Synergies
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# Freight Transport Study - Stage 1

Final Report to Regional Economic Development Corporation

July 2008
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# Executive Summary

The Mackay Whitsunday Regional Economic Development Corporation (REDC) is undertaking a comprehensive study of the region's freight transport infrastructure. The purpose of this study is to identify key transport infrastructure projects that are necessary for the continued growth of the Mackay Whitsunday region.

For stage 1 of this study, Synergies Economic Consulting (Synergies) was engaged to identify any gaps in the region's transport infrastructure network by conducting a desktop review of the relevant planning documents and surveying key stakeholders in the region. This executive summary is divided into two sections:

- overview of the region and discussion of planning documents; and
- analysis of the survey results and conclusions from stage 1.

## Regional Overview and Discussion of Planning Documents

### Regional Economy

The Mackay Whitsunday & Isaac region covers an area of 90,338km$^2$ with a population of 163,127.

It is a high growth region:

- population has grown at a rate of 3.1% per annum over the last five years, compared to the state average of 2.4%. Current projections indicate that average population growth in the region will be approximately 2% p.a. through to 2026, implying a population estimate of 239,482; and
- in recent years the region has experience high rates of economic growth with the region's 2006/07 Gross Regional Product of $10.6 billion contributing 5.9% to the Gross State Product. This growth has been driven by the region's coal exports.

Mining is the region's dominant industry accounting for 51.9% of Gross Regional Product.

### Freight transport infrastructure

The region has a well developed network of transport infrastructure to support its major industries. The most significant pieces of infrastructure in the region in terms of the transportation of freight are:

- three ports at Mackay, Abbot Point and Hay Point (the Port of Hay Point contains both the HPCT and DBCT);
- two coal rail networks in the Goonyella and Newlands systems as well as part of the North Coast Line; and
- a road network including two major highways – the Bruce Highway and the Peak Downs Highway – as well as several state-controlled and regionally significant roads.

The region also contains three airports at Mackay, Hamilton Island and Proserpine, however airport infrastructure is considered to be largely insignificant in relation to the transportation of freight.

### Planning Framework

The planning framework for the development of transport infrastructure in the region involves a large number of participants. Each level of government participates to varying degrees in strategic planning in regard to the region's infrastructure. Planning frameworks reflect efforts to coordinate the planning and investment roles undertaken by various levels of government and infrastructure providers.

The most significant issues identified in the planning frameworks for the region's transport infrastructure are:

- the importance of coordination due to the wide range of planning processes and frameworks. Master planning processes such as those currently in operation for the region's port and rail infrastructure provide a valuable coordination mechanism;

- the planning task for road is far more complex due to the number of agencies involved in setting priorities and allocating funding. Current processes involve industry and State and Local Government. For example the Mackay Area Integrated Transport Study (MAITS) involved two main types of activities:
  - consultation with the government and community stakeholders; and
  - technical studies including land use and transport planning, modelling, option development and assessment, and strategy formulation.

- increased transparency in planning processes, such as the inclusion of public consultation processes, enhance infrastructure planning. In this regard there may be opportunities to increase the scope of consultation.

### Review of Infrastructure Plans

An accurate assessment of the key demand drivers and demand forecasts is a crucial component of an efficient infrastructure planning framework. The forecasting of future demand plays a key role in guiding transport infrastructure providers in relation to the investment and pricing strategies that they should pursue in order to ensure that capacity is able to meet future demand, and that service provision standards are maintained. A total of 15 planning documents were reviewed as part of the study, with the five most significant being:

- Roads Implementation Program;
- 2006 Coal Rail Infrastructure Master Plan;
- Northern Bowen Basin Strategic Roads Planning Report;
- AusLink Brisbane Cairns Corridor Strategy; and
- WHAM Regional Plan.

The planning documents identify population growth, coal production, sugar, livestock and tourism as the major factors affecting demand for transport infrastructure in the region.

It is clear from this analysis of the infrastructure planning documents that the level of investment in the region's rail and port infrastructure far exceeds the level of investment in the road network. This is considered to be reasonable given the degree of importance of coal exports to the future growth of the region.

The planning framework for the region's port and rail infrastructure has been criticised in the past due to a lack of coordination and integration in relation to the estimation of future demand and capacity forecasts. This criticism culminated in the release of the O'Donnell Review in July 2007.

However, it would appear that these issues have now been addressed with the increased coordination of stakeholders in the planning process facilitating the more effective planning for future infrastructure provision. The investments planned for the region's export coal infrastructure would appear to be sufficient to cope with expected future demand, providing the projects are carried out according to the designated time frame.

As a high growth region the greatest risk is that infrastructure capacity lags behind demand. The recent experience in the coal chain serves as a reminder of the costs of delaying infrastructure expansion. Information on the region's road capacity relative to current and future freight demand is not as transparent as it is for rail and port infrastructure. Detailed transport plans including freight infrastructure exists for the Mackay area and detailed planning has taken place in other areas of the region. However, the major planning documents do not present comprehensive data on road demand from which to assess the need for or adequacy of the proposed road program.

There are some controls in the planning process to deal with major increases in demand, although these controls are triggered on a reactive, case by case basis. Growth can occur through existing activities or the establishment of major new projects. The impacts of major projects for road networks are assessed through Environmental Impact Statements. Developers of major projects are required to prepare a road impact analysis which requires demand and capacity forecasting on a project by project based on existing traffic volumes plus the projects anticipated contribution and background growth for a 10 year horizon. Developments are required to ameliorate any adverse impact. Expansion of demand not associated with projects required to prepare an EIS would require other methods to monitor and forecast demand. All developments are assessed under the Integrated Planning Act and this provides a mechanism to identify and address impacts on infrastructure.

One of the main concerns associated with the capacity constraints on the road network is the congestion currently being experienced at some of the major intersections on the region's key freight roads. There are also several points on the region's road network that have been identified as either currently experiencing capacity constraints or in danger of experiencing constraints in the future. Most of these appear to have works planned in the RIP.

However, the lack of freight demand and capacity forecasts in the planning documents makes it difficult to determine whether the future investment planned in the region's road network will be adequate to meet future demand.

## Survey results

A survey was distributed to 50 key stakeholders identified by REDC. The stakeholders included participants in the transportation of freight throughout the region, infrastructure owners and operators, government planning agencies and other relevant businesses and organisations.

The purpose of the survey instrument is to identify any gaps or impediments that are not being planned for under the current planning framework. The concerns highlighted by the survey respondents were compared to the outcomes of the planning document review. The extent to which conclusions can be drawn from the stakeholder survey responses is extremely limited due to the very low response rate of 16%. Any issues raised in the survey responses cannot be interpreted as being representative of the views held by stakeholders throughout the region. Additional investigation is required for any of the issues identified in the responses to be pursued in stage 2.

The 8 participants that submitted responses to the survey instrument were comprised of the following stakeholder categories:

- one government-owned infrastructure provider;
- one government-owned infrastructure operator;
- two mining industry participants; and
- four from other sectors within the region.

### Ability to meet Demand

*Road*

Respondents have a low level of confidence in the ability of the road network to meet current and future demand. Deficiencies associated with overtaking lanes, adequacy of bridges and duplication of the network were highlighted as the main points of concern, particularly in relation to the Bruce Highway and Peak Downs Highway.

*Rail*

The major concern of respondents was the ability of the region's rail networks to satisfy current and future demand. Network duplication was highlighted as the main point of concern, however the majority of respondents acknowledged that planning and capital projects are currently being undertaken to rectify the identified problems.

*Ports*

Respondents that utilise port infrastructure indicated that the delays to the DBCT expansion project and the large number of mining operators attempting to access both DBCT and APCT are resulting in the region's port infrastructure lacking the capacity required to meet current and forecast future demand. However, the respondents acknowledged that measures are currently being taken to rectify these problems.

The most prominent concerns related to the operation of the terminal and berths at the ports, with the development of intermodal (also referred to as multimodal) infrastructure highlighted as an important requirement.

### Maintenance

In relation to the road network, respondents indicated that they were very dissatisfied with the level of maintenance currently being undertaken on the road network. However, it is important to note that respondents were largely unable to identify specific maintenance issues associated with the road network.

Respondents indicated that the costs associated with transport services have generally been increasing in recent years. Respondents expect this trend to continue over the next five years.

Respondents were asked to rank a number of possible factors according to the extent to which they contribute to the delayed provision of transport infrastructure in the region. A lack of coordination between infrastructure providers was identified as the most prominent factor, followed by a lack of government funding and leadership.

### Impact on business activity

The low response rate to the survey means any conclusions from the response profile must be regarded as suggestive of a current issue rather than firm evidence of an infrastructure impediment.

*Road*

Difficulties in receiving inputs was identified as a concern. These concerns appear to relate to intermodal issues at the Port of Mackay rather than a network wide problem. Congestion levels and providing guarantees on reliability of supply were also identified as having a significant impact on business operations.

Road capacity and safety levels were recorded as issues for the road network. However, respondents were not able to identify many specific locations where these issues where a major concern.

*Rail*

The loss of business opportunities and congestion were identified by respondents as having the most significant impact on business operations, whilst rail unloading and intermodal facilities were cited as being the major inadequacies. These responses are generally consistent with the findings of the recent O'Donnell Review.

*Ports*

As was the case with rail infrastructure, the loss of business opportunities and congestion associated with port infrastructure ranked as having the most significant impact on the respondents' business operations. Loading and unloading facilities at the terminals were identified as the key concern. It is again important to note that the low response rate for these questions makes it impossible to generalise these responses.

### Planning

The key point from responses relating to infrastructure planning is that the majority of respondents associated with port and rail infrastructure in the region indicated that they felt they should have a more prominent role in relation to the planning of transport infrastructure provision. For roads those respondents said they did not need to be further involved in planning.

## Findings from Stage 1

The key findings of stage 1 can be summarised as follows:

- *Coal sector likely to continue to be the key infrastructure driver*. Mining currently contributes 51% of Gross Regional Product. The importance of the coal industry to the region's future growth prospects further highlights the significance of the associated rail and port infrastructure;

- *Existing port and rail deficiencies are being addressed*. Problems identified by both the planning document review and the analysis of survey responses in relation to the region's port and rail infrastructure are being addressed;

- *There are a large number of infrastructure and development plans for the region*. Planning is undertaken by a large number of different organisations in relation to the freight transport network. This reflects the fact the ownership and control of infrastructure is spread across three levels of government and several commercial organisations;

- *Need for better coordination of planning*. Coordination of infrastructure planning has been a problem for infrastructure development in the region. Increased coordination is essential as it ensures that the objectives of all stakeholders are considered in order to achieve the most efficient outcome. This is especially important for the rail and port infrastructure associated with the coal supply chain as previously highlighted by the O'Donnell Review;

- *Difficulties in assessing the adequacy of planned road investment*. A number of specific sections of the road network were identified as bottlenecks by the survey respondents. The lack of freight demand and capacity forecasts in road planning documents makes it impossible to assess whether the planned investment in the network is sufficient to adequately address these deficiencies;

- *Limited information on freight flows within the region*. There is very limited information on the origin and destination and volumes of general road freight. Further information on freight flows within the region and between other regions, including the freight intensity of the region's industry structure is an important prerequisite for future infrastructure development.

- *Need for a regional freight plan*. It is noted that one of the strategies for infrastructure in the WHAM regional plan is to monitor infrastructure provision, maintenance and operation. [1] A regional freight plan across all modes of transport would provide a point from which to address this strategy and ensure the region does not encounter freight related constraints to future economic growth. A multimodal approach is essential to ensure future freight needs are delivered at least cost.

Ancillary findings are as follows:

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1 Queensland Government (2006), WHAM Regional Plan, p 71.

- *Timing is critical.* Freight transport infrastructure needs to be installed in time to allow local businesses to make the most of market opportunities, such as growth in demand;

- *Complexity of road planning framework*. The task of ensuring that adequate funding is provided to improve the road network to the required level is complicated by the complexity of stakeholder arrangements, with responsibility for different parts of the road network lying with different levels of government. This creates a risk of delay for future projects;

- *Disagreement on the adequacy of the road network*. The planning documents concluded that the current status of the region's road network is 'adequate', however, a number of specific deficiencies were identified with certain parts of the network identified as experiencing capacity pressures. While respondents identified some specific concerns these appear to be planned for in the RIP;

- *Requirement for increased intermodal investment*. A potential issue highlighted in the survey responses is the need to increase the level of investment in intermodal infrastructure in the region. This was seen as important in order to improve the efficiency with which the port-road interface at the Port of Mackay operates. This finding needs to be considered in light of the very low survey response. It is therefore necessary for further targeted stakeholder consultation to take place before the need for increased intermodal investment can be concluded to be a major issue for the stakeholders in the region;

# Contents

# 1 Introduction

The Mackay Whitsunday Regional Economic Development Corporation (REDC) is undertaking a comprehensive study of the region's freight transport infrastructure. The purpose of this study is to identify key transport infrastructure projects that are necessary for the continued growth of the Mackay Whitsunday region.

For stage 1 of this study, Synergies Economic Consulting (Synergies) was engaged to identify any gaps in the region's transport infrastructure network by conducting a desktop review of the relevant planning documents and surveying key stakeholders in the region. The terms of reference for stage 1 of the study are as follows:

- to review current transport planning processes for all modes of transport to provide an overall snapshot of transport plans for the region;
- to identify regional freight transport demand drivers, impediments and current infrastructure plans;
- to highlight the gaps – current and future impediments not identified in current infrastructure plans via extended stakeholder engagement; and
- to recommend the approach to be taken in stage 2 of the study, based on the findings obtained in stage 1.

To address the Terms of Reference we undertook a review of all available and relevant planning documents for the region. These documents reveal the plans of major infrastructure and economic development agencies for infrastructure in the region. A survey of stakeholders in the region was also undertaken to gauge alignment of users' perspectives with providers of infrastructure.

The report is set out as follows:

- section 2 contains a profile of the Mackay Whitsunday region;
- section 3 outlines the planning framework that is currently in place for transport infrastructure in the region;
- section 4 provides a review of the studied planning documents;
- section 5 provides a description of the survey methodology and a summary of the key points of concern as identified by stakeholders as well as a comparison of the findings to those from the review of the planning documents; and
- section 6 outlines the key findings of the review.

The report also contains several attachments with the following information:

- a list of the reviewed planning documents;
- the survey instrument and detailed analysis of the results of the stakeholder survey;
- a detailed analysis of the strategic government planning processes for the region's transport infrastructure; and
- a map of the major transport infrastructure in the region including tonnage estimates and key industry information.

# 2 Regional profile

## 2.1 Description of the region

### 2.1.1 Area

The Mackay Whitsunday region is encompassed by three local government areas – Whitsunday Regional Council, the Mackay Regional Council and the Isaac Regional Council. The region covers an area of 90,338km$^2$ with a population of 163,127.[2] The region's population has grown at a rate of 3.1% per annum over the last five years, compared to the state average of 2.4%. Current projections indicate that average population growth in the region will be approximately 2% p.a. This is in line with expected population growth in Queensland and indicates that the region's population will be approximately 239,482 by 2026.[3]

### 2.1.2 Income

In 2006/07 the Gross Regional Product (GRP) the Mackay Whitsunday region was $10.6 billion. In recent years the region has experienced high rates of economic growth driven by the region's coal exports. The sectoral income break-up for the region's five most significant industries presented in Table 1 below demonstrates the importance of the mining sector to the region, as it produced $5.5 billion (51.9%) of the recorded income.[4]

**Table 1 - Income generated by most significant regional industries, 2005/06**

| Industry | Income | % of Total Income |
|---|---|---|
| Mining | $5,521.7m | 51.9 |
| Property and business services | $652.9m | 6.1 |
| Transport and Storage | $496.8m | 4.7 |
| Manufacturing | $470.2m | 4.4 |
| Agriculture, Forestry and Fishing | $422.6m | 4.0 |

**Source:** REDC. (2007). Mackay Whitsunday Regional Economic Report, December 2007. AEC Group.

2 ABS (2007), Regional Population Growth, Australia ,Cat no. 3218.0

3 REDC (2007), Mackay Whitsunday Regional Economic Report, p. 3.

4 ABS (2007), op cit.

### 2.1.3 Industry structure

*Coal*

In 2007 calendar year, 96.3 mt of coal was exported through the region's three coal export terminals.[5] Exports from the region account for 70% of Queensland's coal exports and approximately three quarters of the value of Queensland's total coal production.[6]

The region's coal production occurs in the west of the region and is exported through sea ports on the east coast. Coal is mostly transported by rail.

Mining was valued at $5.5 billion or 51.9% of GRP in 2006/07 and has grown 247% in value since 2001/02.[7]

*Agriculture*

*Sugar*

The region's sugar mills produced 1.3mt of sugar in 2007 with a total value of $442.99million. The majority of this product was exported via the Port of Mackay, with approximately 84% of the port's 2006/07 exports accounted for by raw and refined sugar products.[8]

The region's sugar production occurs on the coast, from Carmila in the south to above Proserpine in the north. Sugar transportation from farm to the mill is by either the mills' specially built rail systems or by road where this cane transport system is not available. Transportation from the mills is by train to the Port of Mackay.

*Livestock*

Livestock is also a major export for the region. Regional data on livestock exports is dated with the most recent year's data being 2001. The region's livestock sector production for 2001 was valued at $237million, accounting for 5.4% of total livestock

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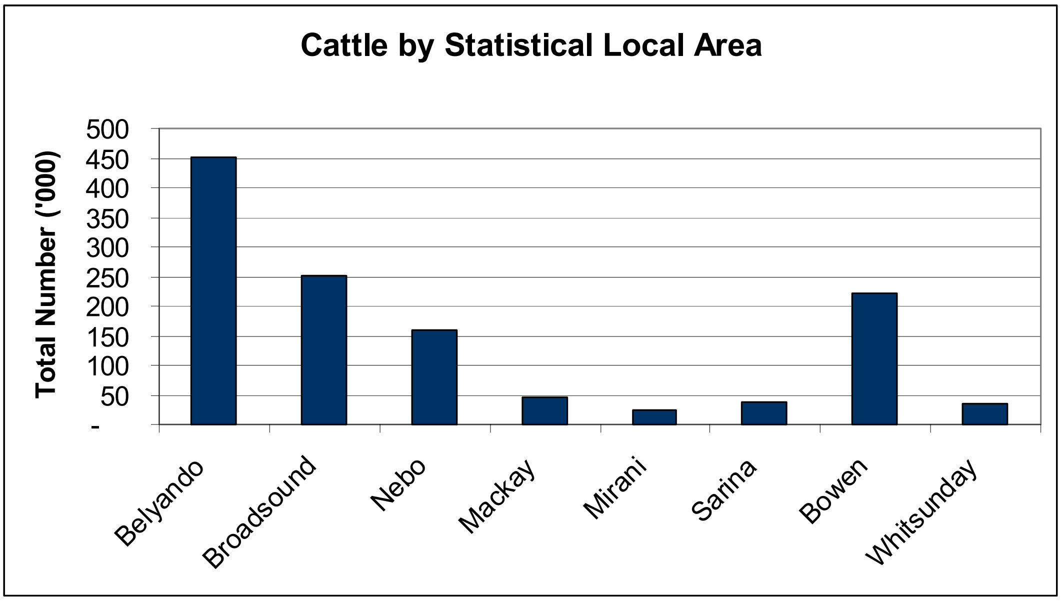
5 REDC. (2007). Economic Baseline Audit of the Mackay Whitsunday Region. Mackay Whitsunday EBA Final Report. AEC Group.

6 ibid

7 REDC, Regional Economic Reports.

8 Queensland Transport. (2007). Trade Statistics Report 2007: For the 5 Years Ending 30 June 2007. Queensland Government.

production in Queensland. The region's livestock sector is concentrated in the Isaac and Whitsunday Regional Councils.[9]




In 2005-06, the Mackay Whitsunday Region had 1,225,504 head of cattle on 1,273 establishments, 10.6% of Queensland's total (ABS 7125.0).

Livestock in the region is transported by road to the processing facility at Bakers Creek or to abattoirs in Brisbane and Townsville. Historically, cattle used to be transported on rail, however that changed many years ago, most likely for economic reasons. A limited number of cattle and a limited amount of grain are transported by rail on the Goonyella System.

*Other agricultural industries*

A number of horticultural crops are grown in the region, particularly in the Bowen area. In 2005-06, the region contained nearly 53% of Queensland's area planted to tomatoes, nearly 44% of the area planted to capsicums and chillies, just over 40% of the area planted to eggplant and significant proportions of melons and cucumbers. This produce is mostly for local and interstate consumption and is transported by road.

9 REDC. (2007). Economic Baseline Audit of the Mackay Whitsunday Region. Mackay Whitsunday EBA Final Report. AEC Group.

**Table 2 Major horticultural crops under production**

| Fruit or vegetable | Mackay Whitsunday Region Area (ha) | % of Qld Area |
|---|---|---|
| tomatoes | 1,434 | 52.8 |
| capsicums and chillies | 897 | 43.9 |
| eggplant | 128 | 40.1 |
| melons | 1,138 | 26.2 |
| cucumbers | 54 | 16.6 |
| nurseries, cut flowers and turf | 152 | 3.3 |
| fruit | 887 | 1.6 |

**Source:** ABS 2005-06 Agriculture Census 7125.0, REDC

Annual seafood harvests in the region are valued at around $20 to $30 million, which is approximately 10% of the total production of all Queensland fisheries.[10]

### *Tourism*

In 2007, 902,877 guests arrived at accommodation establishments with over 5 rooms throughout the region, either from abroad or domestic destinations, staying a total of 2.3 million nights.[11] The sector's actual contribution to the region is difficult to establish due to the difficulties associated with disaggregating income generated by the tourism sector from other sectors such as the services and retail sectors.[12]

Tourists arrive in the region through a combination of air, road and rail transport. Once within the region, the majority of tourist travel is by road, particularly along the Bruce Highway.

There are three major airports in the Mackay Whitsunday region, all predominantly supplying passenger rather than freight services. In 2007, 776,317 passenger movements were recorded at Mackay airport. Passenger flow numbers for the Great Barrier Reef and Whitsunday Coast airports together totaled approximately 744,000 in 2007.[13]

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10 REDC. (2007). Economic Baseline Audit of the Mackay Whitsunday Region. Mackay Whitsunday EBA Final Report. AEC Group.

11 ABS (2008), Tourist Accommodation, Australia, Cat no 8635.

12 REDC. (2007). Economic Baseline Audit of the Mackay Whitsunday Region. Mackay Whitsunday EBA Final Report. AEC Group.

13 REDC. (2007). Mackay Whitsunday Regional Economic Report. December 2007.

*Service sectors*

The high growth levels in relation to both population and income will result in the expansion of several of the services sectors in the region. This was seen through the growth experienced over the past 5 years. Growth in key services sectors since 2001/02 is second only to mining, with Property and Business Services growing 169%, Finance and Insurance Services growing 113% and Health and Community Services growing 111%.[14] Whilst the communications, business, community, recreational and other services sectors are all expected to continue to grow as a result of expected strong regional growth, it is the mining and support services sector that is predicted to expand most significantly. This expansion will be driven by the increased income generated by the expansion of coal production in the region.[15]

As these services are located in Mackay with some in the other major towns in the region, any transport related to them would be around Mackay and on major roads in the region.

Due to the intangible nature of services, it is more likely to be the growth in the sectors inputs than outputs that would contribute to freight transport volumes.

*Retail and Wholesale Trade*

Combined, the sectors of retail and wholesale trade contributed $673.3m (or 6.3%) to the regions GRP in 2006/07. General freight to Mackay is predominantly by road transport. The major part of the retail product used in Mackay comes from the south by road and is dispersed through the area, again by road. Growth in general freight is expected to grow in line with population projections[16].

*Transport and Storage*

At 4.7% of GRP and $496.8m in 2006/07, Transport and Storage has become a significant sector in the Mackay Whitsunday regional economy. This sector has particularly been impacted by the growth in coal mining in the region. The MAITP identifies that a key issue for this sector is the operation of heavy vehicles in and around the urban area which causes some level of community concern. As new heavy industry occurs, the impact of heavy vehicles on noise levels, air quality and perceived

[14] REDC, Regional Economic Reports.

[15] REDC. (2007). Economic Baseline Audit of the Mackay Whitsunday Region. Mackay Whitsunday EBA Final Report. AEC Group.

[16] Queensland Transport (2002), Mackay Area Integrated Transport Plan, p 44.

safety is expected to be such that freight movements should desirably be contained on roads specifically planned for the movement of freight.[17]

*Manufacturing*

The manufacturing sector contributed 4.4% of the region's GRP in 2006/07. It is estimated that the Mackay Whitsunday region has only around one-quarter of the reliance on the manufacturing sector as the Queensland economy.

The manufacturing sector in the region relates to three different industries – food processing; mining and construction; and marine. Food processing relates to meat and sugar products, with smaller quantities of ethanol, furfural and other products. Marine relates to ship and boat building and repairs.

The manufacturing sector plays an important role in the operation of the mining sector, the region's most significant sector. The manufacturing sector produces mining machinery and related mining input equipment which contributes to the production of coal. With the coal mining industry expected to be the region's primary growth driver in future years, this component of the manufacturing sector is also expected to experience strong growth.[18]

### 2.1.4 Key transport infrastructure

*Major transport corridors*

*Rail*

There are four major rail systems in the Mackay Whitsunday region, three of which are dedicated to the transport of coal, sugar and general freight. The fourth system is the Queensland Rail Tilt Train system, which is exclusively a passenger service.

The coal industry is serviced by rail infrastructure in the Goonyella and Newlands Systems. The Goonyella system is the region's largest, with a haulage capacity of approximately 95 mtpa. It is an electrified system with a 26 tonne axle load delivering coal to the Dalrymple Bay Coal Terminal (DBCT) and the Hay Point Coal Terminal (HPCT). With a range of expansion plans underway, capacity is expected to increase to 140 mtpa within the next 5 years.

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17 Queensland Transport (2002), op cit, p 44.

18 REDC. (2007). op cit.

The Newlands System links the Collinsville and Newlands coal mines with the export terminal at the Port of Abbot Point. It currently has a 22 tonne axle load, however, expansion works and upgrades are currently underway in order to bring the system up to the specifications of the Goonyella system.

The North Coast Line is predominantly a single-track freight corridor transporting significant amounts of freight, coal, minerals and agricultural products to coastal centres and port terminals. The line incorporates part of the Newlands System with some coal being railed from Mackay to Abbot Point.

The major users of the region's rail infrastructure are the coal miners operating in the Bowen Basin as well as freight forwarders and wholesale and retail businesses in the region who also utilise the NCL to transport and receive their goods.

*Road*

The planning documents examined in this report identified two main road transport corridors responsible for the majority of freight transportation in the Mackay Whitsunday region. The north-south corridor is responsible for the transportation of bulk freight products along the region's coastline whilst the east-west corridor services the mining and agricultural industries operating in the region's hinterland and the Bowen Basin. The Central Corridor, which is primarily used by the mining industry in the Bowen Basin, is less significant in terms of freight throughput.

In the past misalignment between road data and regional boundaries as well as the overlapping of several freight markets significantly complicates the task of obtaining accurate data regarding freight movements on the region's major roads. From April the Department of Main Roads regional office boundaries were aligned to the Mackay-Whitsunday boundaries. Table 3 below contains freight tonnage data derived from Department of Main Roads weigh in motion sites along some of the region's major freight corridor.

**Table 3 Tonnage Estimates, key freight corridors.**

| Corridor | Daily | Annual |
|---|---|---|
| North-South [a] | 2,746 | 1,394,765 |
| East-West [b] | 3,821 | 1,002,247 |
| Port [c] | 5,067 | 1,849,543 |

**a** Koumala WIM (weight in motion) site is located on the Bruce Highway between Sarina and Koumala and it measures freight traffic using the Bruce Highway..

**b** Eton WIM site is located on the Peak Downs Highway between the Eton Township and Nebo. Freight traffic originating in Mackay and heading to the Bowen Basin along the Peak Downs Highway is expected to pass over this WIM site.

**c** Harbour road WIM is located between Mackay Harbour and Mackay City. All freight moving into or out of the port by road will need to pass this site.

**Source:** Main Roads

The major road networks for freight in the region are the:

- Bruce Highway (coastal north-south road link);
- Peak Downs Highway (east-west road link). This highway (and interconnecting spurs) provides access to mines in the Bowen Basin;
- Gregory Development Road (inland north-south road link, utilised predominantly by agricultural producers);
- Fitzroy Developmental Road (inland north-south route connecting mining centre, also used for agriculture).

In addition to these major roads, there are a number of smaller roads of significance to the overall region.[19] These include:

- Bowen Developmental Road (east-west corridor);
- Marlborough-Sarina Road (east-west and north-south corridors);
- Moranbah Access Road (north-south corridor);
- Dysart-Middlemount Road (east-west corridor connecting Fitzroy Development Road to the Peak Downs Highway);
- Suttor Development Road;
- Proserpine Shute Harbour Road;
- Crystal Brook Road;
- Renwick Road;
- Hinchen Street;
- Connor Road;
- Dalrymple Road;
- Eungella Road;
- Eungella Dam Road;
- Mackay Slade Point Road and Rockleigh North Mackay Road (connects the Bruce Highway to the Mackay Port);

[19] Maps of the region providing an overview of major industries and infrastructure and also major transport infrastructure issues are included on pages 97 and 98 of this report.

- Mackay/Eungella/Marian Hampden Road (provides an alternative route to the Bruce Highway for freight travelling north-south without having to pass through Mackay City); and
- Hay Point Road – this is the connection between the Bruce Highway and the coal terminals of Hay Point and Dalrymple Bay.

Regional road infrastructure is utilised by a much wider range of industries than the port and rail facilities. Corridors that provide access to mining areas (such as the Peak Downs Highway) will be used by, amongst others, firms in mining services industries. Major corridors such as the Bruce Highway and other roads of regional significance will be utilised by a wide range of industries located in the area. This includes livestock, horticulture, sugar, forestry, construction and retail. Users in these industries may use the road network to transport both business/production inputs and outputs and work related passenger movement.

*Ports*

The region has three main seaports that are used for shipping the region's commodities: the Port of Mackay; the Port of Hay Point; and the Port of Abbot Point.

The Port of Mackay is operated by the Mackay Port Authority. It had total exports in 2006/07 of 1.4 mt, dominated by sugar exports (84%). Grain products are the next highest exported commodity (7%). The port imported 0.9 mt in the same year, with imports dominated by petroleum products.

The region's other ports are dedicated coal ports. The Port of Abbot Point (north of Bowen) had an overall throughput of 11.15 mt in 2006/07, with a total capacity of 15 mtpa. The coal loading terminal is operated by Abbot Point Bulk Coal P/L. The Port of Hay Point consists of two coal terminals, HPCT and DBCT. HPCT is a dedicated BHP Billiton Mitsubishi Alliance (BMA) port, with a capacity of 35 mtpa at present. DBCT is a common user terminal with a capacity of 56 mtpa. The capacity of each of these coal ports will increase in the near future, with significant expansion plans underway.

As is the case with the rail infrastructure, the customer base of the region's ports is predominantly made up of the Bowen Basin coal mine operators.

The Port of Mackay handles cargoes (both import and export) for businesses in a wide range of industries, including: petroleum; bulk raw sugar; bulk molasses and sugar cane; bulk fertiliser; bulk grain; ethanol; seafood products; and general cargo. Exports exceed imports through the port. Raw sugar accounted for the largest share (36.2%) of tonnages handled at the port, followed by petroleum products (34.1%) and refined sugar (13.6%).

*Airports*

Mackay Airport is the region's main airport, operating as a major gateway for tourists and a servicing centre for the Bowen Basin region. The two other significant airports operating in the region are the Great Barrier Reef Airport (Hamilton Island) and Whitsunday Coast Airport (Proserpine).

## 2.2 Performance of transport infrastructure

### 2.2.1 Road

Whilst recent assessments have graded the region's road network as 'adequate', future capacity constraints for certain sections of the region's major road networks are predicted in the absence of a significant increase in expenditure for maintenance and expansion works.[20]

One of the main concerns associated with the capacity constraints on the road network is the congestion currently being experienced at some of the major intersections on the region's key freight roads. Two main intersections on the Peak Downs Highway – with the Fitzroy Development Road and the Moranbah Access Road – have been highlighted as requiring an upgrade[21] in order to facilitate more efficient freight movement.[22]

Despite the recent contraction of the region's sugar industry, the sector has experienced relatively strong growth over the last 15 years which has had an impact on the local road network. As a result, it has been suggested that funding is being allocated to maintenance and repair works instead of the capital works required for network expansion.[23]

There are also several points on the region's road network that have been identified as either currently experiencing capacity constraints or limiting the output potential of the region's industries. These include the section of the Bruce Highway running between

20 GHD (2007). Report for Northern Bowen Basin Strategic Roads Planning: Stage 2 & Stage 3. Department of Main Roads, p. 90.

21 The Department of Main Roads has commented that they believe these upgrade requirements to be driven by road safety issues rather than capacity constraints.

22 GHD (2007). Report for Northern Bowen Basin Strategic Roads Planning: Stage 2 & Stage 3. Department of Main Roads, p. 89.

23 WHaMBROC (2006). Whitsunday Hinterland and Mackay Regional Plan. Queensland Government, p. 78.

Chidlow Street and the Peak Downs Highway and the section of the Suttor Development Road to the west of Elphinstone.[24]

The development of a Collinsville to Moranbah road link is also a major priority, with the current gravel road between Moranbah and North Goonyella being considered to fail to provide a sufficient connection between the northern and central mining areas.[25] It has been estimated that improving this road could potentially reduce the length of the trip between North Goonyella and Moranbah by up to one and a half hours. A Northern Bowen Basin road planning process is currently considering this issue.

The other main area of concern is in relation to the section of the Peak Downs Highway that runs through Walkerston, with residents requesting a bypass be constructed to alleviate the issue of heavy vehicles mixing with school crossing and urban traffic. The construction of a bypass at this point in the network should allow for the more efficient movement of freight along Peak Downs corridor.[26]

### 2.2.2 Rail

The main problem confronting the region's rail networks in future years is the fact that current capacity is insufficient to meet future demand projections and planned port expansions. Figures 1 and 2 show the planned expansions for the Newlands and Goonyella Systems. The leapfrogging nature of rail and port expansions reflects the lumpiness of transport infrastructure expansions. However by 2013 both rail and port capacity is almost matched in both systems.

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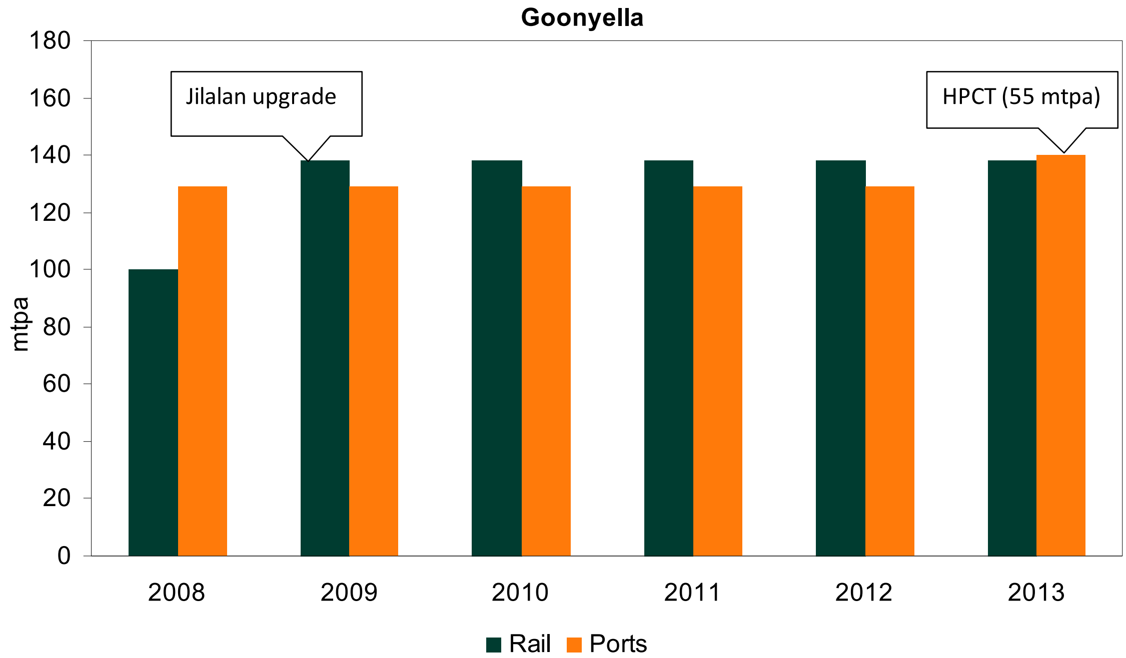
24 The Department of Main Roads have commented that this section of the road network is of low priority as it is currently unsealed and records low vehicle numbers. The WHaMBROC Regional Plan states that the upgrading of this road link will provide more direct access to Mackay and Sarina for live cattle and other products.

25 WHaMBROC (2006). Whitsunday Hinterland and Mackay Regional Plan. Queensland Government, p. 89.

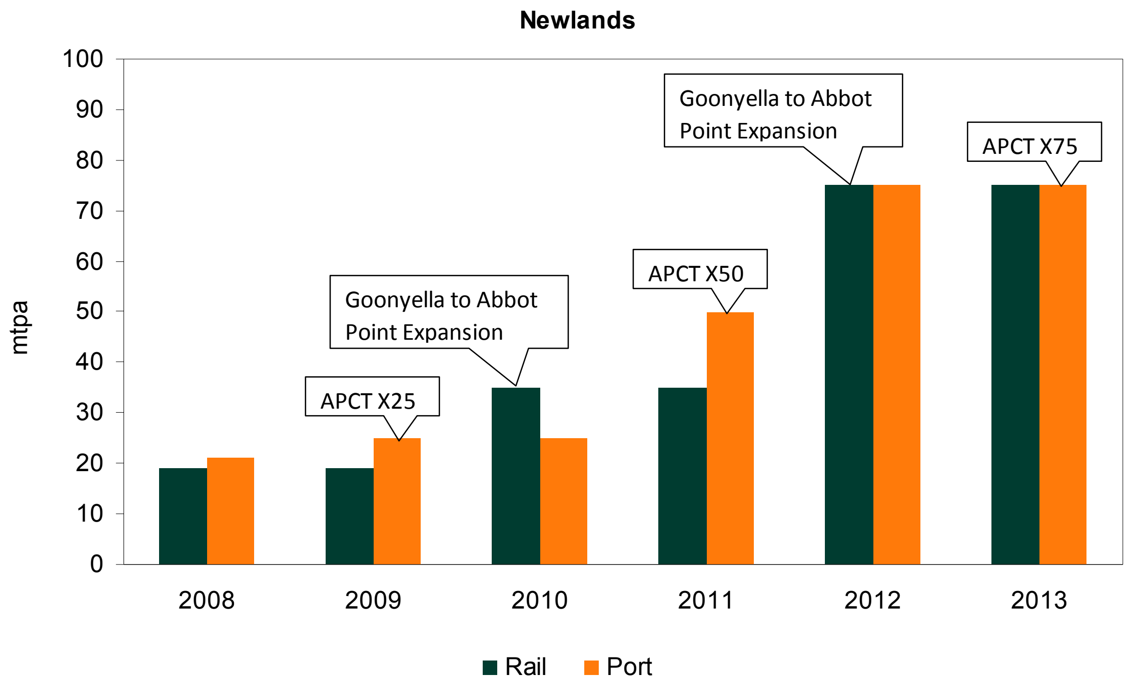
26 Department of Main Roads (2008). Traffic Investigation at Walkerston. Queensland Government.

Figure 1 Planned port and rail expansion, Goonyella System, 2008-2013.




**Data source: Queensland Government (2008), Queensland Coal Infrastructure – Program of Actions**

**Figure 2 Planned port and rail expansion, Newlands System, 2008-2013.**



**Data source: Queensland Government (2008), Queensland Coal Infrastructure – Program of Actions**

The two main constraints that have been identified by QR regarding the capacity of the Goonyella system is the unloading pit capacity at the Dalrymple Bay Coal Terminal and the constraints on headway reduction on the main rail line.[27] It has been proposed that in order to overcome these bottlenecks and increase system throughput capacity, significant infrastructure works must be undertaken on the Jilalan rail yard and also the rail line from the Jilalan yard to the junction to the terminals at Hay Point.[28] If these projects are undertaken it is estimated that system capacity could reach 140mtpa.[29]

The key requirement for the expansion of the capacity of the Newlands system is the construction of a new stacker reclaimer and additional stockpile rows at the Port of Abbot Point.[30] The addition of this infrastructure will increase the throughput capacity of the Newlands system to 25 mtpa. There are also plans to increase the number of trains in operation on the system from 4 to 6. However, concerns have been raised in relation to the effect that this increase could have on the congestion levels experienced on the network.[31]

Current estimates of the capacity of the North Coast Line suggest that the infrastructure is of sufficient standard for the network to continue operating efficiently with a growth in freight haulage of up to 3%p.a. However, concerns have been raised regarding a possible spillover of freight traffic into the corridor's road networks, with estimates from the AusLink Brisbane Cairns Corridor strategy document suggesting that the average freight task for a segment of rail infrastructure in the region is forecast to increase at a rate significantly higher than 3%p.a.[32]

### 2.2.3 Port

The main concern regarding the performance of the region's port infrastructure is the threat of future capacity constraints at the two coal ports of Abbot Point and Hay Point (Port of Hay Point includes both HPCT and DBCT). Existing port or terminal infrastructure is not sufficient to meet forecasts of future demand.[33]

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27 Headway reduction refers to the lessening of the time for trains traveling in the one direction to pass the same point on a network.

28 On 13 March 2008, the Premier announced $400m upgrade to the network to bring capacity to 130mtpa from 2010.

29 QR Network Access (2006). 2006 Coal Rail Infrastructure Master Plan, p. 23.

30 The Queensland Government recently released a statement specifying the details of future refurbishment work to be undertaken on the terminal's existing stacker/reclaimers as well as the construction of a new machine.

31 QR Network Access (2006). 2006 Coal Rail Infrastructure Master Plan, p. 48.

32 AusLink (2005). Brisbane Cairns Corridor Strategy. Australian Government, p. 26.

33 PCQ. Ports and Projects Report 2006-07: Ten Ports, Countless Opportunities, p. 6.

In response to these capacity concerns the port terminal operators have been active in planning and commencing expansion works at these terminals. Phase 1 of the DBCT 7X expansion project was designed to lift terminal capacity up to 68 mtpa.[34] The expansion of capacity at HPCT to 45 mtpa was scheduled for completion by the end of 2007.[35]

Abbot Point is currently undergoing the $116m X21 expansion project in order to increase port capacity to 21 mtpa.[36] The construction of the Northern Missing Link to connect the Goonyella and Newlands systems is considered vital if future expansion upgrades are to continue at Abbot Point. The major concern in relation to future capacity expansions is the timing of port upgrades against the expansion of the capacity of the adjoining rail systems. It is crucial that one section of the supply chain does not lag behind the other as this would result in a costly bottleneck being created in the system.[37]

### 2.2.4 Airport

The main concern in relation to the performance of the region's airport infrastructure is the effect of a lack of airport capacity on the growth of the region's tourism sector. This lack of capacity at the region's major airports, combined with the absence of an effective coordination mechanism between airport operators is said to be limiting the potential for the growth of the tourism industry in the region and thus also inhibiting those industries that are closely linked with tourism, such as retail trade.[38]

In relation to freight movement, there is very little activity at any of the region's airports with current infrastructure almost exclusively designed for dealing with passenger movements.[39] Air freight services play a relatively small role in freight transportation throughout the region, which is not surprising given that the region's major exports are bulk products.

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34 This project was completes in March 2008.

35 PCQ. Ports and Projects Report 2006-07: Ten Ports, Countless Opportunities, p. 2.

36 The Queensland Government have recently announced the $95m X25 expansion of Abbot Point.

37 PCQ. Ports and Projects Report 2006-07: Ten Ports, Countless Opportunities, p. 5.

38 WHaMBROC (2006). Whitsunday Hinterland and Mackay Regional Plan. Queensland Government, p. 79.

39 The region's commercial fishing industry produces approximately 10% of seafood production in Queensland, with a portion exported to overseas markets through the region's airport infrastructure.

## 2.3 Future growth prospects

### 2.3.1 Coal industry

The strong growth in demand in the steel and electricity industries throughout Asia over the next five years is set to drive the production and export of coal in Queensland in the future. The 2007 Queensland Infrastructure Report Card predicts Queensland coal exports will grow by 45% over the next four years, with an export figure of 210mtpa predicted by 2009-10. The region currently accounts for around 70% of Queensland's total coal exports with almost 100 mt of coal exported through the region's coal terminals each year. A summary of the future mining projects in the region can be viewed in tables 4 and 5.

The expansion of the infrastructure necessary to transport this level of exports is underway. The coal industry will remain the dominant industry in the region.[40]

### 2.3.2 Sugar industry

Australian sugar production fell by 29% in 2006/07 in the aftermath of Cyclone Larry. Whilst sugar production is expected to return to normal levels in 2007/08, low sugar prices in the world market are expected to impact on the value of production. World market prices are expected to continue to fall in the future, which holds negative implications for the region's sugar industry in terms of the value of production.[41]

The sugar industry is actively working on diversification projects to protect against fluctuations in the world price. This includes the Furfural Plant at Proserpine Mill, the RACE Project (Rationalisation, Cogeneration, Ethanol) at Racecourse Mill, and increased ethanol production at Plane Creek Mill. Increasing national and international interest in 'green' projects could see this sector grow much more than current forecasts anticipate.

### 2.3.3 Tourism

As has been previously stated, visitors stayed a total of approximately 2.3 million nights at accommodation establishments in the region in 2007. The demand for accommodation has generally been constantly increasing over the past 5 years. This growth in demand is expected to continue and is to be largely driven by several

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40 Queensland Government. (2007). 2007 Queensland Infrastructure Report Card.

41 ABARE Commodities, Issues and Forecasts.

significant marine tourism projects throughout the region that are currently either under construction or investigation.[42]

### 2.3.4 Other industries

The manufacturing sector provides the most significant growth prospect outside of the region's main industries. The growth in this sector will be driven by the increase in coal production throughout the region.

A significant oil shale deposit (McFarlane) south of Proserpine is currently subject to exploratory drilling. This is a large resource with the potential to extract 3.2 to 3.5 billion barrels over 40 years.[43] Commencement of mining the deposit could begin within a decade and could have an impact on freight transport.

In the longer term, there is expected to be strong growth in the manufacturing sector around Bowen. On 21 June 2008, the Queensland Government declared 16,230 hectares near Abbot Point as a new State Development Area, suitable for industrial use.[44] This announcement was closely followed by the signing of a Memorandum of Understanding between the State Government and Chinese company Chalco, for investigation into the feasibility of a $2.2b alumina refinery at Abbot Point.[45]

In relation to the agriculture sector, growth opportunities relate to the expansion of the region's horticulture operations and the incorporation of more value adding crops. New timber plantations and an increased focus on meat processing may also provide growth opportunities for the sector.[46]

### 2.3.5 Implications for freight transport infrastructure

The increased dominance of coal will further shift the emphasis towards the rail and port systems in terms of the focus of capital investment in the future, as the efficiency of these networks will underpin the region's future economic growth.

The road network is essential for delivering inputs to coal mines, particularly heavy loads of mining equipment. It is also important for the delivery of exports to Mackay Port and servicing the region's other major industries. With the region expected to

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42 REDC. (2007). Economic Baseline Audit of the Mackay Whitsunday Region. Mackay Whitsunday EBA Final Report. AEC Group.

43 Daily Mercury (2008), Queensland Energy resources, April 11.

44 Anna Bligh (2008), Media Statement 21 June 2008.

45 Anna Bligh (2008), Media Statement 25 June 2008.

46 WHaMBROC (2006). Whitsunday Hinterland and Mackay Regional Plan. Queensland Government, p. 45.

experience high rates of economic growth and population growth the road faces an environment of increasing and perhaps rapid demand. Planning processes will need to be sufficiently far-sighted and responsive is infrastructure bottlenecks are to be avoided, given the timeframes involved for developing and expanding roads.

The continued expansion of the region's tourism sector will also have a significant effect on the region's road network. Increases in the number of visitors to the region could have implications for the safety and capacity levels of the region's most significant roads. This has the potential to cause complications for the transportation of freight on the road network with the increased mixing of freight with urban traffic flows.

# 3 Transport infrastructure planning framework

## 3.1 Description of the planning framework

Each level of government participates to varying degrees in strategic planning in regard to the region's infrastructure. Planning frameworks reflect efforts to coordinate the planning and investment roles undertaken by various levels of government and infrastructure providers.

The Federal Government does not have direct responsibility for freight transport infrastructure, with the exception of funding certain roads via the AusLink program. The State Government has a major role in freight transport infrastructure planning, both at a strategic planning level and a direct funding level for certain infrastructure. In addition, rail and port infrastructure is primarily the responsibility of the state owned corporations which operate on an arms-length basis from the state government, including conducting their own master planning processes. Local governments are responsible for building and maintaining roads and bridges and assist in the delivery of the State Government's priorities at the local and regional level. They also have a key role in land use decisions via approval of planning schemes.

The effectiveness of these frameworks in ensuring future infrastructure needs are met and resources directed to where they will generate maximum return will be affected by:

- the quality of coordination between agencies;
- the timeliness of delivering needed infrastructure; and
- the ability to secure funding for such infrastructure.

The quality of information underpinning these planning processes is also critical.

## 3.2 Major stakeholders in freight infrastructure planning

### 3.2.1 Infrastructure owners and operators

Table 2 shows that the majority of the key freight transport infrastructure in the region is owned by the Queensland Government.

**Table 4 Regional Freight Transport Infrastructure – responsible entity and relationships**

| Infrastructure | Responsible entity | Ownership and Management |
|---|---|---|
| *Rail* | | |
| Goonyella System | Queensland Rail | Owned by Queensland Government |
| Newland System | Queensland Rail | Owned by Queensland Government |
| North Coast Line | Queensland Rail | Owned by Queensland Government |
| Ports | | |
| Port of Mackay | Mackay Port Authority | Owned by Queensland Government |
| Port of Hay Point: | Ports Corporation of Queensland | Owned by Queensland Government |
| • Dalrymple Bay Coal Terminal | DBCT Management (subsidiary of Babcock and Brown Infrastructure, BBI), operated by DBCT P/L (a group of users of the terminal) | BBI have a long term lease of terminal from DBCT Holdings, a wholly Queensland Government owned entity that owns the terminal<br>The terminal operating company (DBCT P/L) is owned by the users of the terminal (i.e. mines) |
| • Hay Point Services Terminal | Owned by BHP Mitsui Alliance (BMA), operated by HPS | Privately owned and operated |
| Port of Abbot Point: | Ports Corporation of Queensland | Owned by Queensland Government |
| • Abbot Point Coal Terminal | Ports Corporation of Queensland | Owned by Queensland Government<br>Terminal operated by Abbot Point BulkCoal P/L |
| *Airports* | | |
| Mackay Airport | Mackay Port Authority | Owned by Queensland Government |
| Great Barrier Reef Airport (Hamilton Island) | Hamilton Island Resort | |
| Whitsunday Coast Airport (Proserpine) | Whitsunday Shire Council | Owned and operated by Whitsunday Regional Council |
| Roads | | |
| Bruce Highway | Federal Government | Funding provided to Queensland Government which has management responsibility |
| Peak Downs Highway | Queensland Government | Queensland Government road, but Federal Government also contributes funding |
| Gregory Development Road | Queensland Government | |
| Bowen Development Road | Queensland Government | |
| Marlborough-Sarina Road | Queensland Government | |
| Moranbah Access Road | Queensland Government | |
| Dysart-Middlemount Road | Queensland Government | |
| Suttor Development Road | Queensland Government | |
| Proserpine-Shute Harbour Road | Queensland Government | |
| Crystal Brook Road | Queensland Government | |

In the case of port, rail and airport infrastructure, these are owned and operated by Government owned corporations (GOCs), which are corporatised entities that operate on a commercial basis. Consistent with the corporatised governance framework, relationships between these entities and their shareholders (State Government Ministers) is on an arms length basis and is undertaken within the governance framework provided by the *Government Owned Corporations Act*. The GOC's themselves are responsible under this governance framework for planning and undertaking capital investments, and earning a commercial rate of return on investments.

Road infrastructure operates within a different governance framework, with funding provided by all levels of government, but predominantly State and Federal. The Federal Government does not own any road assets or have direct road management responsibilities, however, it is responsible for certain specified projects/corridors which it funds through its AusLink program.

Within the Mackay Whitsunday region, only the Bruce Highway falls within the AusLink national network. Through AusLink, the Federal Government also contributes funding to other regionally significant roads, such as the Peak Downs Highway, Connor Road and Dalrymple Road.[47] Additionally, the Federal Government contributes to the funding of roads under the Roads to Recovery program. Under this program, local governments retain responsibility and nominate projects to be funded. Funding for these roads is generally conducted on a 50/50 basis between the Federal Government and the relevant State or Local government.

State highways and regionally significant roads (called State controlled roads) are the responsibility of the State government. There are also several State controlled roads that are not regionally significant. Management of the road network, including maintenance and capital investment, is undertaken by either the Queensland Government through the Department of Main Roads, or by local councils on behalf of Main Roads.

The management of road infrastructure, including planning functions, therefore contains a much higher degree of complexity than for other freight transport infrastructure as a result of the decentralised nature of the road network governance and funding arrangements.

[47] These are regionally significant roads, the funding of which is the joint responsibility of the Federal and Queensland Governments. The Federal Government provides funding through the Regional Strategic Program.

### 3.2.2 Government agencies

The role of government agencies in the planning and funding of infrastructure varies depending on the type of infrastructure. However, it is clear that the Queensland Government has a central role in freight transport infrastructure provision in the region. This role relates to both funding and planning. The Queensland Government is involved in infrastructure provision:

- by providing infrastructure in support of core service delivery priorities (general government sector investment);
- through investments made by GOCs; and
- where appropriate, by fostering private sector investment.

As noted above, rail and port GOCs in the region (QR, Mackay Port Authority, Ports Corporation of Queensland) operate at 'arms length' from Government in planning for, and investing in, infrastructure. Nevertheless, the State Government retains an interest in this process via its shareholder role.

State government agencies are also involved at a strategic planning level, with agencies such as the Department of Transport, Department of Main Roads and Department of Infrastructure and Planning being interested stakeholders in a range of planning forums and processes. These are elaborated further in Attachment D.

The Federal Government is involved in planning and funding of specified major corridors (Brisbane-Cairns) through the AusLink program. While the Federal Government is not directly responsible for freight transport infrastructure (other than the AusLink corridors), it has established a number of bodies to facilitate national planning and coordination with respect to the freight transport task (see Attachment D).

Local Government is responsible for local planning schemes, which cover amongst other things, infrastructure and industrial development. It also has responsibility for the management of local roads.

The various government planning processes are detailed further below.

### 3.2.3 Users

Details on the characteristics of the users of the region's transport infrastructure have been provided in section 2.1.4. The key point in relation to the planning of infrastructure developments is that the number of users is far more concentrated for rail and port infrastructure than for the road network.

The diversity of road users increases the complexity associated with the task of developing an efficient planning framework that is underpinned by accurate demand and capacity forecasts. This is largely due to logistical problems associated with the collection of relevant data and the diverse nature of road users. These complexities are far less prevalent for port and rail infrastructure.

### 3.2.4 Other Stakeholders

Local communities will also be affected by freight transport infrastructure development in the region. Infrastructure construction and maintenance can directly impact on local amenity and productivity. Community input regarding infrastructure development is achieved via consultation processes associated with local government planning schemes and individual development applications. These processes are administered by local governments.

## 3.3 Issues

### 3.3.1 Coordination

Given the wide range of planning processes and frameworks that deal with the provision of freight transport infrastructure, coordination is clearly a critical issue.

As each level of government has a role in the planning and provision of certain infrastructure, whether this role relates to funding, planning or operational management, there is a clear need for coordination to occur between the various agencies to clarify over-arching objectives and to ensure resources are allocated where they will generate the maximum benefit.

For coal supply chain infrastructure, coordination of planning is also important in ensuring that investment in capacity expansion occurs in such a way as to optimise supply chain output. The bottlenecks in the supply chain may shift over time, potentially being either in below or above rail or at ports. Investment in infrastructure in one part of the supply chain may not increase overall supply chain capacity if the bottleneck is elsewhere. This issue is complicated by the fragmented ownership of coal supply chain infrastructure. Master planning processes that are occurring in the rail and port industries provide a valuable mechanism for the coordination of future projects.

For road infrastructure, the number of agencies potentially involved in setting priorities and allocating funds will complicate the coordination task and increase the risk that important projects from a regional perspective are not identified and progressed in a timely way. However, the Department of Main Roads plans for State Controlled Roads and develops submissions for the Auslink network. While Main Roads does not control the allocation of funds there is a process for planning and prioritisation on the main freight corridors.

### 3.3.2 Timing

Related to the issue of coordination of infrastructure planning is timing. Freight transport infrastructure needs to be installed in time to allow local businesses to make the most of market opportunities, such as growth in demand. Where the freight transport infrastructure capacity necessary to underpin industry growth is lacking, this will result in economic costs to business and the broader community through either costly delays (i.e. as a result of queuing at ports) or foregone market opportunities. The time lags in constructing infrastructure once projects are committed (due to the scale of many projects and the tight construction market) will add to these costs.

Transparency in planning processes such as public consultation on future expansion plans (e.g. Master Planning) will assist in resolving timing issues as all stakeholders can assess whether current infrastructure planning is likely to deliver the necessary capacity in time. Quality of information, in terms of current and expected future usage of key infrastructure, will also be of benefit.

### 3.3.3 Funding

The funding of freight transport infrastructure is also a fundamental issue. Much of the infrastructure under consideration is government owned and funded (although GOC's operate on a commercial basis and finance investments separately to Government budgets). Clearly, funding will be a constraint on the ability to construct infrastructure that is identified as being necessary to meet future growth in the region.

In the case of roads, the complexity of arrangements whereby funding responsibility for key pieces of road infrastructure is shared amongst various levels of government, adds to the challenge of prioritising projects according to maximum net benefit to the region. Regional planning forums may assist in this regard by collating information on road spending needs across the various councils in the region and using this information to assist in decision-making processes with regard to allocation of priority expenditure. Coordination is achieved through Main Roads' input in local government planning schemes and formal consultation mechanisms between Main Roads and local government officials. Local Government also input into Main Roads corridor and link studies (which are types of road planning studies).

# 4 Review of planning documents

This section provides a summary of the issues emerging from the major planning documents for the region. The purpose of this section is to provide a blueprint of the planning framework for the region's freight transport infrastructure networks and aims to identify the key demand drivers and impediments to the efficient operation of the transport infrastructure. A full list of the planning documents reviewed is provided in Attachment A.

## 4.1 Regional Objectives

The transport vision for the region is articulated in the WHAM[48]:

> High standard freight transport systems that connect high income generating areas such as Bowen basin, sugarcane, cattle and horticulture districts, sugar mills and manufacturing areas with sea and air ports, road and rail corridors.
>
> Transport corridors are identified and protected and where possible are suitable for multiple modes…

The Regional Economic Development Strategy includes a number of goals targeted at increasing regional exports, particularly in the manufacturing sector. It also includes the following goal relating to transport for the region:[49]

> Increased efficiencies across transport infrastructure.

## 4.2 Demand drivers

An accurate assessment of the key demand drivers and demand forecasts is a crucial component of an efficient infrastructure planning framework. The forecasting of future demand plays a key role in guiding transport infrastructure providers in relation to the investment and pricing strategies that they should pursue in order to ensure that capacity is able to meet future demand, and that service provision standards are maintained.

The region's coal industry has been characterised in recent years by severe congestion, both in rail and port infrastructure. This has resulted in a significant amount of lost

48 Queensland Government (2006), WHAM Regional Plan, p 23.

49 REDC (2007), Regional Economic Development Strategy.

production as the throughput capacity of the systems has been unable to keep up with customer demand.

The recently completed O'Donnell Review determined that much of this capacity shortfall was the result of a lack of coordination of contract structures and the insufficient involvement of stakeholders in infrastructure planning frameworks in terms of identifying future demand and system capacity.

Several steps have since been taken to ensure that a more integrated approach is taken in relation to the planning of future infrastructure developments so that this lack of coordination no longer acts as a bottleneck to the region's coal systems. The findings of the O'Donnell Review highlight the importance of an integrated infrastructure planning framework to the efficient transportation of freight throughout a region.

Whilst the development of clear demand and capacity forecasts for port and rail infrastructure is aided by the homogenous and concentrated nature of its users, the process is far more complex for road infrastructure. Users of the road network are far more diverse, which can cause significant difficulties in measuring the capacity of the road network relating specifically to the transportation of freight. These difficulties complicate the task of developing a planning framework that is able to ensure that investment matches the demand for the transportation of freight on various sections of the road network.

### 4.2.1 Population growth

As has been stated in section 2.1.1, the population of the region has been growing steadily in recent years with this growth expected to continue in the future. This forecasted population growth combined with the predicted continued growth in the regional economy is set to drive a significant increase in road and rail transport activity in the future. AusLink estimates suggest that total transport flow on the north-south corridor is expected to increase at a rate of 2.5 to 3%p.a., whilst freight movements on the corridor could grow by as much as 4%p.a.[50]

### 4.2.2 Growth in coal industry

Continued growth in the region's coal mining industry is expected to be the main driver of transport demand in terms of freight movements, particularly on the east-west corridor as exports through the region's coal terminals increase.[51] An indication

50 AusLink (2005). Brisbane Cairns Corridor Strategy. Australian Government, p. 6.

51 AusLink (2005). Brisbane Cairns Corridor Strategy. Australian Government, p. 13.

of the level of growth expected in terms of coal exports from the region is that Australia-wide coal exports are expected to increase by around 88% from 231mt in 2004/5 to 435mt in 2029/30.[52] This trend is highly significant for the Mackay region in terms of the level of future coal exports and also the size of the future freight transport task. The table below outlines the most significant coal mining projects to be undertaken in the region according to the Projects Queensland 2007 document.

52 GHD (2007). Report for Northern Bowen Basin Strategic Roads Planning: Stage 2 & Stage 3. Department of Main Roads,p. 29.

Table 4 Major Future Mining Projects for Mackay Whitsunday region – committed or planned

| Mine Site | Developer | Est. Cost | Timing | Details |
|---|---|---|---|---|
| Clermont | Rio Tinto | $950m | Around 2010 | Construction of a new open-cut mine to produce 12.2mt of thermal coal for export. Estimated life of 20 years – intended to replace Blair Athol |
| Lake Lindsay | Anglo Coal and Mitsui Coal Holdings Australia | $674m | 2008 | Estimated annual production of 4mtpa of metallurgical and thermal coal for export |
| Sonoma | QCoal | $160m | coal already being shipped to Abbot Point | Open-cut mining operation of Moranbah measures – estimated production of 2mtpa for export via Abbot Pt |
| Daunia | BHP Billiton Mitsubishi Alliance | $160m | 2012 | New open-cut mine to extract coking and thermal coal |
| Goonyella Riverside | BHP Billiton Mitsubishi Alliance | $1b | 2013 | Expansion of open-cut mine and construction of underground operation – increase in annual production from 16mtpa to 20-24mtpa |
| Grosvenor | Anglo Coal | $700m | 2011 | New underground mine to extract coking coal from Moranbah measures |
| Isaac Plains Expansion | Vale Australia and Aquila Resources | $103m | 2008 | Increased production to 2.8mtpa |
| Middlemount | Macarthur Coal | $150m | 2009 | Open-cut mining of metallurgical and coking deposits |
| Olive Downs | Macarthur Coal | $50m | Mining activities expected to commence late 2008 | New open-cut mine targeting production level of 1mtpa to be exported through DBCT |
| Vermont | Bowen Basin Coal Development | $176m | 2009 | Open-cut mine capable of producing up to 4mtpa of saleable coal for export |

**Note:** Information relating to the estimated cost and timing of several of these projects has been updated using more recent sources.

**Source:** Queensland Government (2007). Projects Queensland 2007: Issue 26., Queensland Department Mines and Energy (Rockhampton) 2008.

The table below also contains information on several future mining projects relevant to the region as identified by major stakeholders in the consultation process.

**Table 5 Major future mining projects as identified by key stakeholders**

| Mine Site | Developer | Est. Cost | Timing | Details |
|---|---|---|---|---|
| Ellensfield Underground | Vale Australia | $300m | 2009 | New underground mine producing 4.7mtpa coking and thermal coal |
| Carborough Downs | Vale Australia | $180m | 2009 | Underground expansion to 5mtpa coking and PCI coal |
| Lenton | New Hope Coal | $120m | 2010 | New opencut producing 1.5mtpa coking and thermal coal |
| New Saraji | New Hope Coal | $1b | 2011 | New underground mine producing 5mtpa hard coking coal |
| Moorvale West | Macarthur Coal | $50m | 2012 | New underground mine producing 3mtpa coking and PCI coal |
| Moranbah South | Anglo Coal and Exxaro Australia | $1.1b | 2012 | New underground mine producing 3.5mtpa coking coal |
| Eagle Downs | Aquila Resources/Vale Australia | $620m | 2012 | New underground mine producing 4mtpa hard coking coal |
| Peak Downs | BHP Billiton Mitsubishi Alliance | $1b | 2012 | Expansion of current mine to 16mtpa hard coking coal |

These projects will provide the main impetus for increased infrastructure investment in the region, as existing networks need to be expanded in order to deal with new mine connections and additional freight flows.[53]

### 4.2.3 Growth of other sectors

*Sugar*

The region's strong inland agricultural sectors such as sugar production and livestock are also important drivers of freight movements on the east-west corridor. As Queensland's largest sugar producing area, approximately 2 mt of sugar products are transported through the Mackay Whitsunday region to the ports at Townsville and Mackay for export each year.[54] Despite a fall in sugar production in the region for

[53] GHD (2007). Report for Northern Bowen Basin Strategic Roads Planning: Stage 2 & Stage 3. Department of Main Roads,p. i.

[54] AusLink (2005). Brisbane Cairns Corridor Strategy. Australian Government, p. 14.

2007, production levels are expected to increase at a rate of approximately 1%p.a. in the future.[55]

*Livestock*

Australia's livestock industry is expected to continue to grow strongly into the future with the expected growth in the demand for live cattle exports being the primary driver of this growth.[56] This has negative implications for the livestock industry in the region with the live cattle sector experiencing negative growth in recent times due to the contraction of the geographical spread of the industry as a result of changing land use patterns. Whilst the region will not benefit from the increased demand for live cattle exports, overall production in the livestock sector is expected to increase at approximately 1.7% per annum.[57]

### 4.2.4 Other regional developments driving the future freight task

As well as the planned expansions and developments in the region's mining sector, there are also several other major investments in the region that may have an effect on the future freight task for all modes of transport. These developments may potentially increase both the output of specific industries as well as the general level of economic activity in the region – both of which have a positive relationship with freight movements.

The most significant industry project to be undertaken in the region involves a $240m investment by the Mackay Sugar Co-operative Association. This project is scheduled for completion in 2010 and will see the closure of the Pleystowe sugar mill and the upgrade of the Racecourse Mill.

Other than industry developments, the other major source of investment in the region is the significant amount of funding that is to be injected into tourism-related infrastructure. One of the most significant tourist developments in the region is the $450m Port of Airlie Development project. This involves the construction of a 300-berth marina, a ferry and cruise terminal and a public boat ramp. A retail and commercial square and resort apartments are also to be constructed to complement the port development. There are also several other tourism development projects

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55 GHD (2007). Report for Northern Bowen Basin Strategic Roads Planning: Stage 2 & Stage 3. Department of Main Roads,p. 47.

56 GHD (2007). Report for Northern Bowen Basin Strategic Roads Planning: Stage 2 & Stage 3. Department of Main Roads,p. 42.

57 GHD (2007). Report for Northern Bowen Basin Strategic Roads Planning: Stage 2 & Stage 3. Department of Main Roads,p. 42.

currently under construction throughout the region with an estimated total value of $470m.[58] These projects can be expected to have an impact on transport infrastructure usage, in particular roads, during the construction process as well as during on-going operations.

In addition to these investments there are also plans to develop tourist-related infrastructure throughout Airlie Beach, Mackay, Proserpine, Middlemount, Cannonvale and Shoal Point. Should all of these projects proceed, it is estimated that they would have a combined estimated total cost of $2.3b.[59]

## 4.3 Planned Investment

The major planned infrastructure investments for the region are shown in the table below.

[58] Queensland Government (2007). Projects Queensland 2007: Issue 26, p. 32.

[59] Queensland Government (2007). Projects Queensland 2007: Issue 26, p. 66.

**Table 5 Summary of planned infrastructure works in the Mackay Whitsunday region**

| Issues | Agency responsible | Planned project | Estimated cost | Date of completion | Current status |
|---|---|---|---|---|---|
| **Road** | | | | | |
| Increasing volumes of traffic causing unacceptable delays to vehicles using the intersection | AusLink (RIP) | Upgrade of intersection on Bruce Highway at Farrellys Lane and Schmidtke Road through installation of signals, improved safety and efficiency. | $5.3m | 2008/09 | In detailed design |
| Wide load transportation issues | DMR (RIP) | Pavement widening on several sections of the Peak Downs Highway including between Nebo and Mackay and Clermont and Nebo | $37.7m | Beyond 2011/12 | |
| | DMR (RIP) | Continued widening of the Peak Downs Highway | $17.6m | Works to continue over the next 2 yrs | |
| Clermont coal mine goes across current highway | DMR (RIP) | Completion of the Clermont Coal Mine Road deviation project | $25.6m | 2008/09 | |
| Load capacity restrictions on highway | DMR (RIP) | Replacement of the existing timber bridge with a new concrete structure and realignment of approaches. | $5.6m | 2007/08 | Completed |
| Conflicts between oversized and passenger vehicles (lack of overtaking opportunities) | DMR (RIP) | Construction of overtaking lanes on the Nebo-Mackay section | $4.5m | 2011/12 | Progressing |
| Traffic congestion in city heart | DMR (RIP) | Duplication and replacement of the Forgan Bridge over the Pioneer River | $70.9m | September 2009 | Works commenced September 2007 |
| Inadequate strength of existing timber bridge structure. | DMR (RIP) | Construction of a replacement structure for the existing Hospital Bridge and approaches on a new alignment | $33.6m | End of 2008 | Works commenced July 2008 |
| Increased heavy industry using Malcolmson Street with has an insufficient corridor to allow expansion. Alternate route required to improve safety and efficiency. | DMR (RIP) | Duplication of 1.5km of the Rockleigh-North Mackay Road between Sams Road and Barnes Creek Road. Construction of the Joint Levee Road. | $14.1m | 2008/09 | Stage 1 due for completion in August 2008. Stage 2 and 3 to follow once consolidation of earthworks completed. |
| Traffic congestion issues associated with Shute | DMR (Whitsunday Growth Management Initiative) | Road infrastructure works in the Whitsunday Shire – predominantly on the Proserpine-Shute Harbour | $11m | Through to 2012 | |

| Issues | Agency responsible | Planned project | Estimated cost | Date of completion | Current status |
|---|---|---|---|---|---|
| Harbour road. | | Road | | | |
| Deteriorating pavements and inadequate width. | DMR (RIP) | Pavement widening on the Mackay-Eungella road link between Berholme and Dunwold | $9.7m | Beyond 2012 | |
| **Rail** | | | | | |
| Congested yard adds delay to loaded trains and reduces pit utilisation | QR, Coal Rail Master Plan | Upgrade of the Jilalan Yard and strengthening of supporting power system at Bolingbroke substation | $500m | End of 2009 | EIS for Upgrade of Jilalan Yard completed<br>Construction commenced in May 2008<br>Bolingbroke in feasibility phase |
| Inefficiency the third unloading pit at DBCT | QR, Coal Rail Master Plan | Construction of a third rail loop at DBCT to service the third unloader at DBCT | $110m | Completed Nov 2007 | |
| No existing rail link to new coal mine? | QR | Construction of a rail link for the Hail Creek Coal Mine | $96m | 2009/10 | |
| | QR, Coal Rail Master Plan | Construction of a Carborough Downs Spur Line | $24m | 2007/08 | |
| | QR, Coal Rail Master Plan | Construction of an Isaac Plains Spur Line | $23m | 2007/08 | |
| | QR, Coal Rail Master Plan | Construction of a Sonoma balloon loop | $11m | 2008 | |
| Network congestion reducing throughput capacity | QR, Coal Rail Master Plan | Duplication of the track between Broadlea and Wotonga | $80m | December 2008 | Full signalling commissioning of Broadlea/Carborough Down on the Broadlea-Mallawa-Wotonga Duplication |
| | QR, Coal Rail Master Plan | Construction of an Almoola Crossing Loop for the Collinsville to Briaba section of the Newlands system | $14m | January 2008 | |
| | QR, Coal Rail Master Plan | Construction of an Aberdeen Crossing Loop on the Binbee to Armuna section | $7m | January 2008 | |
| Yard unable to efficiently cope with increased rail capacity | QR, Coal Rail Master Plan | Upgrade of the Coppabella Yard | $32m | Recently completed | |
| Capacity issues on Goonyella System | QR, Coal Rail Master Plan | Goonyella to Abbot Point Expansion Project – (including the NML) | $1,500m | Staged project will full completion scheduled for 2012 | EIS completed |
| **Port** | | | | | |

| Issues | Agency responsible | Planned project | Estimated cost | Date of completion | Current status |
|---|---|---|---|---|---|
| Insufficient capacity to meet future demand - DBCT. | DBCT Management (Project 7X) | Phase 1 of the 7X DBCT expansion project | $565m | Completed in March 2008 | |
| | DBCT Management (Project 7X) | Phases 2 and 3 of the 7X DBCT expansion project | $679m | December 2008 | |
| Insufficient capacity to meet future demand – HPCT. | BMA (Hay Point Expansion Project) | HPSCT (34-44Mtpa) | $300m | Completed Aug 2007 | |
| | BMA (Hay Point Expansion Project) | HPSCT (55 Mtpa) | $500m | December 2013 | |
| Insufficient capacity at Abbot Point CT to meet future demand | PCQ | X21 APCT project | $116m | Completed Nov 2007 | |
| | PCQ | X25 APCT project | $95m | June 2009 | |
| | PCQ | Upgrading of APCT stockyard system | $68m | End of 2008 | |
| | PCQ | X50 APCT project | $750m | February 2011 | |
| | PCQ | X75 APCT project | $1,300m | June 2012 | |
| **Airport** | | | | | |
| Unmet demand for aviation facilities | Whitsunday Airport (privately owned) | Proposal to develop a Whitsunday airport park at Cannonvale | $80m | In final stages of planning and approval | |
| Need for international standard airport in Whitsundays | Coordinator-General | Construction of a 3.1km runway and terminal at Whitsunday airport | $50m | Could be completed in 2010 | |

**Source:** Various sources

### 4.3.1 Rail infrastructure

*Expansion of rail systems*

QR has recently undertaken several investigations into which upgrades are likely to result in the largest expansion of system capacity. QR has stated that its overall aim in terms of expanding the capacity of the region's rail systems is to reach a total system capacity of approximately 140mtpa by 2010.[60]

QR has considered several proposed projects for the expansion of both the Goonyella and Newlands rail systems in order to reach this capacity target. The projects that have been targeted as the highest priority include enhancing the level of connectivity between the Goonyella and Blackwater systems in order to make better use of port capacity; the construction of the Northern Missing Link between the North Goonyella and the Newlands system; and the construction of a third rail loop at DBCT.[61]

The following initiatives have also been proposed with the main aim of increasing the efficiency of the operation of rail freight services in the region:

- investigation of the feasibility of a rail connection between the Racecourse, Pleystowe, Marian and Farleigh sugar mills and storage and export facilities;
- construction of rail links from the Newlands mine to Cerito, and from Moranbah to Glenden;
- increase in rail freight operations west of Elphinstone in order to ease the pressure on the regional road network; and
- extension of the rail network to incorporate new mining operations.[62]

*Planned improvements to Goonyella system*

As the region's primary rail system, most of the improvement projects that have been planned by QR are aimed at the expansion of the capacity of the Goonyella network. The primary concern is that in the absence of the required investment, the Goonyella system will become a major bottleneck to the operation of the export coal chain. This is

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60 QR Network Access (2006). 2006 Coal Rail Infrastructure Master Plan, p. 21.

61 GHD (2007). Report for Northern Bowen Basin Strategic Roads Planning: Stage 2 & Stage 3. Department of Main Roads, p. 28.

62 WHaMBROC (2006). Whitsunday Hinterland and Mackay Regional Plan. Queensland Government.

due to current port expansion plans implying that future port capacity will be substantially larger than future rail system capacity.

Most of the proposals for major investment projects in relation to the expansion of the Goonyella system have related to the need for a third rail loop at Dalrymple Bay. Other significant proposals include the duplication of the track in sections where train congestion is constraining throughput capacity, and also the construction of rail links for new mines.

The following list provides information on the most significant planned projects to be undertaken on the Goonyella system over the next few years:[63]

- $190m upgrade of the Jilalan Yard and $30m strengthening of the supporting power system at Bolingbroke substation with an estimated increase of capacity from 117 to 129 mtpa, scheduled for completion by the end of 2009;[64]
- $110m on construction of a third rail loop at DBCT intended to service a third unloader currently being constructed and also to improve the staging of port operations in order to achieve the targeted capacity increases. The project is estimated to increase capacity from 92 to 101 mtpa, with completion scheduled for 2009/10;
- $96m on construction of a rail link for the Hail Creek coal mine which is scheduled for completion by 2009/10;
- $80m on duplication of the track between Broadlea and Wotonga, which is scheduled for completion by 2009/10;[65]
- $32m upgrade of the Coppabella Yard in order to increase system capacity from 102 to 109 mtpa – scheduled to be completed in 2007/08;[66]
- $24m on construction of a Carborough Downs Spur Line to service the new coal mine near Broadlea – scheduled for completion in 2007/08; and
- $23m on construction of an Isaac Plains Spur Line to service the coal mine near Wotonga to be completed in 2007/08.[67]

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63 It must be noted the figures relating to the estimated cost of these projects have been updated using more recent sources of information.

64 QR Network Access (2006). 2006 Coal Rail Infrastructure Master Plan, p. 24.

65 Queensland Government (2007). Projects Queensland 2007: Issue 26, p. 111.

66 This project has since been completed.

67 Queensland Government (2007). Projects Queensland 2007: Issue 26, p. 111.

There are also several other plans relating to the continued expansion of the Goonyella system after the completion of the current projects. These plans include additional works on the Jilalan Junction to the DBCT and HPCT rail loops which could increase capacity to the long term target of 140 mtpa. There are also several proposals for the construction of passing and crossing loops as well as the duplication of sections of the track on the southern, western and northern branches of the Goonyella system.[68]

*Planned improvements to Newlands system*

The most significant proposed expansion project regarding the future capacity of the Newlands system is the construction of a Northern Missing Rail Link. The $765m project would consist of a 70km rail line connecting the North Goonyella system with the Newlands system.

The short term capacity expansion of the Newlands system as a result of the construction of a Northern Missing Link is predicted to be an increase in system capacity to 35 mtpa with modelling predicting that, with additional investment in the electrification of the network and track upgrades to accommodate heavier loads, system capacity could be increased to 50mtpa.[69] The earliest possible date of operation for these expansions has been set at the end of 2009.

The most significant expansion projects to be undertaken on the Newlands system other than the Northern Missing Link are:

- $14m construction of an Almoola Crossing Loop for the Collinsville to Briaba section of the system to increase capacity from 13 to 16 mtpa – scheduled for completion in January 2008;
- $7m construction of an Aberdeen Crossing Loop on the Binbee to Armuna section with an estimated increase in system capacity from 16 to 22 mtpa – scheduled for completion in January 2008; and
- $11m construction of Sonoma balloon loop to service new mine – scheduled for completion in 2008.

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68 QR Network Access (2006). 2006 Coal Rail Infrastructure Master Plan, p. 24.

69 GHD (2007). Report for Northern Bowen Basin Strategic Roads Planning: Stage 2 & Stage 3. Department of Main Roads,p. 39.

### 4.3.2 Port infrastructure

*Port of Hay Point*

Significant capacity expansion projects are planned for both coal export terminals at Hay Point up until 2010 in order to achieve the capacity targets that have been set by the port operators in consultation with other major stakeholders in the coal export chain. These infrastructure works are expected to increase the port's total capacity from 92 mtpa in 2006 to 116 mtpa in 2007, 129 mtpa by 2009 and 140 mtpa by 2010.[70]

The staged expansion of the Dalrymple Bay and Hay Point terminals at the port consists of the following projects:

- $530m phase 1 of the 7X expansion project at DBCT to increase terminal capacity from 60 to 68 mtpa;[71]
- $640m phases 2 and 3 of the 7X expansion at DBCT to increase capacity to 85 mtpa;[72]
- $70m phase 2 of HPCT expansion to increase capacity from 40 to 44 mtpa – construction is already underway; and
- $500m Phase 3 of HPCT expansion has been proposed to commence after the completion of the current phase of the expansion of the terminal with an increase in capacity from 44 to 55 mtpa.

*Port of Abbot Point*

Current port infrastructure planning is based on a long term goal for total capacity at the port of 50 mtpa. The staged expansion of the port facilities are as follows:[73]

- $116m X21 project – construction of additional stockyard area at the port and a new stacker reclaimer with an estimated increase in capacity from 15 to 21 mtpa;[74]
- $95m X25 project – upgrade of facilities to increase capacity from 21 mtpa to 25 mtpa – to be completed in mid 2009;[75]

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70 QR Network Access (2006). 2006 Coal Rail Infrastructure Master Plan, p. 7.

71 Construction was completed in early March 2008.

72 Construction commenced in December 2006 with works currently at 50% completion. Construction is expected to be fully completed in December 2008.

73 Some of these expansion plans have emerged after the publication of several of the relevant planning documents.

74 Project completed in 2007.

75 Advised by REDC.

- $68m to upgrade stockyard system – to be completed by end 2008;[76] and
- $550m worth of expansions for the planned X25, X30, X35 and X50 projects at the port to increase overall long term capacity to 50 mtpa by 2010.[77]

The future expansion of the Port at Abbot Point beyond a capacity of 21 mtpa is dependent on continued high levels of international demand for coal exports, as well as the construction of the Northern Missing Rail Link on the Newlands system.[78]

*Port of Mackay*

Most of the recent infrastructure planning associated with the Port of Mackay has focused on the proposed development of an intermodal transport linkage facility connecting the seaport with the Bruce Highway. Such a facility is predicted to have a significantly positive effect on the efficiency of freight transportation both in and out of the port.[79]

For an intermodal facility to operate efficiently it would need to be supported by improvements to related transport infrastructure such as the construction of a rail spur or loop to assist in the development of a common user handling system.[80]

The other major focus of planning for the Port of Mackay has been on the more efficient utilisation of strategic port land. Two main strategies have been proposed to achieve this goal:

- consolidation of existing port activities including the relocation of non-seaport specific industrial activities on core port land to other locations; and
- use of surrounding land for operations compatible with those ongoing at the port itself in order to establish a 'buffer zone' to increase productivity levels at the port.[81]

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[76] Advised by REDC.

[77] Engineering design and environmental impact assessment has been completed and $46.12m has been assigned to allow QR to undertake detailed scoping and estimation works.

[78] Queensland Government (2007). Projects Queensland 2007: Issue 26, p. 70.

[79] WHaMBROC (2006). Whitsunday Hinterland and Mackay Regional Plan. Queensland Government, p. 79.

[80] Worley Parsons (2007). Mackay Seaport Land Use Plan. Mackay Port Authority, p. 20.

[81] Worley Parsons (2007). Mackay Seaport Land Use Plan. Mackay Port Authority, p. 16.

### 4.3.3 Road infrastructure

*Bruce Highway*

In its strategy on the development of the Cairns Corridor, AusLink specifies three main focus areas in relation to the future infrastructure works to be undertaken on the Bruce Highway:

- continued duplication of the highway to increase the capacity for freight and passenger movements;
- improvement in overtaking and passing opportunities as well as the upgrading of major intersections in order to relieve congestion; and
- planning for the construction of a bypass to ease the concerns associated with traffic growth on the Bruce Highway through the northern and southern approaches to Mackay is considered to be a long term priority.[82]

The most significant committed project to be undertaken on the Bruce Highway is a $5.3m upgrade of the intersection at Farrellys Lane and Schmidtke Road.[83] The Department of Main Roads submission for AusLink funding also includes $50 million for duplication of the region's road network between Temples Lane and City Gates; the construction of twelve overtaking lanes between Sarina and Proserpine; plus expenditure on safety works at intersections. The Department is awaiting confirmation on this funding. The possible construction of a bypass at Mackay is also currently being considered.

*Peak Downs Highway*

As a result of the continued expansion of the region's mining industry, the Peak Downs Highway is expected to bear the majority of the region's future road freight task, making it a priority in terms of future investment in the region's road network.[84]

A wide range of projects have been planned in order to improve the performance of the Peak Downs Highway. These projects include the rehabilitation and widening of existing pavement, the construction of overtaking lanes in order to reduce congestion,

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82 AusLink (2005). Brisbane Cairns Corridor Strategy. Australian Government, p. 32.

83 Department of Main Roads (2007). Roads Implementation Program: 2007-08 to 2011-12. Queensland Government, p. 199.

84 GHD (2007). Report for Northern Bowen Basin Strategic Roads Planning: Stage 2 & Stage 3. Department of Main Roads, p. 120.

the construction of additional lanes to increase capacity and also the upgrading and replacement of bridges and approaches on the highway.[85]

The Roads Implementation Program for the Mackay region details the following major projects to be undertaken on the Peak Downs Highway:

- investment in pavement widening works totalling $37.7m on several sections of the highway including:
  - between Nebo and Mackay, on the sections running between Boundary Creek and Cut Creek, Lonely Creek and Boundary Creek and Stockyard Creek and Spring Creek;
  - between Clermont and Nebo;
- completion of the Clermont Coal Mine Road deviation project, valued at $25.6m;
- continued widening of the Peak Downs Highway over the next two years at an estimated cost of $17.6m;
- the realignment of road lanes on the Blackwater Creek section between Nebo and Mackay valued at $5.6m; and
- construction of overtaking lanes on the Nebo-Mackay section valued at approximately $4.5m.[86]

*Other planned investments in the road network*

As well as the planned major works on the region's two main highways, road infrastructure planning documents have also focused on the need to maintain and upgrade the standard and capacity of several regional road links.

Specific concerns have been raised regarding several of the region's significant roads, including the Eton Range Crossing section of the Peak Downs Highway, Red Hill Road (the Moranbah to Glenden link), the road between Elphinstone and Mount Douglas, the Newlands to Cerito link and the road link between Eungella and Nebo. In relation to freight infrastructure, improvements to the Collinsville to Moranbah road link and the Suttor Development Road have been highlighted as necessary in order to facilitate efficient freight movement throughout the region.[87]

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85 GHD (2007). Report for Northern Bowen Basin Strategic Roads Planning: Stage 2 & Stage 3. Department of Main Roads, p. 91.

86 Department of Main Roads (2007). Roads Implementation Program: 2007-08 to 2011-12. Queensland Government.

87 WHaMBROC (2006). Whitsunday Hinterland and Mackay Regional Plan. Queensland Government, p. 81.

The 2007 Projects Queensland document provides a detailed list of the major road infrastructure projects that have either been planned or committed for the Mackay region. The most significant of these projects include:

- $70.9m duplication and replacement of the Forgan Bridge over the Pioneer River - scheduled for completion in September 2009;
- $33.6m construction of the Hospital Bridge and its approaches – scheduled for completion by the end of 2008;
- $14.1m duplication of 1.5km of the Rockleigh-North Mackay Road between Sams Road and Barnes Creek Road;
- $11m in funding has been allocated by the Department of Main Roads for infrastructure works on the road network in the Whitsunday Shire – predominantly on the Proserpine-Shute Harbour Road[88]; and
- $9.7m widening of the existing pavement on the Mackay-Eungella road link between Berholme and Dunwold. [89][90]

In addition to these projects there are several key planning studies underway which are of significance to the development of the region's road network:[91]

- a review of the MAITS traffic model and an investigation of the impacts of the region's growth verses the predicted growth at the time of the original study. The review will also propose a number of potential projects based on its findings;
- a study of the appropriate timing and location of the Mackay bypass which is scheduled to commence in 2008/09. It is expected that this road will run from Bakers Creek to Erakala with plans to connect it with the multimodal corridor to allow it to connect with the Mackay Port;
- the Whitsunday Growth Management Initiative is expected to provide details of a strategic plan for the upgrade of the Proserpine Shute Harbour Road; and
- Walkerston Traffic Investigation study (due for completion in July 2008).

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[88] Maunsell (2007). Whitsunday Growth Management Initiative: Stage One – Audit of Current Status and Projected Outcomes. Department of Local Government, Planning, Sport & Recreation, p. 14.

[89] Queensland Government (2007). Projects Queensland 2007: Issue 26.

[90] REDC also advised that $11 million is to be provided for the north-south road running from Belyando to Springsure to provide a mine connection.

[91] It is important to note that these planning initiatives and studies were not documented in the planning documents and the details of these studies were provided by the project stakeholders throughout the consultation process.

### 4.3.4 Airport infrastructure

In terms of freight movements in the Mackay region the three major regional airports play a very limited role. In addition to a lack of the necessary infrastructure for freight transportation, the WHAM Regional Plan identified one of the main limitations in relation to the role played by airport infrastructure in regional freight movement as the lack of coordination between airport facilities in the region. In an attempt to address this problem the Plan proposed the development of a regional airlink strategy combined with an upgrade of air facilities throughout the region.[92]

In terms of major projects planned for the region's airports over the next few years the Whitsunday Airport is the only one of the three major regional airports receiving a substantial amount of funding for infrastructure improvements. A proposal to develop a Whitsunday Airport Park at Cannonvale at an estimated cost of $80m is currently in the final stages of planning and approvals.

There is also a planned project valued at $50m for the construction of a 3.1km runway and terminal to provide improved access for airlines servicing the Whitsundays.[93] The expansion will also provide freight access for the local seafood and horticulture industries.[94]

### 4.3.5 Multimodal transport planning

The development of an east-west multimodal transport corridor to link the Bruce Highway to the Port of Mackay is considered a long term possibility for improving port access for the region's rail and road infrastructure. The continuation of the planning process for a multimodal facility is considered important if the region is to reach its full long term growth potential.[95]

## 4.4 Key Findings

It is clear from this analysis of the infrastructure planning documents that the level of investment in the region's rail and port infrastructure far exceeds the level of

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92 WHaMBROC (2006). Whitsunday Hinterland and Mackay Regional Plan. Queensland Government, p. 82.

93 The Queensland Government recently sought expressions of interest for infrastructure upgrades and operational improvements to provide improved domestic air services and international air charter access to the Whitsunday region at either Whitsunday Coast airport of Laguna Whitsunday airport. Three organisations have since been short-listed for the project. There have also been calls from within the region for the construction of an airport at a third location, north of Proserpine.

94 Queensland Government (2007). Projects Queensland 2007: Issue 26, p.75.

95 WHaMBROC (2006). Whitsunday Hinterland and Mackay Regional Plan. Queensland Government, p. 79.

investment in the road network. This is considered to be reasonable given the degree of importance of coal exports to the future growth of the region.

The planning framework for the region's port and rail infrastructure has been criticised in the past due to a lack of coordination and integration in relation to the estimation of future demand and capacity forecasts. This criticism culminated in the release of the O'Donnell Review in July 2007.

However, it would appear that these issues have now been addressed with the increased coordination of stakeholders in the planning process facilitating the more effective planning for future infrastructure provision. The investments planned for the region's export coal infrastructure would appear to be sufficient to cope with expected future demand, providing the projects are carried out according to the designated time frame.

As a high growth region the greatest risk is that infrastructure capacity lags behind demand. The recent experience in the coal chain serves as a reminder of the costs of delaying infrastructure expansion. Information on the region's road capacity relative to current and future freight demand is not as transparent as it is for rail and port infrastructure. Detailed transport plans including freight infrastructure exists for the Mackay area and detailed planning has taken place in other areas of the region. However, the major planning documents do not present comprehensive data on road demand from which to assess the need for or adequacy of the proposed road program.

There are some controls in the planning process to deal with major increases in demand, although these controls are triggered on a reactive, case by case basis. Growth can occur through existing activities or the establishment of major new projects. The impacts of major projects for road networks are assessed through Environmental Impact Statements. Developers of major projects are required to prepare a road impact analysis which requires demand and capacity forecasting on a project by project based on existing traffic volumes plus the projects anticipate contribution and background growth for a 10 year horizon. Developments are required to ameliorate any adverse impact. Expansion of demand not associated with projects required to prepare an EIS would require other methods to monitor and forecast demand.

It is noted that one of the strategies for infrastructure in the WHAM regional plan is to monitor infrastructure provision, maintenance and operation. [96] More detailed reporting of road transport use against capacity would appear to be consistent with this strategy. The WHAM regional plan also includes the strategy of developing a

[96] Queensland Government (2006), WHAM Regional Plan, p 71.

regional road network strategy to identify medium to long term road transport needs. We note that this strategy has been actioned for the Mackay area through MAITP and through other corridor studies but has not to our knowledge been drawn together for the region as a whole. We think that this action would assist to inform and reassure stakeholders that the regions road network will be able to support future economic development.

# 5 Survey

## 5.1 Survey methodology

### 5.1.1 Participants

The purpose of the survey instrument is to identify any gaps or impediments that are not being planned for under the current planning framework. The concerns highlighted by the survey respondents are to be compared to the outcomes of the planning document review as detailed in the previous section.

A survey instrument, see Attachment D, was distributed to 50 key stakeholders identified by REDC. The stakeholders included participants in the transportation of freight throughout the region, infrastructure owners and operators, government planning agencies and other relevant businesses and organisations.

The survey contained 20 questions separated into six sections:

- information about the respondents;
  - obtains information relating to the respondents' main business activities and their relationships with the region's freight transport infrastructure;
- ability to meet current and future demand;
  - gauges respondents' views on the capacity of the infrastructure to meet current and future demand and asks the respondent to identify any specific deficiencies that are restricting the infrastructure's ability to meet demand;
- maintenance;
  - identifies deficiencies relating to the maintenance of transport infrastructure and asks respondents to pinpoint where maintenance is insufficient;
- impact on your business;
  - gauges the impact that transportation has on the respondents' cost structures and any future expectations of the respondents in relation to this issue;
- planning;
  - relates to the involvement of the respondent in terms of transport infrastructure planning processes and the extent to which respondents believe they should be involved in regional infrastructure planning; and

- future investment;
  - asks respondents to identify any specific requirements for future infrastructure investments they deem to be necessary.

The below sections provide summaries of the results of responses to the survey as well as comparing the responses to the outcomes of the review of planning documents. However, this study is limited to the extent to which it is able to draw any substantial conclusions from these survey results due to the very low response rate of 16%.

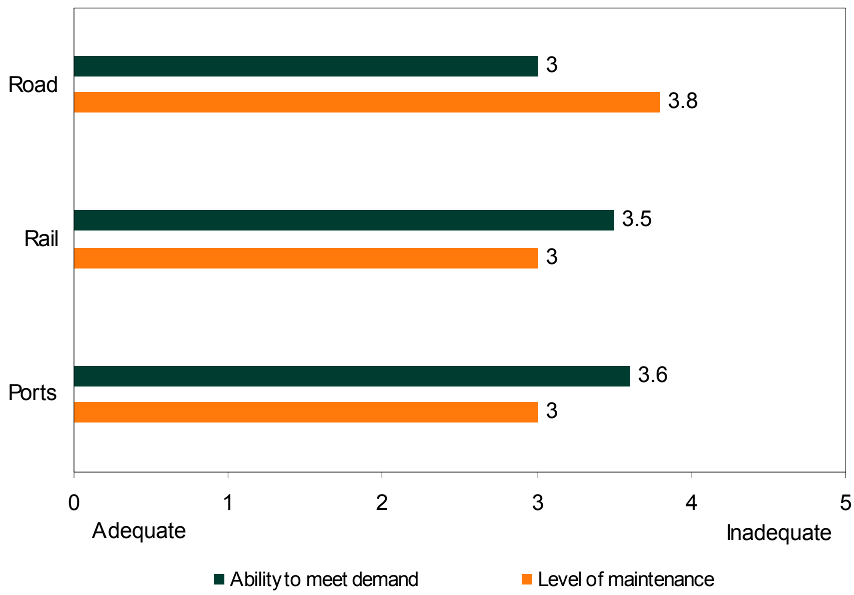
As a result of this poor response rate any conclusions drawn from the responses must be interpreted with caution, and cannot be taken to be representative of the views of the stakeholders throughout the region. It must also be noted that the initial deadline for the survey was extended and stakeholders were contacted in an attempt to increase the response rate.

## 5.2 Key findings from survey responses

The detailed results of the survey responses are provided in Attachment C. This section provides a summary of the main issues to come out of the survey. The majority of the issues identified by respondents relate to specific sections of the road network.

The average responses recorded for the key questions relating to the adequacy of the infrastructure in terms of maintenance and meeting current and future demand are presented in the figure below.

**Figure 3 Summary of responses relating to maintenance and ability to meet demand**



The extent to which conclusions can be drawn from these response profiles is limited due by the very low response rate of 16%. These results cannot be interpreted as being representative of the views held by stakeholders throughout the region.

### 5.2.1 Impediments to efficient operation of infrastructure

The respondents were asked in the first question of the survey to identify any overriding impediments that they deemed to be restricting the efficient operation of the region's freight transport infrastructure. Table 6 below summarises the main impediments identified by the respondents.

**Table 6 Impediments to efficient infrastructure operation**

| Impediment | Details |
|---|---|
| **Road** | |
| Insufficient investment in the road network | Investment in the road network failing to keep pace with the region's economic growth and the levels of investment in the region's port and rail infrastructure |
| Poor conditions of road network | Lack of appropriateness of maintenance and planning |
| Congestion on the road network | High incidence of traffic jams and inefficient mixing of heavy vehicles with urban traffic |
| Lack of a unified approach to Mackay's industrial sectors | Need for development of an effective transport corridor linking Mackay's three industrial precincts – Paget, Port of Mackay and Glenella. |
| Lack of efficiency of wide load movements | Need for improved management of wide load movements on the road network for efficient delivery of major mining equipment and associated inputs |
| Insufficient freight corridors into and out of Mackay | Single lane highways are insufficient to cope with heavy vehicles and results in inefficient mixing of heavy vehicles and urban transport |
| Other impediment | Restrictions associated with townships and the inadequate strength of bridges on the network |
| **Rail** | |
| Lack of sufficient capacity | Lack of capacity of the rail systems which is largely attributable to the port constraints |
| Lack of reliability | Concerns over lack of reliability of rail delivery time |
| **Ports** | |
| Insufficient investment at Port of Mackay | Base load container throughput is not sufficient to support investment in infrastructure improvements at the port |
| Inefficient port-road interface | Large objects are able to be imported at the Mackay Harbour however the current adjoining road network is not sufficient for these objects to be transported by road from the Port of Mackay |
| Capacity constraints | Limited port capacity due to the large number of mining operators attempting to access shipments at the terminals |
| Problems with rail-port interface | Number of problems identified in relation to the coordination of the operation of the region's export coal supply chains:<br>• commercial risk aversion by monopoly infrastructure operators<br>• estimation methods of system capacity |

| Impediment | Details |
| --- | --- |
| | • misalignment of contracting frameworks<br>• lack of transparency and responsibility in logistics chain operations<br>• lack of leadership and foresight for provision of additional infrastructure ahead of demand |

### 5.2.2 Ability to meet demand

*Road*

Respondents have a low level of confidence in the ability of the road network to meet future demand. Deficiencies associated with overtaking lanes, adequacy of the bridges, passing loops and the duplication of the network were highlighted as the main points of concern, with three or more respondents indicating each of these as being insufficient to meet demand, particularly in relation to the Bruce Highway and Peak Downs Highway. Respondents also raised concerns over the extent to which planning is being undertaken to rectify these problems.

The concerns relating to the region's road infrastructure are listed in Table 7.

**Table 7 Road problems identified by respondents**

| Network section | Specific concern |
| --- | --- |
| Peak Downs Highway | • lack of overtaking lanes and passing loops<br>• need to upgrade existing timber bridges<br>• fast-track duplication program to keep pace with growth in demand<br>• need to widen existing pavement<br>• lack of a bypass at Walkerston<br>• need for improvement in capacity to transport large and heavy loads |
| Bruce Highway | • lack of overtaking lanes<br>• need to upgrade existing timber bridges<br>• need for improved access to Paget Industrial areas |
| Connors Road | • need for improved maintenance of existing road and pavement widening |
| Sydney Street, Mackay | • bridge requires upgrade and access to the road presents a bottleneck |
| Hospital Bridge, Mackay | • bridge requires upgrade and access to the road presents a bottleneck |
| Bucasia Road | • two intersections at Bruce Highway-Bucasia Road and Bucasia Road-Malcomson Street present bottlenecks |
| Malcomson Street, North Mackay | • requires significant improvement works |

*Rail*

Respondents expressed concern over the ability of the region's rail networks to satisfy current and future demand. Network duplication was highlighted as the main point of concern, however the majority of respondents acknowledged that planning and capital projects are currently being undertaken to rectify the identified problems.

*Ports*

Respondents that utilise port infrastructure indicated that the delays to the DBCT expansion project and the large number of mining operators attempting to access shipments at both DBCT and APCT are resulting in the region's port infrastructure lacking the capacity required to meet current and future demand. However, the respondents acknowledged that measures are currently being taken to rectify these problems.

The most prominent concerns related to the operation of the terminal and berths at the ports, with the development of intermodal infrastructure highlighted as an important requirement. The need for future investment in intermodal facilities is discussed further in section 5.2.6.

### 5.2.3 Maintenance

There were insufficient responses to draw any conclusions in relation to the adequacy of maintenance of port and rail infrastructure.

In relation to the road network, respondents indicated that they were very dissatisfied with the level of maintenance currently being undertaken on the road network. However, it is important to note that respondents were unable to identify specific maintenance issues associated with the road network.

### 5.2.4 Impact on business activity

Respondents indicated that the costs associated with transport services have generally been increasing in recent years. Respondents expect this trend to continue over the next five years.

Respondents were asked to rank a number of possible factors according to the extent to which they contribute to the delayed provision of transport infrastructure in the region. A lack of coordination between infrastructure providers was identified as the most prominent factor, followed by a lack of government funding and leadership.

*Road*

In relation to the most significant factors affecting respondents' business operations associated with the road network, difficulties in receiving inputs was identified as the most prominent concern. Congestion levels and providing guarantees on reliability of service delivery were also identified as having a significant impact on business operations.

In terms of the factors that respondents deemed to be most inadequate, road capacity was identified as the most significant inadequate factor followed by the safety level of the network.

*Rail*

The loss of business opportunities and congestion were identified by respondents as having the most significant impact on business operations, whilst rail unloading and intermodal facilities were cited as being the most significant inadequacies. These responses are generally consistent with the findings of the recent O'Donnell Review.

*Ports*

As was the case with rail infrastructure, the loss of business opportunities and congestion associated with port infrastructure ranked as having the most significant impact on the respondents' business operations. Loading and unloading facilities at the terminals were identified as the key concern. It is again important to note that the low response rate for these questions makes it impossible to generalise these responses.

### 5.2.5 Planning

The key point from responses relating to infrastructure planning is that the majority of respondents associated with port and rail infrastructure in the region indicated that they should play a more prominent role in relation to the planning of transport infrastructure provision.

### 5.2.6 Requirements for future investment

A key requirement identified by respondents in relation to the need for future investment, other than areas in which investment is already acknowledged, is the improvement of the port-rail interface at the Port of Mackay, including the development of intermodal facilities.

Investment in intermodal facilities and addressing the problems associated with the importation of heavy mining equipment through the Port of Mackay was identified by several respondents as being crucial to increasing the productivity of the region's key industries. One respondent identified a possible investment project as the development of a multimodal corridor linking Mackay Harbour with the Peak Downs Highway.

## 5.3 Comparison with review findings

The low response rate makes it difficult to draw any firm conclusions from the results obtained in the survey process. This section provides a summary of the key freight infrastructure deficiencies identified in the survey and how these relate to the contents of the planning documents.

*Intermodal investment*

A lack of intermodal investment was highlighted as a significant point of concern in the survey responses. The issue of intermodal investment is important due to the role played by the port-road interface in the transportation of freight throughout the region.

The efficient operation of this interface is important for exports and imports, particularly the movement of large pieces of mining equipment on the road network. Respondents commented that the inability to import large items through the Port of Mackay as a result of the inadequacy of the port-road interface was a significant impediment to the efficient operation of the region's transport infrastructure.

The only reference to intermodal transport infrastructure in the reviewed planning documents was in the WHAM Regional Plan, which commented that planning had commenced in relation to the construction of a multimodal facility on the east-west corridor, linking the Bruce Highway with the Port of Mackay. A survey respondent commented that investment in such a project was necessary for the region to reach its full growth potential.

*Ports*

The majority of the respondents that highlighted deficiencies in port infrastructure acknowledged that investment plans had been put in place in order to deal with the current impediments. However, this was not considered to be the case with respect to the port/road interface.

*Rail*

The survey responses contained very little comment in relation to the performance of the region's rail infrastructure. This is possibly a reflection of the dominance of road as the most important mode for most of the respondents, and also the fact that there is an acknowledgement amoung stakeholders that the problems that have historically constrained the capacity of the region's rail networks are now being addressed by the planning framework.

The one respondent that did provide comment on the performance of the region's rail network listed several impediments to its efficient operation. These impediments related to the framework for infrastructure planning in the export coal systems and also the problems caused by a lack of integration and coordination amoung the different stakeholders. These problems were highlighted by the O'Donnell Review of the Goonyella chain and have since largely been addressed.

*Stakeholder involvement*

It is also important to note that, despite the recent efforts to increase the level of coordination and integration of infrastructure planning on the region's coal supply chains, the majority of respondents still stated that they needed to be more involved in infrastructure planning.

*Bottlenecks on the road network*

Other than the need for increased investment in intermodal infrastructure and deficiencies associated with the planning framework for port and rail infrastructure, the only significant problems identified by the respondents related to specific bottlenecks in the region's road network. These deficiencies ranged from the need to invest in overtaking lanes and passing loops to increase the capacity of major freight routes to the need to facilitate the more efficient access of heavy vehicles to the high-growth industrial estates in the region.

The process of comparing these bottlenecks to the outcomes of the planning document review is complicated by the lack of underpinning demand and capacity forecasts for the road investment projects that are identified in the region. In order to determine whether the planned road network investment is sufficient to address the problems identified in the survey responses, a far more extensive assessment process would be required in order to determine the degree to which the infrastructure works align with the specified deficiencies.

# 6 Conclusion and recommendations

## 6.1 Findings from Stage 1

The key findings of stage 1 can be summarised as follows:

- *Coal sector likely to continue to be the key infrastructure driver*. Mining currently contributes 51% of Gross Regional Product. The importance of the coal industry to the region's future growth prospects further highlights the significance of the associated rail and port infrastructure;

- *Existing port and rail deficiencies are being addressed*. Problems identified by both the planning document review and the analysis of survey responses in relation to the region's port and rail infrastructure are being addressed;

- *There are a large number of infrastructure and development plans for the region*. Planning is undertaken by a large number of different organisations in relation to the freight transport network. This reflects the fact the ownership and control of infrastructure is spread across three levels of government and several commercial organisations;

- *Need for better coordination of planning*. Coordination of infrastructure planning has been a problem for infrastructure development in the region. Increased coordination is essential as it ensures that the objectives of all stakeholders are considered in order to achieve the most efficient outcome. This is especially important for the rail and port infrastructure associated with the coal supply chain as previously highlighted by the O'Donnell Review;

- *Difficulties in assessing the adequacy of planned road investment*. A number of specific sections of the road network were identified as bottlenecks by the survey respondents. The lack of freight demand and capacity forecasts in road planning documents makes it impossible to assess whether the planned investment in the network is sufficient to adequately address these deficiencies;

- *Limited information on freight flows within the region*. There is very limited information on the origin and destination and volumes of general road freight. Further information on freight flows within the region and between other regions, including the freight intensity of the region's industry structure is an important prerequisite for future infrastructure development.

- *Need for a regional freight plan*. It is noted that one of the strategies for infrastructure in the WHAM regional plan is to monitor infrastructure provision, maintenance and operation. [97] A regional freight plan across all modes of transport would provide a point from which to address this strategy and ensure the region does not encounter freight related constraints to future economic growth.

Ancillary findings are as follows:

- *Timing is critical.* Freight transport infrastructure needs to be installed in time to allow local businesses to make the most of market opportunities, such as growth in demand;

- *Complexity of road planning framework*. The task of ensuring that adequate funding is provided to improve the road network to the required level is complicated by the complexity of stakeholder arrangements, with responsibility for different parts of the road network lying with different levels of government. This creates a risk of delay for future projects;

- *Disagreement on the adequacy of the road network*. The planning documents concluded that the current status of the region's road network is 'adequate', however, a number of specific deficiencies were identified with certain parts of the network identified as experiencing capacity pressures. While respondents identified some specific concerns these appear to be planned for in the RIP;

- *Requirement for increased intermodal investment*. A potential issue highlighted in the survey responses is the need to increase the level of investment in intermodal infrastructure in the region. This was seen as important in order to improve the efficiency with which the port-road interface at the Port of Mackay operates. This finding needs to be considered in light of the very low survey response. It is therefore necessary for further targeted stakeholder consultation to take place before the need for increased intermodal investment can be concluded to be a major issue for the stakeholders in the region;

[97] Queensland Government (2006), WHAM Regional Plan, p 71.

# A List of reviewed planning documents

- Mackay Area Integrated Transport Plan 2002-25
- Bowen and Abbot Point Industrial Land Concept Plan and Infrastructure Study
- Whitsunday Growth Management Initiative
- AusLink Brisbane Cairns Corridor Strategy
- Northern Bowen Basin Strategic Roads Planning Report
- WHAM Regional Plan
- 2006 Coal Rail Infrastructure Master Plan
- Projects Queensland 2007 – Issue 26
- Roads Implementation Program
- Mackay Seaport Land Use Plan
- Mackay City Council – Transitional Planning Scheme Policy
- Broadsound Shire – Essential Service Infrastructure Plan
- Bowen Shire Corporate Plan 2005-09
- Ports and Projects Report 2006-07: Ten Ports, Countless Opportunities
- Department of Main Roads: Traffic Investigation at Walkerston

# B Survey Instrument

Q1. Drawing from your experiences associated with freight transportation, please identify the most significant impediments to the efficient operation of freight transport infrastructure in the region.

| Impediment | Description |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |
| | |

### Information about respondents

Q2. What is the type of industry that best describes your activity (tick one)?

| Industry | |
|---|---|
| Agriculture, Forestry, Fishing | |
| Mining | |
| Manufacturing | |
| Electricity, gas, water and water services | |
| Construction | |
| Wholesale trade | |
| Transport and warehousing | |
| Public administration | |
| Other | |

Q3. What is the current percentage of your transportation spent by mode?

| Mode | |
|---|---|
| Road | |
| Rail | |
| Port | |
| Airport | |

Q4. Please provide information as to whether you are a user or supplier of freight transport services or both (please tick the relevant box).

| User | Supplier | Both |
|---|---|---|
| | | |

Q5. Provide possible reasons as to why you would consider changing modes of freight transport.

| Modal Change | Reasons |
|---|---|
| E.g. Road to Rail | Insufficient maintenance of major freight roads |
| | |
| | |
| | |
| | |

## Ability to meet current and expected future demand

Q6. From your experience with the region's freight transport infrastructure, which statement best describes the ability of the Mackay region's freight transport infrastructure to adequately meet existing and expected future demand (over the next 10-15 years) for each of the four types of infrastructure listed in the table? (please only respond for transport modes relevant to your business)

1= Able to meet current and expected future demand 2= Somewhat able to meet current and future expected demand 3= Able to meet only current demand 4= Somewhat able to meet current demand 5= Unable to meet current demand

| Road | Rail | Port | Airport |
|---|---|---|---|
| | | | |

Q7. If your response to Question 6 was a 3, can you tick the types of infrastructure you consider unable to meet current demand from the following list (Please only respond for transport modes relevant to your business):

| | Road | Rail | Port | Airport |
|---|---|---|---|---|
| Investment | | | | |
| • Bridges | | | | |
| • Overtaking Lanes | | | | |
| • Duplication | | | | |
| • Passing loops | | | | |
| • Duplication | | | | |
| • Terminal | | | | |
| • Berths | | | | |
| • Runways | | | | |

Q8. Please identify the specific parts of the transport network you identified in Question 6 as unable to meet future demand and why.

| Identity | Description |
|---|---|
| Eg XYZ Highway | Overtaking lanes required to reduce transit times |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

Q9. Do you expect the problems you identified in Q6-8 to be adequately addressed in the future? (Please only respond for transport modes relevant to your business)

1=No because there is no plan to rectify 2= Not in the immediate future but a solution is planned 3= Work is currently underway to address the problem 4=Don't know 5 = Only some problems are being addressed

| Road | Rail | Port | Airport |
|---|---|---|---|
| | | | |

## Maintenance

The quality of the region's freight transport infrastructure will depend on how well it is maintained and whether it is fit for purpose. Fit for purpose means that the infrastructure as constructed is of sufficient standard to meet current demand.

Q10. How well is the region's infrastructure maintained? (please only respond for transport modes relevant to your business)

1=very inadequately 2= somewhat inadequately 3=somewhat adequately 4= adequately 5= very adequately

| Road | Rail | Port | Airport |
|---|---|---|---|
| | | | |

Q11. If your response to Q10 was a 1 can you identify which infrastructure is not adequately maintained?

| Identity | Description |
|---|---|
| Eg XYZ Highway | Pavement severely deteriorated between x and y. |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

## Impact on your business

Q12. How significant are transport infrastructure costs on your costs?

1= <1% 2=1-5% 3=5-10% 4=>10%

| Road | Rail | Port | Airport |
|---|---|---|---|
| | | | |

Q13. Over the past 5 years, what has been the change in transport infrastructure costs on your costs?

1= Decreased significantly 2= Decreased 3=Remained the same 4= Increased somewhat 5=increased significantly

| Road | Rail | Port | Airport |
|---|---|---|---|
| | | | |

Q14. In the next five years, other than from inflation, how do you expect transport infrastructure costs to affect your costs?

1= Decrease significantly 2= Decrease 3=Remain the same 4= Increase somewhat 5=increase significantly

| Road | Rail | Port | Airport |
|---|---|---|---|
| | | | |

Q15. From the below list please rank the following factors through which infrastructure affects your business.

| | Road | Rail | Port | Airport |
|---|---|---|---|---|

| | Road | Rail | Port | Airport |
|---|---|---|---|---|
| Difficulties receiving production inputs | | | | |
| Lost business opportunities | | | | |
| Congestion | | | | |
| Affecting reliability of service | | | | |
| Unable to expand | | | | |
| Other | | | | |

Q16. Rank the types of freight transport infrastructure issues you consider to be inadequate? Rank the most inadequate as 1, the next as 2 and so on. Respondents need only rank the type of infrastructure which they consider inadequate. (Please only respond for the transport modes relevant to your business)

| Type of Infrastructure | Ranking |
|---|---|
| Road | |
| • Road capacity | |
| • Unsafe roads | |
| • Bridges | |
| • Interchanges | |
| Rail | |
| • Rail passing loops | |
| • Rail unloading | |
| • Intermodal facilities | |
| • Level Crossings | |
| Port | |
| • Unloading facilities | |
| • Loading facilities | |
| • Port storage | |
| • Number of berths | |
| Airports | |
| • Runway length | |
| • Terminal facilities | |

Q17. Please rank the below factors that have contributed to delays in providing adequate infrastructure? (1 being the most significant factor etc)

| Factors which have delayed infrastructure | Ranking |
|---|---|
| Lack of planning | |

| Factors which have delayed infrastructure | Ranking |
|---|---|
| Lack of coordination between infrastructure providers | |
| Lack of government leadership | |
| Development regulation | |
| Economic regulation | |
| Lack of funding by government | |
| Investment uncertainty | |
| Other (please describe) | |

## Planning

Q18. How involved is your organisation in the planning process for freight transport infrastructure? (Please only respond for transport modes relevant to your business)

1=Not involved 2=Sometimes involved 3=Often Involved 4=highly involved

| Road | Rail | Port | Airport |
|---|---|---|---|
| | | | |

Q19. Do you think that your organisation needs to be more involved in the planning process?

1=No 2=Selectively 3=Yes

| Road | Rail | Port | Airport |
|---|---|---|---|
| | | | |

## Future Investment

This section provides an opportunity for you to identify projects your think essential to support the continued growth of the Mackay region.

Q20. List transport infrastructure projects you consider necessary to ensure the continued economic development of the region. (You may add additional projects if there is insufficient rows in the Table).

| Project | Road | Rail | Port | Airport |
|---|---|---|---|---|
| | | | | |

# C Detailed analysis of survey responses

## C.1 Summary of survey responses

### C.1.1 Information about respondents

A total of 8 stakeholders responded to the survey. This represents a response rate of 16%. Such a low response rate means that a high degree of caution must be exercised when drawing any conclusions from the observed results.

Of the 8 respondents, 2 were mining industry participants; 2 were involved in the public administration of transport infrastructure with one each from the agriculture, manufacturing, construction[98] and other categories.

The responses to question 3 of the survey shows road is the dominant transportation mode for the majority of respondents, with 62.5% indicating that between 75% and 100% of their transportation activity was attributable to road. 25% of respondents stated that between 25% and 50% of their transport was attributable to each of rail and port.

In terms of respondents' roles in relation to the movement of freight throughout the region, 6 of the 8 respondents are classified as infrastructure users, 1 is an infrastructure supplier and 1 is classified as both a user and supplier of infrastructure.

### C.1.2 Ability to meet current and expected future demand

*Road*

**Table 8 Responses to questions 6 and 9 relating to road**

| Question topic | No. of responses | Average[a] | Range |
|---|---|---|---|
| Ability of infrastructure to meet current and future demand | 6 | 3 | 1-5 |
| Expectation that problems identified will be addressed in the future | 5 | 2.2 | 1-5 |

**a** A score of 1 signifies that infrastructure is able to meet current and future demand to a score of 5 which signifies that infrastructure is unable to meet current demand.

[98] One participant specified their industry activities as encompassing both construction and manufacturing. Upon further research it was considered appropriate to classify this respondent as a construction entity.

The responses to these two questions indicate that the respondents have a relatively low level of confidence in both the ability of the road network to meet current and future demand and the extent to which problems will be rectified in the future. This response profile is not necessarily consistent with the fact that respondents did not identify many specific deficiencies in the road network or with the outcomes of the planning documents.

Respondents were also requested in this section of the survey to identify the types of infrastructure which they deemed to be unable to meet demand. A total of 14 points of concern were identified by the respondents. Overtaking lanes was the most prevalent with 4 responses whilst bridges, duplication and passing loops all received 3.

### *Rail*

**Table 9 Responses to questions 6 and 9 relating to rail**

| Question topic | No. of responses | Average | Range |
|---|---|---|---|
| Ability of infrastructure to meet current and future demand | 4 | 3.5 | 2-5 |
| Expectation that problems identified will be addressed in the future | 4 | 3.25 | 3-4 |

The response profile for the two questions presented in the above table indicates that respondents hold significant concerns in relation to the region's rail infrastructure to meet current and particularly future demand levels. This is consistent with the outcomes of the review of the planning documents which determined that significant future investment in the rail infrastructure is necessary if future demand is to be met. There is also a general acknowledgment by respondents of the planning processes currently being undertaken to ensure that this investment is provided.

In relation to the identification of specific types of infrastructure that are currently unable to meet demand, four points of concern were identified by respondents. The most prominent point of concern related to duplication with two respondents identifying this issue whilst the other points of concern related to passing loops and terminals.

### *Ports*

**Table 10 Responses to questions 6 and 9 relating to ports**

| Question topic | No. of responses | Average | Range |
|---|---|---|---|
| Ability of infrastructure to meet current and future demand | 5 | 3.6 | 3-5 |
| Expectation that problems identified will be addressed in the future | 4 | 2.25 | 1-3 |

The response profile presented in the above table demonstrates that respondents expect port infrastructure to struggle to meet future demand levels. The majority of the respondents also acknowledge that there are solutions planned in order to enable the port infrastructure to be expanded to meet future demand.

Three points of concern were identified by respondents in relation to the specific types of port infrastructure unable to meet current demand. The major concern related to the terminal and berths whilst one respondent also identified duplication.

### C.1.3 Maintenance

**Table 11 Responses to question 10 on infrastructure maintenance**

| Mode | No. of responses | Average | Range |
|---|---|---|---|
| Road | 6 | 2.2 | 1-4 |
| Rail | 3 | 3 | 2-4 |
| Ports | 3 | 3 | 2-4 |

The response profile does indicate that respondents are generally not satisfied with the level of maintenance of the road network. However, respondents were unable to identify any specific maintenance problems in their responses to Question 11.

### C.1.4 Impact on business activity

*Road*

**Table 12 Responses to questions 12-14 relating to road**

| Question topic | No. of responses | Average | Range |
|---|---|---|---|
| Significance of transport costs | 6 | 2.7 | 1-4 |
| Change in infrastructure costs over last 5 years | 4 | 4 | 3-5 |
| Expected change in infrastructure costs over next 5 years | 6 | 4.2 | 3-5 |

The responses indicate that road infrastructure related expenses make up a significant portion of the overall costs of the respondents. The responses also suggest that road infrastructure costs have been increasing for these businesses and that this increase is expected to continue into the future.

*Rail*

**Table 13 Responses to questions 12-14 relating to rail**

| Question topic | No. of responses | Average | Range |
|---|---|---|---|

| Question topic | No. of responses | Average | Range |
|---|---|---|---|
| Significance of transport costs | 2 | 2.5 | 2-3 |
| Change in infrastructure costs over last 5 years | 3 | 3.7 | 2-5 |
| Expected change in infrastructure costs over next 5 years | 3 | 4.3 | 4-5 |

The response rate for these questions was very low, so caution must be taken when attempting to draw inferences from the response profile. The responses that were submitted indicate that costs associated with rail infrastructure have been increasing in recent years with this trend expected to continue into the future.

### *Ports*

**Table 14 Responses to questions 12-14 relating to ports**

| Question topic | No. of responses | Average | Range |
|---|---|---|---|
| Significance of transport costs | 1 | 3 | NA |
| Change in infrastructure costs over last 5 years | 2 | 4.5 | 4-5 |
| Expected change in infrastructure costs over next 5 years | 3 | 4 | 3-5 |

As with the response profile for rail infrastructure, the low response level for these questions means that caution must be exercised when drawing inferences from the responses. The responses that were submitted indicate that respondents' port-related costs have increased significantly in recent years with these increases expected to continue into the future.

### *Ranking questions*

The section of the survey relating to the impact of transport infrastructure on the business operations of the respondents also included a series of questions in which the respondents were asked to rank a number of factors in order of significance.

Question 17 requested that respondents rank the factors in the order that they affect the delay of the provision of transport infrastructure. All 8 of the survey respondents ranked at least one of the factors. The results of this question are summarised in the table 15.

**Table 15 Responses to question 17**

| Factor | Ranked frequency | Average ranking |
|---|---|---|
| Coordination between infrastructure providers | 6 | 1.67 |
| Lack of government leadership | 4 | 2 |

| Factor | Ranked frequency | Average ranking |
|---|---|---|
| Lack of government funding | 5 | 2.2 |
| Investment uncertainty | 4 | 2.25 |
| Lack of planning | 5 | 2.4 |
| Development regulation | 3 | 3 |
| Economic regulation | 5 | 3.2 |

These results indicate several respondents deemed a lack of coordination between infrastructure providers as the most prominent factor behind the delay of infrastructure provision. Factors relating to a lack of government leadership and funding were also highlighted as being significant. Investment uncertainty and a lack of planning were also highlighted by some respondents as being significant factors.

*Road*

Difficulties experienced in receiving inputs was the most highly rated factor by respondents in relation to the effect that road infrastructure has on their business operations, with 3 respondents identifying the factor at an average ranking of 1.67. Congestion and guaranteeing a level of reliability of supply were other major factors identified by respondents.

Respondents were also asked to rank the inadequacies of the road infrastructure in order of their significance. Road capacity was identified as the most significant factor, with 3 respondents identifying it at an average ranking of 1.67. The safety level of the road network was also identified as a major problem with 4 respondents identifying it at an average ranking of 1.75.

*Rail*

Very limited conclusions can be derived from the results of the ranking questions relating to rail infrastructure as only 2 respondents ranked factors correctly.[99] Lost business opportunities and congestion were identified by both respondents as being significant issues in relation to the affect of rail infrastructure on their business operations, whilst rail unloading and intermodal facilities were identified as the most significant inadequacies in the rail infrastructure.

99 Some responses in relation to these ranking questions were disregarded on the basis that the respondent had failed to complete the ranking task as per the instructions of the survey instrument.

*Ports*

The port sections of the ranking questions were only completed by the respondents to a very minimal extent. It is therefore very difficult to draw any firm conclusions from the results. From the responses that were obtained, lost business opportunities and congestion were the highest ranking factors in terms of the effect of transport infrastructure on respondents' business operations, whilst loading and unloading facilities were identified as the highest priority issues in relation to the inadequacies of the port infrastructure.

### C.1.5 Planning

*Road*

**Table 16 Responses to questions 18 & 19 relating to road**

| Question topic | No. of respondents | Average | Range |
|---|---|---|---|
| Current involvement in the planning process | 5 | 1.6 | 1-4 |
| Need for additional involvement | 5 | 1.6 | 1-3 |

The response profiles for questions 18 and 19 demonstrate that the majority of respondents do not currently play a role in road infrastructure planning. The results also indicate that these respondents did not deem it necessary for them to become more involved in road infrastructure planning in the future.

*Rail*

**Table 17 Responses to questions 18 & 19 relating to rail**

| Question topic | No. of respondents | Average | Range |
|---|---|---|---|
| Current involvement in the planning process | 3 | 1.7 | 1-3 |
| Need for additional involvement | 3 | 3 | NA |

Whilst it is important to recognise that the very low response level makes it difficult to draw any reasonable conclusions from this response profile, it is important to recognise that both respondents to question 19 believed that they need to be more involved in the planning process for rail infrastructure.

*Ports*

**Table 18 Responses to questions 18 & 19 relating to ports**

| Question topic | No. of respondents | Average | Range |
|---|---|---|---|
| Current involvement in the planning process | 4 | 2 | 1-4 |
| Need for additional involvement | 5 | 2.6 | 2-3 |

The responses show that the majority believe that their level of involvement needs to be increased.

## C.2 Additional issues raised by the respondents

The survey instrument supplied to the key stakeholders contained several questions which allowed the respondents to highlight specific concerns in relation to certain aspects of the transport infrastructure network that they believe require expansion or more efficient maintenance. Respondents were also given the opportunity to provide their view on appropriate future investments to improve the operation of freight transport infrastructure in the region. The sections below discuss the responses received in relation to these questions.

### C.2.1 Impediments to efficient operation of transport infrastructure

*Road*

The majority of the impediments identified by respondents related to the operation of the road network. A significant concern highlighted by one respondent was that investment in the road network was failing to keep pace with the level of economic growth in the region as well as the level of investment in the region's rail and port infrastructure.

The respondent also stated that a more integrated approach was required in terms of the transport arrangements for the linkage of Mackay's three main industrial precincts and that more consideration needed to be given to the facilitation of wide load movements relating to the transportation of inputs for the region's coal mining industry.

The survey responses also highlighted the problems associated with the movement of heavy vehicles as the main impediment to the efficient operation of the road network. One respondent stated that the single lane highway for heavy vehicles travelling in and out of Mackay was insufficient and that freight carriers were impeded by traffic congestion on the road network. Other impediments provided in the survey responses included the inadequate strength of bridges throughout the region, road restrictions associated with townships, a lack of appropriate maintenance and planning in the network and a high incidence of traffic jams.

### *Rail*

The only impediment identified in the survey responses specifically relating to the region's rail infrastructure was a concern in relation to the reliability of rail delivery times. However, one respondent raised several concerns that relate to both the rail and port infrastructure. These impediments are discussed in the section below on the coal systems.

### *Ports*

One respondent commented that a major issue with the region's port infrastructure was a lack of capacity due to the large number of mine operators attempting to obtain shipments at the Port of Hay Point. This is essentially a capacity issue which is currently being addressed in the appropriate planning documents.

Other concerns raised by respondents generally related to the extent to which large objects such as mining input materials can be imported through the Port of Mackay. The problem highlighted was that the current infrastructure connecting the Port of Mackay to the main road network is insufficient to facilitate the importation of large pieces of mining equipment through the Port of Mackay.

One respondent also identified the lack of a sustainable base load container throughput at the Mackay Port as being the main impediment to investment in the infrastructure at the terminal.

### *Coal systems*

Several concerns were raised in the survey response of one respondent relating to the operation of the region's coal export rail and port systems. These concerns are generally associated with the framework under which the coal supply chain is being managed and its effect on infrastructure provision, relating specifically to the following:

- desire for monopoly infrastructure owners to earn a commercial rate of return on their investments without being subject to the corresponding commercial risks;

- absence of a transparent process for the identification of capacity constraints within the logistics chain and the measurement and allocation of system capacity;
- misalignment of contracting frameworks with parties operating on the basis of theoretical rather than actual capacity;
- lack of cooperation amoung supply chain operators;
- lack of willingness of infrastructure operators to comply with contractual obligations, regardless of the availability of penalties and legal responses; and
- lack of a mechanism to ensure that additional infrastructure is provided for ahead of demand.

Another respondent also commented on the inefficiencies associated with the current nature of the port and rail interface on the coal systems, stating that rail haulage capacity was significantly constrained due to a lack of port capacity.

### C.2.2 Inability to meet current and future demand

*Peak Downs Highway*

Several of the problems highlighted by the respondents in relation to the inability of transport infrastructure in the region to meet demand levels relate to certain sections of the Peak Downs Highway. One respondent stated that the highway required additional overtaking lanes and passing loops as well as a proactive management plan for wide loads to 10m.

Concerns were also raised in relation to the ability of the highway to cope with the transportation of large and heavy loads. One respondent commented on the need for the highway to be widened and also for a bypass to be constructed at Walkerston.

*Bruce Highway*

The most significant concern in terms of the ability of the Bruce Highway to meet user demand related to the need for the more efficient movement of freight between the Bruce Highway and Mackay's Paget industrial estate. The Bruce Highway-Bucasia Road intersection was also highlighted as a significant bottleneck whilst one respondent highlighted the need for the construction of additional overtaking lanes.

*Other problems with the road network*

Malcomson Street in Mackay was highlighted by two respondents as causing problems for the operation of the region's road network. The Bucasia Road-Malcomson Street intersection was identified as presenting a significant bottleneck. The clash between the urban environment and heavy vehicle movements was identified as one respondent as becoming increasingly more problematic, highlighting Malcomson Street as a significant point of concern. The Hospital Bridge and Sydney Street in Mackay were also identified as potential bottlenecks.

*Ports*

Three main problems were identified by respondents in relation to the inability of the region's port infrastructure to meet current and future demand. The most significant of these was the lack of ability of the infrastructure at the Dalrymple Bay Coal Terminal to handle the required volumes of coal. This was attributed to the fact that the DBCT terminal expansion project is running behind schedule.

It was also mentioned that the high level of competition for shipment requirements between mining operators was also causing capacity constraints at the Port of Abbot Point. It was also reported that these delays in the delivery of coal tonnages to customers are having an adverse effect on the capacity of the rail haulage network.

The second point of concern relates to the need for the development of an intermodal facility to be connected to the existing port infrastructure at the Mackay Port. It was highlighted by one respondent that for this to be achievable would require the identification of freight volumes to be used as an input into an assessment for future infrastructure requirements in order for such a facility to be developed.

The third point concerned the importation of large pieces of mining equipment through the Mackay Port. One respondent stated that investment was required in order to enable these inputs to be imported through the port rather than transported from the Port of Brisbane.

### C.2.3 Lack of adequate maintenance

The following three key points of concern were identified by respondents in relation to the adequacy of the level of maintenance currently being undertaken on the road network:

- a lack of sufficient road infrastructure to cope with the level of growth in the Paget Industrial Area;

- lack of required maintenance and expansion works on Connors Road; and
- need for the fast-tracking of the Peak Downs Highway duplication program in order to keep pace with increasing demand.

### C.2.4 Requirements for future investment

*Intermodal investment*

The most significant issue raised by the respondents (although only identified by 3 respondents) in relation to the need for future investment in the region's transport infrastructure related to the potential for future investment in intermodal facilities. One respondent stated that investment in intermodal facilities should be a priority due to the potential efficiencies from the integration of the three transportation modes whilst another emphasised the need for intermodal investment, advocating the development of a multimodal corridor linking the Mackay Harbour to the Peak Downs Highway.

*Other investment requirements*

Several other specific areas of the region's transportation infrastructure network requiring additional investment were identified in the survey response of one participant. These included the improvement of road access to the Mackay Port in order to reduce cross-city congestion; improvements to the Peak Downs Highway and bridge access to Mackay City in order to reduce congestion as well as increased investment to improve the condition of secondary roads throughout the region.

Another respondent cited the need to upgrade the overtaking lanes on Peak Downs Highway to allow passenger vehicles to overtake large mining vehicles in order to reduce the safety risks associated with this section of the road network. The respondent also acknowledged that work had already commenced in this area.

The completion of the upgrades to the DBCT was also highlighted as being of increased importance in order to facilitate the effective shipping of coal tonnages through the terminal.

# D Strategic government planning processes

Each level of government participates to varying degrees in strategic planning in regard to the region's infrastructure. Planning frameworks reflect efforts to coordinate the planning and investment roles undertaken by various levels of government. An overview of the planning frameworks at each level of Government is given below, with a summary table in the Attachment.

## D.1 Federal Government

The Federal Government does not have direct responsibility for the freight transport infrastructure in the region. The exception to this is its role in funding certain road corridors and specific road projects via its AusLink program. In this case, the Federal Government's role is limited to funding, with the state Government undertaking the management of federally funded roads.

*AusLink*

AusLink, or National Land Transport Network, is a single integrated network of land transport linkages of strategic national importance funded by Federal, State and Territory Governments. The key aim of AusLink is to improve planning, decision-making and funding for Australia's national land transport infrastructure.

The AusLink Network is based on national and inter-regional transport corridors, including connections through urban areas, links to ports and airports, rail, road and intermodal connections that together are considered to be of central importance to regional and national economic growth. Federal Government funding for national projects must be for projects on the AusLink Network.

In terms of planning, a long-term intermodal planning framework is being established to ensure funding is targeted at projects on the AusLink Network that deliver high levels of national benefits. The key mechanism for better coordinated planning is the Corridor Strategies that have been developed for each of the corridors on the AusLink Network.

The strategy of relevance to this study is the Brisbane-Cairns Corridor Strategy, prepared jointly between the Federal Government and the Queensland Government. The development of the strategy built on other planning work undertaken by the Queensland Government, which has primary responsibility for planning, building and managing road and rail infrastructure.

Federal funding may also be provided to local councils for road maintenance under AusLink's Roads to Recovery (R2R) program. This was established to assist local government to maintain local roads. It is jointly administered by local councils and the Federal Department of Infrastructure, Transport and Regional Development.

### *Other Federal Government transport planning initiatives*

Although the Federal Government has little direct involvement in freight transport infrastructure provision, it has sought to facilitate coordination and integration in freight transport planning, particularly with regard to logistics, through the establishment of a number of councils. These have included the National Transport Commission (NTC), the Australian Logistics Council (ALC), the Australian Freight Councils Network (AFCN), the Transport and Logistics Centre (TALC) and the Integrated Logistics Network (ILN).

*NTC* - the NTC was established to assist Australian governments in achieving their jointly agreed objective of: "…improving transport productivity, efficiency, safety and environmental performance and regulatory efficiency in a uniform or nationally consistent manner." The NTC's role is to lead transport regulatory reform nationally.

*ALC* – this is a partnership between Australian Governments and the logistics industry established to drive implementation of the Australian Logistics Industry Strategy (2002). This strategy has been finalised and is to be replaced with a new strategy currently being developed by the ALC for implementation from 2008.

*AFCN* – this is a network of ten Australian Freight Logistics councils which operate within each state and which are jointly funded by Federal and State Governments, with support from the logistics industry. It has played a role in the implementation of the Australian Logistics Industry Strategy. A review of Freight Council activities is scheduled before end of June 2008.

*TALC* – a nationally focussed body which works with the transport and logistics industry, with a focus on staff recruitment and information sharing.

*ILN* – the ILN's goal is to promote a coordinated national strategy for the future of transport logistics in Australia. It consists of Federal, State and Territory government transport logistics officials.

The Federal Government has also examined the issue of capacity bottlenecks in freight transport infrastructure – particularly export supply chain infrastructure. In 2005, the Howard Government undertook analysis of export infrastructure supply chains in response to concerns about shipping delays at major coal ports. The report of the Export Infrastructure Task Force identified a range of issues affecting export supply chains, with particular emphasis on impediments to investment posed by economic regulatory frameworks.

In January 2008, the Australian Government announced a new, national approach to planning, funding and implementing the nation's future infrastructure needs. It will establish a new statutory advisory council, Infrastructure Australia, which will develop a strategic blueprint for our nation's future infrastructure needs and - in partnership with the states, territories, local government and the private sector - facilitate its implementation.

Infrastructure Australia's functions will include providing advice to Australian governments about infrastructure gaps and bottlenecks. It will also identify investment priorities and policy and regulatory reforms that will be necessary to enable timely and coordinated delivery of national infrastructure investment. Advice and reports from Infrastructure Australia also will be considered by the Infrastructure Working Group of the Council of Australian Governments (COAG).

The first national infrastructure audit will be completed by the end of 2008 and will inform the development of first infrastructure priority list. Federal and State Governments must provide information for the audit by June 2008.

## D.2 Queensland Government

Departments responsible for infrastructure-related functions have a role at a strategic level in guiding and influencing infrastructure planning as well as at a more direct funding and service delivery level. Statewide planning processes occur in conjunction with Federal and local planning. As noted above, coordination of planning with the Federal Government occurs in relation to the elements of the AusLink Network in Queensland and will also occur in future via the COAG Infrastructure Working Group.

In recognition of the need for a coordinated and integrated approach to freight transport infrastructure delivery, the Queensland Government has developed an Integrated Transport Planning Framework to guide transport planning in Queensland. The framework is a joint initiative of Queensland Transport, the Department of Main Roads, the Department of Local Government, Sport and Recreation and the Local Government Association of Queensland.

This framework is a tool for transport and land-use decision makers and planners in state and local government, as well as industry, with the aim of encouraging good-practice transport planning. It provides advice on, among other things, the various steps in undertaking effective planning, including: initiating planning; defining the current and desired future state; identifying and assessing options; developing a strategy; developing an organisational delivery plan; implementation; and post-implementation review.

In addition to the broad Integrated Transport Planning Framework, key elements of the Queensland Government's transport infrastructure planning are reflected in the following documents:

- Integrated Regional Transport Plans (of relevance for this study is the Mackay Area Integrated Transport Plan);
- Roads Connecting Queenslanders;
- Rail Network Strategy; and
- Rail Corridor Direction Statement.

*Mackay Area Integrated Transport Plan (MAITP)* – this plan provides a comprehensive framework for future development of the transport network and services to the year 2025, and an overall analysis of the Mackay area transport system. It was developed by Queensland Transport in partnership with the Department of Main Roads, Mackay Port Authority and Mackay City Council.

*Roads Connecting Queenslanders (2002)* – this provides a strategic, long term direction for roads in Queensland and guides decisions for roads as part of an integrated transport and land-use planning context. It gives the road perspective within the broader regional integrated planning framework.

*Rail Network Strategy* – this planning document was prepared by Queensland Transport and covers the period from 2001 – 2011. Its objectives include, amongst other things, encouraging Federal-State partnerships in developing Queensland's nationally significant rail corridors; develop strategic rail-based linkages between individual regional transport plans; and encourage investment in the railway network in Queensland.

*Rail Corridor Direction Statements* – these provide a vision for the management and ongoing development of the rail network and assist in the achievement of the Queensland Government's objectives, including those relating to regional development. Queensland Transport will develop each rail corridor direction statement initially as a proposal for consideration, wit the intention that proposals will be developed to assist government in its assessment of transport system priorities.

While not primarily responsible for transport infrastructure outcomes, the Queensland Department of Infrastructure and Planning is also involved in planning for the future transport infrastructure needs of industry. It's objectives in this regard are pursued through regionally-based projects and plans and the planning, establishment and implementation of State Development Areas. In terms of the REDC's study, the Northern Economic Triangle project, with its proposed Abbot Point State Development Area, is relevant.

Additionally, the Department's role is to lead, support and coordinate major infrastructure projects throughout Queensland. It is involved in coordinating, planning and delivering industrial land, water, energy and transport infrastructure for the purpose of supporting Queensland's export industries, including coal, agriculture and base minerals. For example, it undertakes assessment of industrial land needs in regions and, from this basis, seeks input into local government planning schemes to ensure adequate industrial land is available for future development, including necessary infrastructure, such as road and rail corridors.

As part of this role, in partnership with regional organisations and local governments, the State Department of Infrastructure and Planning initiates and manages regional planning projects throughout Queensland. The relevant plan for this study is the Whitsunday, Hinterland and Mackay (WHAM) Regional Planning Project.

The Department also plays a role in industry-specific infrastructure planning for critical sectors for the region such as coal. In 2006, it established a Coal Infrastructure Task Force to undertake whole-of-government planning to ensure rail, port and other infrastructure can support the continuing growth of the industry. Its role includes implementing the Coal Infrastructure Program of Actions and developing a 30 year strategic infrastructure plan to support industry expansion. The plan, a draft of which is due in early 2008, will be informed by consultation with stakeholders including government departments, infrastructure owners and operators, individual coal mining companies and industry peak bodies.

The State Government joined with the Queensland Resources Council to commission Mr Stephen O'Donnell to undertake an independent review of the Goonyella Coal Supply Chain. The review recommended, among other things, the creation of a central coordination role to oversee activities across the supply chain. The report also recommended the appointment of a planning coordinator and more cooperation between industry and government.

## D.3 Local government

Planning for freight transport infrastructure also falls within the scope of Local Government responsibilities. Specifically, local councils are responsible for building and maintaining roads and bridges (amongst other non-transport infrastructure).

Local government assists in delivering the State Government's priorities at the local and regional levels. This occurs through the development of partnerships and strategic alliances between State and local governments.

In addition to building and maintaining roads, all Councils require a plan for their region under the *Integrated Planning Act (IPA) 1997*, which details how land is to be used, including the location of transport infrastructure such as roads. The IPA contains triggers for wider consultation on planning schemes with relevant State Government agencies where broader state interests are involved.

Local Governments also develop Integrated Local Transport Plans which are significant for the wider road and transport systems. These plans are a way to design local transport networks that support integrated regional transport plans and Queensland government policy and priorities.

The Local Government Association of Queensland has recommended that the Department of Local Government, Planning and Sport (DLGPS) should be responsible for a comprehensive and coordinated program by all State agencies in supplying information to Councils to enable them to effectively formulate and amend infrastructure plans.[100]

## D.4 GOC planning

Transport infrastructure GOCs, such as QR and the regions port authorities, conduct their own planning processes as part of strategic business planning. This is consistent with the commercial framework within which these entities operate.

For rail transport infrastructure, a key planning framework is QR's 2006 Coal Rail Infrastructure Master Plan, which outlines future investment plans in the Central Queensland coal network. This planning framework reflects a commitment by QR to the Queensland Competition Authority (QCA) as part of its Access Undertaking. The QCA required this planning framework, including an obligation to consult regularly with mines, to improve rail infrastructure planning outcomes in the region. In addition to this, QR, as a GOC, must prepare a five yearly Corporate Plan and annual Statement of Corporate Intent (SCI) for shareholder approval.

Similar requirement applies to DBCT, which is also regulated by the QCA. BBI has developed a Master Plan covering future investment and expansions at the terminal. In addition to a Corporate Plan and SCI, PCQ has also prepared a Land Use Strategy

100 http://www.lgaq.asn.au, Policy Statements, Planning and Development

for both the Port of Hay Point and the Port of Abbot Point. The land use strategies are intended to provide a coherent framework for future planning and development of the ports. A Port of Abbot Point Strategic Plan outlining future growth plans has also been developed.

Similar to other GOC's the Mackay Port Authority prepares corporate governance documents for Shareholding Ministers. In addition, the port has a Port Advisory Committee comprised of commercial port users and shipping agents. The committee's main role is to provide the port authority with feedback on proposed developments, initiatives, operational issues and pricing policies.

## D.5 Regional planning forums

Another level of planning and coordination occurs via regional planning forums, such as the REDC. The Queensland State Government, through the Department of Tourism, Regional Development and Industry sponsors the REDC to coordinate regional economic development activity, to facilitate the region's access to State Government agencies and to undertake projects that have significant regional and economic impact. All geographic areas in the region and key industries are represented on the REDC's board.