per square metre, almost double the required return to a developer seeking a 15% return on their investment.

## **8.5 Summary**

The strong demand for quality industrial land at all of the identified sites means the industrial developments at the Logistics Hub are considered to be viable. However, high land values and labour costs are likely to rule out uses which cannot derive some benefit from locating within a mining and construction services focussed development.



## 9. Location Analysis

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When considering the location decision making process, organisations identify the criteria which are most important to them in any site and then assess available sites against each criteria. Some criteria are non-discretionary, that is a site which fails to meet these non-discretionary criteria is immediately ruled out. The site which meets all non-discretionary criteria and is best aligned to the identified needs is then chosen as the preferred location.

### 9.1 Location Criteria

The following location criteria have been identified through the stakeholder consultation process and through discussion with the Steering Group and set out the key criteria for the Central Queensland Logistics Hub:

- **Transport Access and Connections:** In order to remain competitive, transport operators need to minimise time spent accessing and exiting a site. It is vital that any location offers nearby and easy access to major road infrastructure. This is particularly important for heavy vehicles which can be difficult to manoeuvre in restricted spaces and can lead to conflict of use issues with non-industrial users.
- **Utilities Access and Connections:** Potential tenants at the Logistics Hub all require industrial utilities connections and in some cases will have significant power demands. It is therefore critical any site either has existing connections to meet these requirements or, at a minimum, can readily access these connections without incurring significant infrastructure costs.
- **Proximity and Access to Markets:** Markets include all end users of goods and services produced at the site. For the mining services sector this means proximity to where the goods and services need to be, i.e. the mines. It is vital any site offers ready access to the mine sites it services which might include Galilee, Surat and Bowen Basin locations.
- **Proximity and Access to Suppliers:** Just as it is important to be close to where the goods and services are consumed, it is also important to have ready access to suppliers to limit resupply costs and time.
- **Land Costs:** given the relatively large areas of land needed for development of this type, land costs are critically important.
- **Land Availability (impediment free):** A major attraction of a new facility would be the removal of conflict of use issues with neighbours. Given the 24 hour operating cycle of most of the developments in question, it is vital the site can be accessed and used on a 24 hour basis without incurring the issues which currently affect many potential users in their existing locations.
- **Labour Availability and Costs:** Any new facility will have an associated labour requirement. It is important suitably skilled labour is available in order to fill these positions and that the required labour is available at an appropriate cost.
- **Future Rail Connection:** Current freight transport cost dynamics do not support the creation of a rail handling facility at the site which would support interchange with road based transport systems. However, it is widely recognised rail freight is likely to become increasingly cost competitive over the medium to long-term and there is a major risk in locating the facility in an area which does not have the potential to connect to the rail network in future.
- **Other Risks:** These site specific factors vary between locations and could include legislative, planning and environmental unknowns which could impact upon the development.

These location criteria have been used to assess each of the five identified locations in the Central Queensland region. The site assessment has not identified specific sites but assesses the suitability of identified industrial precincts.



## **9.2 Site Assessment**

The following table presents the findings of the assessment of the extent to which each site is able to meet the location criteria. In order to identify a preferred site, each has been assigned a value on a 1-5 scale against each of the criteria where: '1' – Does not meet the criteria and '5' – Exceeds the criteria. It should be noted, the criteria are unweighted and do not take account of the size of difference between the sites which may in some cases be small. The scores are provided below each data point and have been used to inform the site assessment matrix in the subsequent table.



**Table 9.1 Key Elements of Potential Logistics Hub Sites and Assessment Scores**

Parkhurst	Rockhampton West	Gladstone	GSDA	Emerald
<b>Transport Access and Connections</b>				
<ul style="list-style-type: none"> <li>Immediate access to north south rail line</li> <li>Immediate access to Bruce Highway</li> <li>Requires travel through the Rockhampton CBD to access from the South and would need to travel back through CBD to access mines to the west and markets to south</li> <li>Limited to b-double trucks</li> </ul>	<ul style="list-style-type: none"> <li>Immediate access to Blackwater Coal System rail line</li> <li>Immediate access to Capricorn Highway</li> <li>Can service road trains heading to the west and b-double trucks</li> <li>Poor access for vehicles travelling north</li> </ul>	<ul style="list-style-type: none"> <li>Immediate access off the Bruce Highway</li> <li>Close to the Dawson Highway</li> <li>Immediate access to rail lines</li> <li>Limited to b-double trucks</li> <li>Relatively poor access to north and western Queensland</li> </ul>	<ul style="list-style-type: none"> <li>Immediate access off the Bruce Highway</li> <li>Close to the Dawson Highway</li> <li>Immediate access to rail lines</li> <li>Limited to b-double trucks</li> <li>Relatively poor access to north and western Queensland</li> </ul>	<ul style="list-style-type: none"> <li>Immediate access off Capricorn Highway</li> <li>Immediate access to Blackwater Coal System rail line</li> <li>Type 1 road trains are permitted</li> </ul>
• 2	• 3	• 4	• 4	• 4
<b>Proximity and Access to Markets<sup>(a)</sup></b>				
<ul style="list-style-type: none"> <li>Surat Basin: 451km</li> <li>Bowen Basin: 279km</li> <li>Galilee Basin: 448km</li> </ul>	<ul style="list-style-type: none"> <li>Surat Basin: 432km</li> <li>Bowen Basin: 260km</li> <li>Galilee Basin: 428km</li> </ul>	<ul style="list-style-type: none"> <li>Surat Basin: 448km</li> <li>Bowen Basin: 371km</li> <li>Galilee Basin: 539km</li> </ul>	<ul style="list-style-type: none"> <li>Surat Basin: 448km</li> <li>Bowen Basin: 371km</li> <li>Galilee Basin: 539km</li> </ul>	<ul style="list-style-type: none"> <li>Surat Basin: 543km,</li> <li>Bowen Basin: 0km</li> <li>Galilee Basin: 169km</li> </ul>
• 2	• 3	• 4	• 4	• 4
<b>Proximity and Access to Suppliers</b>				
<ul style="list-style-type: none"> <li>Port of Brisbane: 678km</li> <li>Port of Gladstone: 120km</li> <li>Mackay: 327 km</li> </ul>	<ul style="list-style-type: none"> <li>Port of Brisbane: 667km</li> <li>Port of Gladstone: 107km</li> <li>Mackay: 347km</li> </ul>	<ul style="list-style-type: none"> <li>Port of Brisbane: 571km</li> <li>Port of Gladstone: 10km</li> <li>Mackay: 445km</li> </ul>	<ul style="list-style-type: none"> <li>Port of Brisbane: 571km</li> <li>Port of Gladstone: 15km</li> <li>Mackay: 412km</li> </ul>	<ul style="list-style-type: none"> <li>Port of Brisbane: 908km</li> <li>Port of Gladstone 371km</li> <li>Mackay: 392 km</li> </ul>
• 3	• 3	• 4	• 4	• 2
<b>Land Costs<sup>(b)</sup></b>				
<ul style="list-style-type: none"> <li>\$70-80/ per square metre</li> </ul>	<ul style="list-style-type: none"> <li>\$70-80/per square metre</li> </ul>	<ul style="list-style-type: none"> <li>\$220/per square metre</li> </ul>	<ul style="list-style-type: none"> <li>Currently unknown for subdivision</li> <li>Likely to be much higher than \$20/per square meter listed for large GSDA sites given anticipated demand</li> </ul>	<ul style="list-style-type: none"> <li>\$160/per square metre</li> </ul>
• 4	• 4	• 2	• 2	• 3
<b>Land Availability</b>				
<ul style="list-style-type: none"> <li>Limited supply, mainly small lots</li> <li>Real estate agents anticipate high demand as sites become available</li> <li>Small lot sizes and would be difficult to secure continuous large area</li> </ul>	<ul style="list-style-type: none"> <li>Currently going through master planning process for industrial development</li> <li>Real estate agents anticipate high demand</li> </ul>	<ul style="list-style-type: none"> <li>High quality industrial land available but very high demand for prime sites limits availability</li> </ul>	<ul style="list-style-type: none"> <li>Likely only some areas of GSDA will be subdivided</li> <li>Preference is for activities which directly supply the primary activities at GSDA</li> </ul>	<ul style="list-style-type: none"> <li>Significant price increases over the last five years</li> <li>High demand for quality developments</li> <li>Quality industrial land is available but tends to be smaller lot sizes</li> </ul>
• 2	• 4	• 3	• 1	• 4



Parkhurst	Rockhampton West	Gladstone	GSDA	Emerald
<b>Labour Costs<sup>(c)</sup></b>				
<ul style="list-style-type: none"> <li>Average Annual: \$47,828</li> <li>Machinery operators and drivers: \$71,362</li> <li>Labourers: \$34,688</li> </ul>	<ul style="list-style-type: none"> <li>Average Annual: \$47,828</li> <li>Machinery operators and drivers: \$71,362</li> <li>Labourers: \$34,688</li> </ul>	<ul style="list-style-type: none"> <li>Average Annual:\$57,431</li> <li>Machinery operators and drivers: \$73,108</li> <li>Labourers: \$53,902</li> </ul>	<ul style="list-style-type: none"> <li>Average Annual:\$57,431</li> <li>Machinery operators and drivers: \$73,108</li> <li>Labourers: \$53,902</li> </ul>	<ul style="list-style-type: none"> <li>Average Annual: \$64,043</li> <li>Machinery operators and drivers: \$100,786</li> <li>Labourers: \$37,987</li> </ul>
• 3	• 3	• 2	• 2	• 1
<b>Labour Availability<sup>(c)</sup></b>				
<ul style="list-style-type: none"> <li>Labour Force: 62,083</li> <li>Unemployment Rate: 6.8%</li> </ul>	<ul style="list-style-type: none"> <li>Labour Force: 62,083</li> <li>Unemployment Rate: 6.8%</li> </ul>	<ul style="list-style-type: none"> <li>Labour Force: 33,550</li> <li>Unemployment Rate: 4.9%</li> </ul>	<ul style="list-style-type: none"> <li>Labour Force: 33,550</li> <li>Unemployment Rate: 4.9%</li> </ul>	<ul style="list-style-type: none"> <li>Labour Force: 17,464</li> <li>Unemployment Rate: 4.1%</li> </ul>
• 4	• 4	• 3	• 3	• 2
<b>Opportunity to Connect to Rail Network</b>				
<ul style="list-style-type: none"> <li>Close to north south rail line but almost certain not to proceed without relocation of current Rockhampton rail operations</li> <li>Limited site availability</li> </ul>	<ul style="list-style-type: none"> <li>Adjacent to the Blackwater Coal System</li> <li>Currently limited capacity on the network due to coal volumes</li> </ul>	<ul style="list-style-type: none"> <li>Sites with immediate access to rail line are very limited especially of the size required for the CQLH</li> <li>Lands cost likely to have significant negative impact on site attractiveness</li> </ul>	<ul style="list-style-type: none"> <li>Opportunity to provide direct rail access unknown at present</li> <li>Any site within SDA with direct rail access likely to be high cost location</li> </ul>	<ul style="list-style-type: none"> <li>Adjacent to the Blackwater Coal System</li> <li>Currently limited capacity on the network due to coal volumes</li> <li>Site is long way from non-resource orientated markets</li> <li>Very limited intermodal opportunity</li> </ul>
• 2	• 3	• 3	• 2	• 2
<b>Other Risks</b>				
<ul style="list-style-type: none"> <li>Site is not attractive to mining service companies and other transporters which would need to bring goods through Rockhampton CBD twice to access mine sites</li> </ul>	<ul style="list-style-type: none"> <li>Site is currently only at master planning stage</li> <li>Site could be stranded by potential bypass routes</li> <li>Current lack of supply of appropriate industrial land in the region means demand will be high</li> </ul>	<ul style="list-style-type: none"> <li>Difficult to compete with business which benefit from deep water port access</li> <li>Could be cut off from mine sites in the event of a major flood event</li> </ul>	<ul style="list-style-type: none"> <li>Planning for subdivision still to be confirmed and may be restrictions on use</li> <li>Site is likely to be highly valued by several potential users</li> </ul>	<ul style="list-style-type: none"> <li>Likely to be more expensive to service Galilee and Surat Basins</li> <li>Likely to rule out non-resources sector development opportunities</li> </ul>

Notes: (a) Assumes Miles as centre of Surat Basin, Emerald as centre of Bowen Basin and Alpha as centre of Galilee Basin, (b) Land with utility connections but no physical structures on site, (c) LGA average  
Sources: ABS (2011b), DEEWR (2011), DEEDI (2011a), Google Maps



## 9.3 Summary

The following table summarises the potential sites based on the preceding assessment and data in Table 9.1.

**Table 9.2 Rank of Potential Logistics Hub Sites**

Location Criteria	Parkhurst	Gracemere	Gladstone	GSDA	Emerald
Transport Access and Connections	2	3	4	4	4
Proximity to Markets	2	3	4	4	4
Proximity to Suppliers	3	3	4	4	2
Land Costs	4	4	2	2	3
Land Availability	2	4	3	1	4
Labour Costs	3	3	2	2	1
Labour Availability	4	4	3	3	2
Opportunity for Rail Connection	2	3	3	2	2
<b>Total Score</b>	<b>22</b>	<b>27</b>	<b>25</b>	<b>22</b>	<b>22</b>
<b>Average Score</b>	<b>2.8</b>	<b>3.4</b>	<b>3.1</b>	<b>2.8</b>	<b>2.8</b>
<b>Rank</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>3</b>

Source: AECgroup

It should also be noted each criteria has equal weighting. In practice it is likely some features would have a greater bearing on the location decision than others. There are also likely to be a range of company specific considerations which cannot be foreseen at this stage, for example connections to existing business or the action of local governments. The following points provide a summary of the location assessment of each site:

- Parkhurst:** The limited available space and the need to cross through Rockhampton CBD twice with any load coming from the south and ultimately heading west to mine sites effectively rules out this location. Some stakeholders mentioned the possibility of the rail and other major infrastructure relocating to this site from the Rockhampton CBD but while this would make the location much more attractive for the Logistics Hub this is considered to be unlikely to transpire in the short to medium term.
- Gracemere:** The Gracemere site is expected to offer lower land and labour costs than the Gladstone and Emerald sites while avoiding some of the congestion and land availability issues associated with Parkhurst. The site also has the potential to create a direct rail connection in the future. Several existing businesses in the region expressed strong support for this location which also benefitted from its location on the boundary of the area in which heavier vehicle types are permitted. Consultations with major logistics services providers currently located in Rockhampton confirmed the attractiveness of the location but there was clear direction that organisations which had made large investments in their current facilities and supporting infrastructure were unlikely to relocate at present but that the facility would be needed for planned expansion and for new organisations coming into the region.
- Gladstone (non GSDA):** Gladstone is well established as a premier heavy industry location in Queensland and benefits from several factors which are very attractive to some operations including access to a deep sea port and a skilled workforce. However, the factors which make Gladstone an attractive location also make it more expensive than alternative sites and create high demand for labour. For industries where deep water access is critical, higher land and labour costs are acceptable but in sectors with smaller margins which cannot extract the same benefits from the location, the costs can become prohibitive. Several stakeholders in the transport industry expressed the view that Gladstone would not be a suitable location for the logistics hub sitting concerns around limited labour availability and high operating costs.
- Gladstone GSDA:** The GSDA offers many of the benefits of other industrial land in Gladstone but potentially at a lower cost. Reducing the establishment costs of the Logistics Hub would be likely to make this an attractive site despite the same concerns around labour costs and availability as were raised with regards to non-



GSDA sites. However, the obvious benefits of this site are almost certain to significantly increase competition for the available land and ultimately land values. A study is currently underway considering the potential uses for the area which is to be subdivided although it is understood that while a logistics hub is a possibility for the site, the preference is for uses which are ancillary to the primary developments located within the GSDA.

- **Emerald:** Emerald sits at the heart of the Bowen Basin and is a service centre for much of the surrounding resource area. Locating the Logistics Hub at Emerald would offer benefits for mining service operations as they could significantly reduce their supply times from central stores to mine sites. However, the location is much less likely to be attractive to non-mine operators given the distance from the major coastal population centres. The limited supply of appropriate land in large lots and constrained labour availability combine to make Emerald a less attractive location.

With the possible exception of Parkhurst and the GSDA, Gracemere, Emerald and Gladstone each has the potential to accommodate a viable logistics hub. The location decision is likely to be determined by the value an organisation places on the location benefits of Gladstone (deep water access, existing related businesses) and Emerald (proximity to mine sites and existing mining services sector) and whether this is sufficient to offset the lower land and labour costs associated with the Gracemere site.

The Gracemere site at Rockhampton West has been identified as the preferred location as it offers the opportunity to meet immediate demand from the mining services sector and the longer term aim of creating a viable intermodal facility.

Gladstone's location adjacent to one of Queensland's major deep water port facilities would offer the opportunity to run loads from ship to destination without the need to add an additional handling point, and associated costs, between the point of loading and the point of delivery. However, as well as having relatively high land costs and limited availability, a Gladstone location would also incur significant additional labour costs, assuming appropriate labour resources could be found. It is not considered that there would be sufficient value derived from a Gladstone location to offset the higher establishment and operating costs. While Emerald is at the heart of the Bowen Basin it is unlikely to be a viable location for non-resource based logistics businesses and has higher land and labour costs than alternative locations.

Gracemere's relatively low land costs, potential for direct rail line access, greater availability of labour at a lower cost as well as its location at the point at which larger vehicles are permitted travelling to the west make it the preferred location.



## 10. Findings and Recommendations

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### 10.1 Findings

#### 10.1.1 Key Findings from the Baseline Analysis

Key findings from the baseline analysis included:

- The Central Queensland region is undergoing a prolonged and continuing period of rapid population and economic change, primarily driven by the expansion of the resources sector;
- Projected resource demand, in particular from India and China, and the associated development plans for major resource companies suggests the region will continue to experience ongoing growth for at least the short to medium term;
- The creation of a logistics facility in the region would align with many of the strategic objectives which have been identified in the suite of transport planning studies conducted by governments at all levels;
- There already appears to be very significant volumes of freight passing through the region, some of which would benefit from access to a logistics hub. These volumes are almost certain to continue to increase; and
- While intermodal transport offers a long-term opportunity, it is unlikely to be viable in the short term given local factors including the existing intermodal facilities in the region and macro factors acting upon the price dynamics of road and rail freight.

#### 10.1.2 Key Findings from the Pre-Feasibility Assessment

Based on the pre-feasibility analysis, it has been found that:

- There is strong demand for a Central Queensland Logistics Hub to service the mining services sector in particular and the associated industrial construction industry. There are several potential locations in the region where such a facility is likely to be viable if tailored to meet local demand;
- The estimated lease costs a developer would need to charge in order to make a development commercially viable are within current regional market expectations for this type of facility;
- A new development offers the opportunity to address conflict of use issues and constraints on expansion currently faced by some existing operators whose sites are increasingly encroached upon by infill residential development;
- The final location decision is likely to be determined by the value an organisation places on the location benefits of Gladstone (deep water access, existing related businesses) and Emerald (proximity to mine sites and existing mining services sector) and whether this is sufficient to offset the lower land and labour costs associated with alternative sites;
- The Gracemere site at Rockhampton West has been identified as the preferred location as it offers the opportunity to meet immediate demand from the mining services sector and the longer term aim of creating a viable intermodal facility; and
- The Gracemere site's relatively low land costs, potential for direct rail line access, opportunity to service non-resource markets to the north and west, greater availability of labour at a lower cost as well as its location at the point at which larger vehicles are permitted travelling to the west make it the preferred location.

## **10.2 Recommendations**

### **10.2.1 Recommendations from the Baseline Analysis**

Based on the baseline analysis it was recommended:

- The focus of the study was changed to consider the feasibility of a logistics hub solely focused upon road based transport;
- A location assessment was made and a recommended site for the facility identified;
- A demand profile for the facility was developed for each potential user group and the facility in aggregate;
- A capital estimate for the establishment costs for the required facility in the preferred location was undertaken;
- A financial model was developed for the facility and the business model described to establish how the facility would operate and whether it could be financially viable; and
- An implementation plan was established to map the process of moving from planning to implementation stages.

### **10.2.2 Recommendations from the Pre-Feasibility Assessment**

It is recommended CQILH Incorporated:

- Move to a full feasibility stage including a detailed assessment of the feasibility of the logistics hub at the Gracemere industrial land development to the west of Rockhampton;
- Initiate a market sounding campaign to begin to gather expressions of interest in the site as a means of communicating to the business community that the development is progressing and as a sign to the development community that demand is strong and the development is feasible; and
- Continue to engage with rail infrastructure providers to signal the commitment to the incorporation of road: rail interchange handling capacity at the site over the medium term.



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## Appendix A: Literature Review

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### Queensland Regionalisation Strategy

The Queensland Regionalisation Strategy (QRS) focuses on regional development as a means of managing Queensland's future population growth (DLGP 2011c). It outlines the principles for regionalisation, which include:

- *Build prosperity in regions*, including access to employment opportunities, and infrastructure to attract investment and growth;
- *Understand and support the way regional economies work*, including understanding its competitive advantages, and providing efficient transport infrastructure;
- *Recognise regional differences and community aspirations in a changing world*, including their ability to respond to changing market conditions;
- *Focus on regional centres to grow stronger regions*, including providing infrastructure to support growth; and
- *Deliver targeted actions*, including prioritising activities that deliver the greatest benefit.

The Central Queensland region includes Rockhampton and Gladstone. Local growth opportunities include:

- Proximity to the Bowen, Surat and Galilee Basins and established freight and logistics infrastructure including ports at both Gladstone and Port Alma;
- Emerging coal seam gas (CSG) and liquefied natural gas (LNG) export hub at Gladstone; and
- Large industrial land holdings and significant electricity transmission infrastructure.

The QRS recognises the importance of supply chains in unlocking these opportunities. The efficient movement of goods and services throughout the region requires improving the safety and reliability of the road and rail network. The QRS proposes actions to achieve stronger regions, including:

- Infrastructure charges reform:
  - Implement infrastructure charges reform to improve investor confidence and underpin the sustainability of government spending.
- Infrastructure sequencing and prioritisation:
  - Introduce a Queensland Infrastructure Plan to prioritise and sequence infrastructure to support growing communities across the state and coordinate activities across the different levels of government.
- Integrated freight strategy for Queensland:
  - Design a freight and logistics framework to support the movement of freight and the efficient transportation of goods and people.
- Bruce Highway Upgrade Strategy:
  - Finalise a detailed masterplan for the full length of the Bruce Highway (covering the next 15–20 years), with priorities for improving safety and reliability.
- East-west and inland freight routes:
  - Improve efficiency and reliability on freight routes connecting producers in the west to processing and distribution infrastructure on the coast.
- Queensland industrial land strategy:
  - Support the supply of suitably located industrial land and protected corridors to enable employment and industry growth.
- Regional investment attraction:
  - Promote Queensland's regions to attract new investment.



## **Integrated Freight Strategy for Queensland**

The Queensland Government is developing a freight strategy in recognition of strong economic growth and the pressures this is placing on existing infrastructure (TMR, 2010). Its purpose is to inform and/or influence government policy, planning, regulation and investment. The government is seeking the advice of industry and businesses whose decisions impact on, or are impacted by, the efficient movement and storage of freight.

The strategy discusses future export requirements particularly from the mining and energy sectors, and also changing consumption patterns largely driven by technological changes. The implications pose significant challenges to the existing transport system.

The strategy focuses on delivering six key freight outcomes to reflect:

- The potential freight benefits of a multi-modal system;
- Optimising the use of the existing transport system;
- Planning for future needs;
- Managing community and environmental impacts;
- Maximising investment opportunities; and
- Developing a supportive policy and stakeholder environment.

Modal and intermodal freight terminals provide a critical link between modes by facilitating efficient movement and temporary storage of freight. Key actions proposed by the strategy include:

- Plan a coordinated network of terminals that collectively support the operation, integration and performance of individual modes for freight;
- Coordinate the development of terminals and transport network capacity consistent with industry location and expansion plans; and
- Plan connections to new and existing freight terminals (including industrial and commercial precincts) to accommodate future freight demands and advances in heavy vehicle design.

The strategy highlights that the freight network must be developed and maintained through programmed investment. This is in contrast to previous investment that was often mode based and uncoordinated. Programmed investment would ensure that:

- It is targeted at the right freight priorities;
- It reflects an integrated transport approach, particularly given the interdependence between elements of the system (for example synchronisation between development of ports and rail links); and
- It balances the demand for new infrastructure with the critical requirement to maintain the existing asset.

## **Brisbane–Cairns Corridor Strategy**

The Brisbane–Cairns Corridor is the main transport link between Brisbane and North Queensland (DOTARS, 2007). The Australian Government developed a strategy for the corridor focusing on the Bruce Highway and the North Coast Railway (NCL). The corridor strategy takes a broad multi-modal systems view of the operation of the transport corridor; looks at both freight and passenger movement; and actively considers innovative approaches and alternatives to built infrastructure solutions.

Freight along the corridor is predominantly northbound, with limited volumes, mainly agricultural produce, transported south. Like other longer corridors, Brisbane–Cairns is not a strong end-point to end-point market. Several intermediate freight markets overlap, for example Brisbane to Rockhampton, Brisbane to Mackay, Brisbane to Townsville, and Brisbane to Cairns.

DOTARS (2007) estimates that approximately 14 million tonnes a year of bulk and non-bulk freight are transported between various origin-destination points along the



Brisbane–Cairns corridor. This freight is contestable with road and rail transporting approximately 50% each by volume.

Road transport has a competitive advantage in short haul, door-to-door transport tasks (e.g. raw sugar from mills to regional ports). Rail has an advantage in long haul and high volume bulk transport tasks (e.g. coal). Road and rail compete on intermodal/container transport to destinations including Mackay, Townsville and Cairns. DOTARS (2007) estimates that rail has 25-30% of this market.

Several developments are likely to impact future freight shares:

- **Technology:** road transport is competitive over increasingly longer distances not only for containers but also for a number of traditional bulk transport tasks. The road-rail competitive equilibrium point in the transport market to destinations north of Brisbane has been moving northward (at least in non-bulk) and is currently considered to be Mackay. This progressive change shows that the non-bulk freight market is increasingly contestable between road and rail.
- **Rail reform:** has resulted in significant investment in track infrastructure, particularly on the Melbourne-Brisbane rail corridor since the mid 1990s. Operators are focused on developing a national rail freight network.

Future shares of the freight market will depend on infrastructure investment, the interplay of road and rail transport competitiveness, regulations, and the extent to which rail operators pursue above-rail efficiencies and reforms.

As Queensland's freight task increases, the need for trucks and trains that can safely and efficiently carry larger volumes will increase.

- Queensland is progressively expanding its road network for heavy vehicles. Growth in light and heavy vehicle traffic is projected to be strongest between Brisbane and Gympie;
- The NCL is limited to trains of up to 650 metres, which is largely due to limited crossing loop lengths. This compares with 1,300-1,500 metre trains on other parts of the AusLink Network. This constraint could impact potential growth in rail freight transport north of Brisbane; and
- An assessment suggests that the current NCL infrastructure can support growth of rail freight of 2–3% a year. Above 3%, there is likely to be a spill over to road transport.

Emerging challenges and priorities facing the Brisbane–Cairns corridor include:

- Growth in the mining industry, related economic activity, and population growth will lead to additional demands on transport systems;
- Long term transport planning is required to manage growth, maximise efficient freight logistics, and protect nationally strategic routes and freight links (especially links to ports); and
- Improving the interaction between west-east rail lines and the AusLink National Network to minimise export delays;

## **National Land Freight Strategy Discussion Paper**

The idea of a national freight network is relatively new. Traditionally, policy has been segmented by mode (i.e., road, rail, aviation, and shipping) and by jurisdiction, which has led to congestion in some areas, low reliability and unexploited opportunities for investment. Inefficiencies are passed on through supply chain and result in lost national competitiveness.

In response, Infrastructure Australia (2011) is developing a national land freight network strategy. Its objectives are:

- To improve the efficiency of freight movements across infrastructure networks;
- To minimise externalities associated with such freight movements; and
- To influence policy making in areas relevant to freight.



Infrastructure Australia presents single new national network to reflect an emphasis on potential future freight flows, freight (vehicle) connectivity, ports and settlements. It includes:

- Major airports and some regional airports with important freight tasks such as Rockhampton, Port Hedland and Townsville;
- Intermodal terminal/ freight cluster sites in the capital cities, Gold Coast and Canberra; and
- Rail lines towards the Pilbara and the inland rail route Melbourne-Brisbane/Gladstone.

## **Queensland Infrastructure Plan**

The Queensland Infrastructure Plan (QIP) outlines Queensland's short-term infrastructure projects and the longer term infrastructure priorities to meet future demand (DLGP, 2011b). The QIP sets the strategic platform to guide the planning, prioritisation and sequencing of infrastructure. It identifies the infrastructure needed to support and further encourage growth across Queensland's major regional economic zones of minerals, coal and energy, gas, agriculture, tropical expertise, and tourism. It will improve the way existing infrastructure is managed, and provide a pipeline of targeted investment to deliver infrastructure where and when it is needed.

The plan directly supports the QRS, which is focused on building stronger regions and ensuring growth and economic opportunities are shared throughout Queensland.

The QIP describes the current projects and future infrastructure directions within the seven planning regions across Queensland:

- Far North Queensland;
- North Queensland;
- Mackay, Isaac and Whitsunday;
- Central Queensland;
- Wide Bay Burnett;
- Darling Downs South West; and
- South East Queensland.

The Central Queensland region extends east from the NT border to Rockhampton and Gladstone. Key industries include agriculture, mining, LNG and heavy industry. Long term strategic infrastructure priorities are:

- Improve heavy vehicle access in Rockhampton to the Bruce Highway;
- Facilitate the Surat Basin Rail Project;
- Improve freight access to the Gracemere Stanwell Industrial Corridor;
- Improve freight movement efficiency to and from the Surat Basin;
- Respond to resource growth in the Galilee Basin;
- Support economic and urban growth in key regional centres; and
- Facilitate and manage freight between the Port of Gladstone and industrial precincts.

## **Bruce Highway Upgrade Strategy**

The Bruce Highway Upgrade Strategy forms part of the Queensland Government's overall strategic planning for Queensland (DLGP, 2011a). This planning ensures that services and infrastructure can be provided at the right time and place to accommodate population growth, support economic prosperity and enhance the liveability of Queensland's regions. It identifies 60 short, medium and long-term priorities spanning the length of the Bruce Highway from Brisbane to Cairns.

In Central Queensland, the LNG processing and export facilities at Gladstone mean the Bruce Highway will carry additional traffic. Goods and workers will be transported to and

from these facilities and the resource areas of the west. Bruce Highway investments in Central Queensland will strengthen connections between the Bowen and Surat basins, coastal ports and markets to the north and south. It supports growth in the traditional cattle and grain markets, as well as emerging and expanding industries.

Investments over the next 5-10 years include:

- Yeppen floodplain upgrade – improve flood immunity and freight efficiency on the southern approach to Rockhampton.
- Rockhampton bypass – improve road safety, local amenity and freight efficiency by removing conflicts between through and local traffic at Rockhampton.
- Rockhampton northern access update – stage 1 – Improve road safety and reduce congestion and travel times on the northern approach to Rockhampton

Investments over the next 11-20 years:

- Gladstone to Rockhampton duplication – Improve road safety, traffic capacity and freight access between Rockhampton and Gladstone.
- Rockhampton northern access update – stage 2 – Improve road safety and reduce congestion and travel times on the northern approach to Rockhampton.

## Transport Coordination Plan for Queensland

This Transport Coordination Plan (TCP) acknowledges the significance of Queensland's transport system and sets its strategic direction for the next 10 years (TMR, 2008).

Objectives for the transport system identified in the TCP include:

- Make the most of the existing transport system by using innovated traffic management solutions and considering the views of stakeholders;
- Invest in Queensland's transport system through targeted investment in the areas of greatest need;
- Keep the system working well to accommodate changing travel patterns and the requirements of industry;
- Support regional and remote communities through infrastructure provision that meets regional needs;
- Move freight efficiently by identifying key freight corridors, developing multi-modal and integrated freight networks, and coordinating development.
- Make transport more safe and secure through technology use and a national approach to transporting dangerous goods; and
- Integrate transport planning and land use planning to identify key transport infrastructure and protect it from encroachment.

## Queensland Coal Transport – Coal Infrastructure in Queensland

Queensland coal exports are growing rapidly in response to strong world demand for coal particularly from the Asia Pacific region. In response to the coal boom, a major Coal Transport Infrastructure Investment Program has been underway since 2005. This \$5.4 billion Coal Transport Infrastructure Investment Program covers significant investment in government owned rail and port infrastructure as well as major investments by private coal terminal operators (Queensland Transport, 2008). It comprises:

- *Five coal rail systems* – the Newlands, Goonyella, Blackwater, Moura and the Western systems. Additionally, the Northern Missing Link joining North Goonyella mines to the Newlands system is undergoing construction while the Surat Basin Railway has completed its environmental impact statement (EIS).
- *Four major coal ports and six coal terminals:*
  - Abbot Point: Abbot Point Coal Terminal
  - Hay Point: Dalrymple Bay Coal Terminal and Hay Point Services Coal Terminal;



- Gladstone: RG Tanna Coal Terminal and Barney Point Coal Terminal. Additionally, Stage One of the Wiggins Island Coal Terminal is currently under construction; and
- Brisbane: Fisherman Islands Coal Terminal.

Other infrastructure needs to support a growing coal export industry are also being addressed. These include supply and security of water, electricity distribution, regional road infrastructure, availability of housing and social infrastructure, and human resources and skills availability.

## Appendix B: Stakeholder Consultations

Parts A and B of this study have been informed by an extensive stakeholder consultation process. Industry participants based in the region as well as those with a national perspective have been consulted to provide a broad appreciation of the key issues impacting upon demand, location and feasibility of developing an internal logistics hub in the Central Queensland region.

Consultations were undertaken in person and by telephone and based on a standard set of questions followed up by more general discussion of key issues to be considered, up and downside project risks and the likely future demand for the facility. In some cases, respondents were able to provide a company or industry perspective while other contacts could only provide personal comments informed by relevant experience within the sector.

**Table B1. Contacts Made Between October 2011 and February 2012**

Contact	Organisation
Angus Russel	Rockhampton Regional Council
Bob Abnett	Department of State Development, Infrastructure and Planning
Brad Hirn	Department of Transport and Main Roads
Cameron Hurtz	Defence Support Group
Chris Willmann	Rubikon Group
Darren Allen	QR National
Darren Searle	Toll Holdings
Darren Wilson	Hastings Dearing
David Blackwell	Rockhampton Regional Council
Dean Gianerelli	Southern Capital Group <sup>(a)</sup>
Gary Vincent	Coates Hire
Gavin Steel	Rockhampton Regional Council
Geoff Fetherstone	Pacific National
Geoff Murphy	J.M. Kelly Builders
John Bryant	Rocky's Own
John Jolly	Emerald Industrial Estate
Kurt Heron	AAW Global Logistics
Kym McBride	Teys Brothers
Mark Tobin	Followmont Transport
Martin Crowe	Rockhampton Regional Council
Michael MacTaggart	Agforce
Paul Shelton	Department of Transport and Main Roads
Peter Dougherty	Manager Gladstone Centre DEEDI
Peter Lowe	QMAG
Peter Orr	Gladstone Regional Council
Peter Renton	Kalari Freight
Ray Busby	Busby Group
Rhett Talley	Acuweigh Pty
Russell Schuler	Gladstone Regional Council
Ron Bowes	Zebra Group

Sandra Hobbs	Central Highlands Development Corporation
Tim Dwyer	Toll Holdings
Tinn Chua	Linfox
Theo Reithmuller	Department of Infrastructure and Planning
Tony Hopkins	Greyhound Busses Australia
Tony Hopkins	National Road Freighters Assn / Hopkins Brothers Transport
Travis Green	Executive Director Property Services Group
Trevor Heard	Rockhampton Airport

Notes: (a) Previous work has included food distribution centres for ALDI and Woolworths (b) Formerly DEEDI

Initial consultations were predominantly with regional contacts. Key messages which emerged from this phase included:

- Existing operators could see the potential benefits of relocating to a greenfields site which offered:
  - Improved access to major road infrastructure as relevant to the commodities they carried/supplied (i.e. varied between stakeholders);
  - Removed current conflict of use issues where stakeholders were surrounded by incompatible landuses; and
  - A location with relatively lower labour costs compared to other parts of the region.
- Current locations are faced with conflict of use issues as previously isolated sites are encroached upon by infill development;
- There is a significant shortfall in the supply of high quality industrial land in the region, in particular larger lots;
- There are a series of emerging opportunities in the mining support services sector and related industries;
- The cost of and availability of labour are becoming major issues for existing and potential employers considering moving to the region;
- Crowding out effects are becoming evident at established centres in the region including Mackay and Gladstone;
- Current operators (all industries) have made significant investments in existing facilities and would not move unless there was some incentive to relocate;
- Only a low proportion of freight movements in the region were suitable for intermodal transport and it was considered there was limited current opportunity for an intermodal facility;
- In some cases, commodities which had previously be transported by rail had been moved off the network and onto the road and there was little sign of this trend reversing in the foreseeable future; and
- An intermodal facility would only add value to a limited range of products and there were several commodities which despite being transported in large quantities were unsuitable to be handled at an intermodal facility.

Following these initial regional contacts, a further round of consultations was undertaken which sought to develop a broader perspective on the likely demand for an intermodal logistics hub in the region. Key findings from this round of consultation included:

- Over the longer-term it is highly likely intermodal transport will become increasingly important contributor to the national freight task;
- A key driver of the move towards greater use of rail freight will be the likely increased fuel prices and the implications of a carbon price. Although there is significant uncertainty around the timing of these changes there was agreement the impacts would promote greater use of rail freight to localised distribution points;
- It was important that in considering the location of any potential facility, the opportunity to establish a direct connection to rail infrastructure at some future point was critical; and



- There is demand for high quality industrial land in the Central Queensland region but this must coincide with good access to key markets, available labour and integrate with other major infrastructure.



## Appendix C: Major Projects

A number of projects are proposed and/ or being investigated for development over the next five years in the Region. The table below presents significant projects located wholly or partly within the Region, as declared by the Queensland Government. It is apparent by the number and size of the project's listed, that there is significant interest in developing energy resources in the Bowen Basin, and associated infrastructure.

It is unlikely that all of the proposed developments listed in the table below will be realised. Similarly, there will be other projects that are developed that are not yet in the public domain.

**Table C1. Major Projects Underway or Completed in Region**

Project	Description/Capacity	Employment/ Estimated CapEx (\$M)	Export/ Completion Date	Location
<b>Projects under construction or completed</b>				
Gladstone LNG Project	Initial 1.5Mtpa Potential 3Mtpa	• \$400	2012	Fisherman's Island, Gladstone
Blackwater Rail System	New Electricity feeder stations, sectioning cabins etc	• \$140	NA	Bluff, Wycarbah, Duarina
Blackwater CSG Power Station	30MW power station	• \$50	2012	Blackwater
Boyne Smelter	Baking furnace Crane runway upgrade	• 450 peak	NA	Boyne Smelters
Ensham Central Coal Project	12Mtpa open cut coal mine	• \$166		Emerald
Fisherman's Landing Reclamation Area	153 Ha Reclaimed land	NA	2011	Fisherman's Landing, Gladstone
Gladstone Ports Corporation	Various upgrading projects	• \$260	N/A	Gladstone
Keppel Views	1,600 residential blocks	• \$950	NA	Yeppoon, Qld
Kestrel Expansion	Automated run of mine stockpiling system	• \$1,300	2012	Kestrel Mine, Bowen Basin
Lake Vermont Open Cut Expansion	Expansion of the existing mine	• \$147	2013	Dysart
Meridian CSG operation	25TJ/day operation	• \$17		Theodore
Moranbah Ammonium Nitrate Complex	Ammonium Nitrate Production Facility	\$935	2012	Moranbah
Powerlink	Calliope River & Gladstone substations	NA	2011-2013	Gladstone, Calliope
Qld Curtis LNG	7.4Mtpa	• \$8,000	2012	Curtis Island, Gladstone
QGC Ltd LNG	Initial 8.5Mtpa Potential 12Mtpa	• 5,000 peak • 1,000 operation	Early 2014	Curtis Island, Gladstone
QR Rolling Stock Production	<ul style="list-style-type: none"> <li>• Electric locomotive upgrade program</li> <li>• 30 additional diesel locomotives</li> <li>• 10 diesel electric locomotives</li> </ul>	• \$750	NA	Fitzroy & Wide- Bay
Queensland Energy Resources Limited	35-40 barrels synthetic crude/day	• 150 peak • 50 operation	2011	Yarwun
Reglan Electricity Feeder Station	Feeder station	• \$52	NA	Fitzroy
RG Tanna Coal Terminal Projects	Upgrade and maintenance	• \$96	NA	Gladstone
Rio Tinto Alcan – Yarwun Refinery (Alumina)	2Mtpa	• 1,300 peak • 250 operation	Mid-2012	Yarwun

Project	Description /Capacity	Employment/ Estimated CapEx (\$M)	Export/ Completion Date	Location
Rockhampton Hospital Expansion	Extension & refurbishment	• \$150	NA	Rockhampton
Transpacific Industries Regional Waste Management Facility	Oil Recycling plant	• \$30	NA	Fitzroy
Western Basin Dredging and Disposal Project	Swing basins, deepening/widening channels	• 225 peak • 30-40 in reclamation	2011	Curtis Island, Gladstone
Wiggins Island Rail Project Stage 1	Upgrading/development of rail lines	• \$900	2015	N/A
Yarwun Alumina Refinery Stage 2	Expansion of the facility to 3.4Mtpa	• \$2,100	2012	Gladstone
<b>Projects planned or with completed EIS</b>				
Arcturus mine	5Mtpa open cut and underground coal mine	• \$235	2015	Springsure
Arrow Bowen Pipeline Project	600km long transmission pipeline	• \$1,000	2017	Moranbah to Gladstone
Arrow LNG Plant	4 x 4Mtpa trains	• 2,500-3,000 peak • 200-300 operation	TBA	Curtis Island, Gladstone
Arrow Surat Pipeline Project	440km high pressure gas pipeline	• 300-350 peak • 8-10 operation	TBA	Surat to Gladstone
Australia Pacific LNG Project	18Mtpa export facility and pipeline	NA	NA	Curtis Island, Gladstone
Balaclava Island Coal Export Terminal	New rail and ship loading facility on Balaclava Island	• \$1,000	N/A	Gladstone
Baralaba North and South open-cut mine	Up tp 4Mtpa open cut mine	• \$260	2012	Baralaba
Belvedere Mine	7Mtpa underground coal mine	• \$2,800	2016	Banana
Carmichael Coal Mine Rail Project	Diesel/Electric system	• \$6,100	NA	Bowen Basin
Central Queensland Pipeline Project	Moranbah to Gladstone high pressure pipeline	NA	NA	Moranbah to Gladstone
Curragh South Mine	6Mtpa open cut coal mine	• N/A	2015	Blackwater
Dawson South	Stage 2 open cut extension	• \$80	NA	Banana
Dingo West Mine	1Mtpa open cut coal mine	• \$134	2013	Dingo
East End No.5 Mine Project	2.5Mtpa Limestone and Clay mine	• N/A		Mount Larcom
Fisherman's Landing Port Extension	Land reclamation	• \$200	NA	Gladstone
Foxleigh Plains Project	3.2 Mtpa mine	• N/A	N/A	Middlemount
Gladstone Central Plaza Apartments	9 Story apartment building	• \$27	NA	Gladstone
Gladstone Steel Plant Project	5Mtpa steel production facility	• \$4,000	2013	Gladstone
Gracemere Industrial Access Project	Construction of road overpass	• \$50	2012	Gracemere
Great Keppel Island Resort	Tower Holding's proposed resort at Great Keppel Island	• \$1,150	N/A	Great Keppel Island
Gladstone Water Area Board	Various works	• 84	N/A	Gladstone
Gladstone-Fitzroy Pipeline	Water pipeline from the Fitzroy River to Gladstone	• \$345	2013	Rockhampton LGA to Gladstone
Hummock Hill Island Community Project	Residential and tourist community development	NA	NA	Hummock Hill Island



Project	Description /Capacity	Employment/ Estimated CapEx (\$M)	Export/ Completion Date	Location
Mackenzie North Open Cut Mine	Open Cut Coal Mine	• \$50-\$100	2014	Blackwater
Minyango Underground Mine	7.5Mtpa Underground Coal Mine	• \$750	N/A	Blackwater
Mt Morgan Hospital Redevelopment	Upgrade and redevelopment	• \$14	2011	Mt Morgan
Norwich Park-Blackwater Gas Pipeline	257km gas pipeline	• N/A	N/A	Blackwater to Gladstone
Oaky Creek Mine	2Mtpa open cut coal mine	• N/A	2015	Tieri and Middlemount
Orion Downs Mine	2.5Mtpa open cut and underground coal mine	• \$100	2013	Rolleston
Oshen Apartments	6 Story apartment building	• \$25	NA	Yeppoon
Project Sun LNG Project (Sojitz)	LNG production facility	• \$450	N/A	Gladstone
Proxima North Tower	59 unit, shop and office development	• \$20	N/A	Rockhampton
Rolleston Open Cut Expansion	10Mtpa coal mine increasing to 20Mtpa	• \$450	2014	Rolleston
Springsure Creek Coal Project	5Mtpa open cut coal mine	• \$800	2014	Emerald
Styx open cut coal mine	1Mtpa open cut coal mine	• N/A	2013	Ogmore
Springsure Creek Mine	11Mtpa underground coal mine	• \$1,130	2014	Springsure
Surat to Gladstone Gas Pipeline	470km pipeline from the Surat Basin to Gladstone	• \$550	2015/16	Surat to Gladstone
Tarborah Mine	7Mtpa open cut and underground coal mine	• \$400	2014	Emerald
Tannum Sands Residential Development	Rezoning Application	• \$50	NA	Tannum Sands
Teresa mine	6.4Mtpa underground coal mine	• \$750	2015	Emerald
The Strand Mixed Use Redevelopment	Demolition and Construction of unit, shops and offices	• \$40	N/A	Yeppoon
Togara North Mine	6Mtpa underground coal mine	• \$800	2015	Springsure
Washpool Open Cut Mine	2.6Mtpa open cut coal mine	• \$320	2013	Blackwater
Wiggins Island Coal Export Terminal	27Mtpa	• 800 peak • 120 operation	2011-2014	Wiggins Island, Gladstone
Gladstone Pacific Nickel Limited (GPNL)	63,000 Tpa Nickel 6,000 Tpa Cobalt	• 1,000-2,300 peak • 530 operation	NA	GSDA, Gladstone
Yarrabee Open Cut Expansion	Expand capacity to 3.2Mtpa	• \$150	N/A	Blackwater

Source: Department of Natural Resources and Mines and HEIRG (2012)

## Major Resources & Manufacturing Projects

Major resource export projects in the Region are primarily located around Gladstone and its port. The Port of Gladstone is the export point for much of Australia's LNG. Significant interest in developing Queensland's gas reserves has emerged in the past five years alongside strong global energy demand and high LNG prices (DEEDI, 2011c). Many of the resource extraction projects in the Region are located in the Central Highlands Regional Council area, including the Galilee Coal Project and Power Station, South Galilee Coal Mine, Gladstone LNG coal-seam-gas extraction, and the Central Queensland Gas Pipeline.

Resource and manufacturing projects under construction in the Region include:

- Gladstone LNG Project – \$400 million.
- Queensland Curtis LNG – \$8 billion.



- Rio Tinto Alcan – Yarwun Refinery Expansion – \$2.1 billion.
- Boyne Smelters – \$685 million.
- Ensham Central Coal Project – \$166 million.
- Queensland Energy Resources Limited – Shale Oil Project – \$100 million.
- GLNG – \$17 billion.
- Australia Pacific LNG – \$14 billion (DEEDI, 2011c; HEIRG, 2011).

Construction of so many large-scale manufacturing and resource processing facilities and operations has seen skilled labour become scarce, particularly in occupations such as electrical engineering and plumbing (DEEWR, 2011b). Further development of projects of this size are expected to face similar issues.

### **Major Infrastructure Projects**

Along with strong resource-led growth, the Region has a number of large-scale infrastructure projects, most centred around Rockhampton and Gladstone. Transport infrastructure works are catering for resource sector growth and flood-recovery works are also underway. Significant infrastructure projects in the Region include:

- Calliope Range realignment Dawson Highway – \$70 million.
- RG Tanna Coal Terminal Projects – \$52 million.
- Wiggins Island Coal Export Terminal (WICET) – \$2 billion.
- Reconstruction works:
  - Bruce Highway (Gin Gin to Rockhampton) (no cost estimates available).
  - Capricorn Highway (Rockhampton to Emerald) (no cost estimates available).
  - Gladstone to Benaraby Road (no cost estimates available).
- Leichhardt Highway Upgrade – Don River Bridges (\$65 million) (DTMR, 2011).

Other significant infrastructure projects in the Region include:

- Lower Fitzroy River Infrastructure Project (pre EIS, \$434 million): This project will involve the construction of water infrastructure on the Fitzroy River to provide future supplies, mainly through the use of weirs. The project will occur in two stages, the Eden Bahn Weir and the Rookwood Crossing. Supply is to be delivered by 2013 (DEEDI, 2011b).
- Western Basin Dredging and Disposal Project (under construction, \$1 billion): This project involves deepening and widening existing channels and swing basins, creating new channels and swing basins and berth pockets, and using the dredged material to reclaim some 153 ha of land north of Fisherman’s Landing (DEEDI, 2011b).

The significant amount of large-scale infrastructure projects in the Region has placed pressure on skilled labour in the region, which has led to higher wages for certain trades and specialty skills (DEEWR, 2011b).

### **Major Government Projects**

The Queensland Government is upgrading medical services at Rockhampton Regional hospital. It is spending \$234 million to expand the Emergency Department and develop a new clinical ward and regional cancer centre. The expansion of emergency departments and renal dialysis, paediatrics and maternity sections is expected to be completed in 2011, with the new ward block completion scheduled for 2013.

Tendering is underway for a number of other health projects in the Region, including a Community Health Care Centre in Gladstone (\$17 million) and Theodore Permanent Private Practice Clinic (\$1.5 million) (HEIRG, 2011).



## **Major Civil Projects**

The Region's property market has experienced significant growth in prices over the last five years. This is due to the strong employment and population growth that has accompanied resource development. Major residential developments underway or planned in the region include:

- Keppel Views: A 1,600 residential block development in Yeppoon (\$1.8 billion, under construction).
- Gladstone Central Plaza Apartments: A proposed 9 story building in Gladstone City (\$27 million, tendering).
- Oshen Apartments: A six story residential development in Yeppoon (\$25 million, building approval).
- Tannum Sands Residential Development: Multi-unit residential in medium rise towers \$50 million, Rezoning application (HEIRG, 2011).



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