

Appendix G
Order of Cost Estimates

Note:

All cut and fill quantities calculated with 1:1.5 side slopes, more geotechnical information is needed to identify the ideal side slope value.

** +ve balance = cut to spoil required, -ve balance = imported fill required

Rates		
Railway	3300000	\$/km
Track	1000	\$/m
Capping	600	\$/m
Earthworks	1350	\$/m
Drainage	300	\$/m
Fencing	50	\$/m
Rail corridor width	50	m
Formation width	10	m
Operating cost (freight rate)	0.05	\$/t/km
Assumed freight volume	30	Mtpa
Annual operating cost (freight rate)	1.50	\$/M/km
Bridge construction	40000	\$/m
Embkmt fill (forgien fill)	30	\$/m ³
Cut to fill (Recycling fill)	30	\$/m ³
Cut to spoil (too much fill)	20	\$/m ³
Level Crossing Active	850000	
Level Crossing Passive	150000	

CAPEX	Quantity	Calculation	Cost
Railway length [m]	12126.94		
Track			\$12,126,940.00
Capping			\$7,276,164.00
Drainage			\$3,638,082.00
Fencing			\$606,347.00
Earthworks			
Main Alignment			
Fill \$/m ³	428939.171	\$12,868,175.13	
Cut \$/m ³	196335.337		
Balance**	-232603.834	\$6,978,115.02	
Total			\$19,846,290.15
Northern Connection to NCL			
Fill \$/m ³	6641.886	\$199,256.58	
Cut \$/m ³	465		
Balance**	-6176.886	\$185,306.58	
Total			\$384,563.16
Southern Connection to NCL			
Fill \$/m ³	9103.854	\$273,115.62	
Cut \$/m ³	628.949		
Balance**	-8474.905	\$254,247.15	
Total			\$527,362.77
Underpass and Culvert Crossings			\$3,299,600.00
Road and Cane Rail realignment			\$3,591,000.00
Road crossings (level crossings active)	3		\$2,550,000.00
Road crossings (level crossings passive)	1		\$150,000.00
Sub total			\$53,996,349.08
Contingency @	30%		\$16,198,904.72
Total			\$70,195,253.80



Estimate Schedule - Bundaberg Port Rail Link

Structure for loading berth on western side of river

ITEM	DESCRIPTION	TOTAL AUD
1.0	PRELIMINARIES	7,704,000
2.0	LOADING WHARF	23,442,000
3.0	DOLPHINS	2,846,000
3.0	ACCESS JETTY	2,560,000
4.0	DREDGING	300,000
	Contingency	5,000,000
	TOTAL	\$41,852,000

Appendix H

Economic Assessment Reports

Assessment of Freight Forecasts Report

Assessment of Agricultural Impacts Report

Regional Economic Overview

Bundaberg Rail Link Study
Economic Analysis – Assessment
of previous port freight
forecasts

February 2008



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Bundaberg Rail Link Study

Economic Analysis – Assessment of previous port freight forecasts

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1 ASSESSMENT OF FREIGHT PROJECTIONS

1.1 Introduction

Economic Associates has been commissioned by GHD to undertake economic analysis for the Bundaberg Port Rail Link Study. This report relates to the first deliverable, being an assessment of the projected freight projections which were prepared in 2003 by Abnett Consulting Pty Ltd. entitled *Economic Report on Potential Sources of Exports via the Port of Bundaberg*. The main forecasts are summarized in the Abnett Consulting report in Table 3.2, page 27.

The analysis focused on the relatively significant freight volumes cited in the report, which if varied could materially change the potential viability of the proposed rail link. To undertake this task, it was necessary to examine the 'freight logic' of specific line items (for example - would rail be the likely transport mode and would Bundaberg Port be the port of choice for the shipper) and also undertake primary research to assess current and potential freight volumes assumed to be generated from new projects.

1.2 Port trade performance

Bundaberg Port was originally developed to facilitate the export of raw sugar produced by the sugar mills in the Bundaberg, Isis and Maryborough districts. Port trade statistics are shown in Table 1 for the period 1999/00 to 2006/07. Over this period, trade declined from about 833,000 tonnes in 1999/00 to less than 500,000 tonnes annually from 2002/03 onwards. Total trade has broadly tracked raw sugar exports which have been relatively depressed since 1999/00.

Other smaller trades have been molasses (12,000 – 79,000 tonnes), petroleum products prior to 2003 (over 100,000 tpa), cement clinker (sporadic and less than 6,000 tpa), and general cargo (sporadic and less than 5,000 tpa).

The only substantial trade other than in raw sugar was in petroleum products, which ceased circa 2002. Abnett Consulting (2003) concluded that this trade was unlikely to resume, due to changes in distribution policies of the refining and distribution companies. There is now a preference to deliver fuels to the Bundaberg region by road tankers from Brisbane.

A general observation from these statistics is that for port trade to substantially increase, it would most likely need to originate from new bulk trades such as the export of coal or various mineral concentrates. The historical data shows that existing enterprises in the port catchment, with the exception of the sugar mills and fuel depots, have not generated significant trade for the port. Most other enterprises, if engaging in international trade, generate containerized freight. The majority of containerized trade interchanges through the Port of Brisbane, because of the relatively high frequency and coverage of services offered by the shipping companies. There is very limited deviation of container vessels to other ports in Queensland.

Table 1: Port of Bundaberg - trade statistics, 2002 - 2007

Category:	2000	2001	2002	2003	2004	2005	2006	2007
	Annual tonnes, year ending June							
Exports								
Raw sugar	679,463	493,566	N/A	357,157	427,759	437,235	379,379	420,205
Molasses	28,336	-	N/A					
General cargo	1,332	4,774	N/A	2,632	1,140	-	-	-
Total exp[orts	709,131	498,340	N/A	359,789	428,899	437,235	379,379	420,205
Total exports			N/A					
Imports								
Cement clinker			N/A	-	4,689	5,631	5,702	-
Molasses			N/A	71,923	11,890	23,778	29,528	52,836
Petroleum products	123,443	112,175	N/A	-	-	-	-	-
Total imports	123,443	112,175	N/A	71,923	16,579	29,409	35,230	52,836
TOTAL	832,574	610,515	554,000	431,712	445,478	466,644	414,609	473,041

N/A: not available

Source: Queensland Ports (2007); Abnett Consulting (2003); Queensland Transport (2007)

1.3 Port trade projections prepared in 2003

The port trade projections which were prepared by Abnett Consulting in 2003 are presented for the years 2003, 2010, 2016 and 2026 in Table 2.

Abnett Consulting (2003) estimated that potential trade through the port could rise from 547,500 tonnes in 2003 to over 5 million tonnes from about 2018 onwards. Horticultural exports could build up to approximately 356,000 tonnes in 2018, while hardwood chipwood exports were expected to decline by about 500,000 tonnes in the latter period. Potential exports could, however, remain in excess of 5 million tonnes per annum, if all of the identified trades were to be interchanged through Bundaberg Port.

An assessment of the freight projections is provided in section 1.4.

Table 2: Potential export tonnages through Port of Bundaberg as prepared in 2003

Category:	2003	2010	2016	2026
Annual tonnes for calendar years				
Raw sugar	547,500	327,500	327,500	327,500
Polylactic acid (PLA)		150,000	150,000	150,000
Caustic soda		104,000	104,000	104,000
Gypsum		308,000	308,000	308,000
Horticultural products		106,086	106,086	356,086
Hardwood chipwood		1,006,000	1,552,800	1,055,320
Baled hay		25,000	25,000	25,000
Chicory		26,000	26,000	26,000
Industrial hemp		125,000	125,000	125,000
Dredged river sands	50,000	150,000	150,000	150,000
Freshwater sands		1,000,000	1,000,000	1,000,000
Silica sands	50,000	200,000	200,000	200,000
Ilminite		200,000	200,000	200,000
Plagioclase/Feldspar		750,000	750,000	750,000
Apatite		200,000	200,000	200,000
Sea scallop meat/gut/seashells powder		7,210	35,580	35,580
Total	647,500	4,684,796	5,259,966	5,012,486

Source: Abnett Consulting (2003)

1.4 Analysis of freight projections by major categories

Primary research was undertaken to analyse the tonnages of the major trades. Also, comments have also been provided in this subsection on other trades where specific factors are known.

1.4.1 Raw sugar, PLA, caustic soda, gypsum

At the time the projections were prepared, a new industrial project was proposed by the Bundaberg Sugar Company at its Fairymead Mill. A major objective was to produce polylactic acid from raw sugar. The process would also produce for export caustic soda and gypsum, and import sulfuric acid (147,000 tpa but not reported in the projections table). Raw sugar would decline as a consequence of switching to polylactic production¹.

Discussions with the Bundaberg Sugar Company indicated that the company had abandoned plans to establish this plant. Also, since the projections were prepared, Fairymead Mill has been closed.

¹ It is understood that the Belgian parent company owns polylactic acid plants in Europe and China and was investigating developing an additional plant in Australia at that time.

Raw sugar exports are expected to continue in line with historical trends, but possibly at levels below an average of 500,000 tonnes per annum, given the growing competition for sugar cane land from other crops in the region (particularly perennial crops such as macadamia) and urban encroachment. Production on a year-on-year basis would, nevertheless vary because of seasonal factors.

1.4.2 Horticultural products

In the period 2000 to 2007, there were no exports of horticultural produce through the port. Most exportable horticultural produce is transported to Brisbane for either air or sea freight to overseas markets. Sea freight is generally in refrigerated containers (reefers). There is very little scope to export horticultural products through Bundaberg Port because the port would have very limited capability to attract container vessels. There appear to be no major changes which would significantly alter this situation.

1.4.3 Hardwood chipwood

The research indicated that most of the hardwood chipwood exports would be generated by private hardwood plantation companies. The sawmills in the area only generate small volumes from offcuts, which are mainly sold locally. In addition, some offcuts are not processed and disposed as waste².

The research indicated that the main private plantation companies establishing hardwood timbers in the Bundaberg region have been Great Southern Limited and ITC Limited. They have been establishing plantations primarily in the Miriam Vale area as well as areas closer to Gladstone. Our discussions indicated that each company had concluded that productivity of these plantations was too low to warrant further planting, and both companies have ceased establishing new tree lots. Also, the woodchips produced from existing plantations would more likely be exported through Gladstone. Unless there are companies proposing to plant large areas in the hinterland of the port, the forecasts will not be realized.

1.4.4 Chicory

This project had been mooted for a number of years by another Belgian company. Areas near Childers and closer to Maryborough had been investigated for broadacre production. The chicory project did not proceed.

1.4.5 Industrial hemp

Agri Fibre Industries Pty Ltd have been conducting research and field trials in the Bundaberg district for a number years, with some assistance from State and Commonwealth government funding at different times. Fibre and hemp seed oil production have been trialed. At the time of discussions with representatives of the company, there was no certainty as to whether the project would continue. However, it was indicated that if hemp production were to be commercialized in the district that the company would focus on specific niche products based on processed hemp seed. The volumes would be very low.

² In past years softwood chipwood was processed at Owanilla and railed to Gladstone for export. This operation has ceased as the softwood is now used for the production of particle board in the Maryborough region.

1.4.6 Dredged river sands

The production of dredged sand for export would depend on port dredging programs and policy regarding the use of spoil. There does not appear to be a committed program for exporting sand to other centres in Australia or overseas.

1.4.7 Freshwater sands

Discussions were conducted with the Department of Natural Resources & Water in Bundaberg. It would appear that the rivers in the catchment have insufficient recharge capability to support the large volumes assumed in the forecasts. Sand is extracted for local uses. No sand is exported. Exports of 1 million tonnes per annum can be largely discounted, based on information provided by the Department.

1.4.8 Silica sands

Silica sand is mined by Sunstate Sands Pty Ltd at Coonarr. The company has a licence to mine 100,000 tonnes per annum, and it is currently operating at about 60-70% capacity. It sells sand mainly in south east Queensland.

The company intends to export sand, but has been unable to penetrate or create export markets for its sand. The company has investigated exporting approximately 40,000 tonnes per annum as a single shipment, but this will depend on negotiating overseas sales contracts. The estimate of 200,000 tonnes per annum in the forecasts should be significantly reduced, as it exceeds the licence extraction rate of 100,000 tonnes per annum, and only a portion of the sand production would be exported.

1.4.9 Ilminite, Plagioclase/Feldspar, Apatite

The only relatively advanced project within the Bundaberg Port catchment which could produce these products is the Queensland Industrial Minerals Ltd Wateranga Project near Biggenden. At this stage, the company has not committed to mining the resource and a mining lease has not been granted. Projections would need to be based on a development proposal once a mining lease or a mining development lease has been granted. A major shareholder indicated there may be scope to export about 200,000 tonnes per annum through the port. However, some products such as plagioclase might not be exported, but sold in Australia. The company does not intend at this stage to transport product to the port by rail. It would prefer to truck product to the port either directly from the mine or from an offtake-point serviced by a slurry pipeline.

1.4.10 Other mining projects

The Burnett region is prospective for minerals. The Department of Mines and Energy has reported widespread exploration for coking coal, gold, base metals, industrial minerals and other minerals in the hinterland of Bundaberg Port. However, most of the more advanced and operating projects are located further to the north around Monto and are oriented to Gladstone Port. Some others could also export through Gladstone, because of the superior infrastructure for handling bulk materials and also client preferences for using Gladstone Port.

Exploration is being conducted for coking coal by Northern Energy Corporation Ltd (NEC), to the north of Maryborough, and Booyan Coal Pty Ltd, immediately to the north of Bundaberg. If

sufficient high volumes of good coking coal are discovered, each project could produce bulk exports.

NEC is investigating alternative transport methods including possible barge transport to either Bundaberg Port or Gladstone Port. Booyan Coal would prefer to export through Bundaberg at this stage, as the expected extraction volumes might not support the high capital costs of constructing rail loading facilities on the main North Coast line. This may also apply to the NEC project.

Until specific development proposals are supported by a mining lease or a mineral development lease it is not possible to factor in production or exports through Bundaberg Port³ with any certainty.

1.5 Analysis of mode of transport

Primary research for this study has not revealed any demand for the use of rail to transport product to or from Bundaberg Port. The mining projects in planning would either truck (or possibly barge in the case of NEC) product to Bundaberg Port or rail larger annual tonnages to Gladstone Port. Raw sugar is generally trucked to port in Queensland. It is unlikely that there would be a significant modal shift to rail in the case of Bundaberg Port.

1.6 Conclusion

Forecasts of a substantial uplift in trade through the Port of Bundaberg would be highly speculative at this stage. There are no new committed trades which can be included in the forecasts, indicating that the status quo might be maintained for some years.

Until specific proposals are developed by mining companies in the hinterland –specifically from Queensland Industrial Minerals Limited, Northern Energy Coal Limited and Booyan Coal Pty Ltd, it will not be possible develop firm forecasts of new bulk trades. Other trades including polylactic acid, caustic soda, gypsum, horticultural products, chicory, industrial hemp, and freshwater sands should be largely discounted at this stage.

The research did not identify any demand to transport product to or from Bundaberg Port by rail. The need for a rail link to the port could not be economically justified until substantial rail-freight trades are identified.

³ Both companies would weigh up the benefits and costs of exporting through Bundaberg and Gladstone ports. There are major benefits in using Gladstone Port if sufficient coal can be mined annually. Japanese steel mill clients, for example, prefer to ship coking coal in large multi-hatch vessels. This offers more scope to select a cross-section of coal types for blending. The coal can be blended when it is offloaded in Japan. The use of smaller vessels limits this capacity. However, smaller vessels, such as the handymax (approximately 45,000 DWT) appear to be more suited for the Indian market, and could potentially service coal companies at Bundaberg Port.

2 REFERENCES

Abnett Consulting (2003) *Potential Sources of Exports via the Port of Bundaberg*, prepared for GHD Pty Ltd and reported as an appendix in GHD (2003).

Bundaberg Port Authority (2000) *Bundaberg Port Dredging Works: Initial Advice Statement*, for S 29A *State Development and Public Works Act* Impact Assessment Study

GHD (2003) *Feasibility Study for the Consideration of Needs and Options for Future Rail Access to the Port of Bundaberg*, prepared for Queensland Transport, Bundaberg City Council, Burnett Shire Council, Bundaberg Port Authority, Queensland Department of Main Roads

Queensland Transport (2007) *Trade Statistics for Queensland Ports*

Bundaberg Rail Link Study
Economic Analysis - Assessment
of agricultural impacts

September 2008



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Bundaberg Rail Link Study

Economic Analysis - Assessment of agricultural impacts

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1 INTRODUCTION

Economic Associates has been commissioned by GHD to undertake economic analysis for the Bundaberg Port Rail Link Study. This report relates to the third deliverable, being an assessment of the agricultural impacts of constructing rail infrastructure and reserving an easement from the North Coast Line to a port facility near the mouth of Burnett River.

1.1 Rail alignment

An indicative rail alignment for the proposed railway was provided by GHD. It was advised that the most likely option would be to construct a railway linking to a new port facility on the northern side of the Burnett River in close proximity to the Port of Bundaberg. The existing port is located on the southern side of Burnett River. The easement for the rail alignment would be approximately 14.5km in length and 50m wide, giving a land impact of approximately 72.6ha. This area does not include any adjacent land which might be withdrawn from productive use due to severance of allotments. Based on the alignment shown, the easement would traverse about 23 allotments, with some sections on the boundaries of other allotments. A map showing the indicative alignment overlaid on cadastral boundaries is provided in Figure 1.

Figure 1: Indicative alignment for proposed Bundaberg Port rail link



1.2 Agricultural activities

Research was undertaken to determine the types of agricultural activities occurring along the indicative rail alignment. Information was obtained from Bundaberg Sugar Company, the Department of Primary Industries and Fisheries (DPI&F) – Kalkie Research Station and Brisbane Office, and BSES Ltd – Bundaberg Office to estimate areas by crop type which would be reserved for the rail easement. Bundaberg Sugar Company provided sugar cane farm maps for the area and advised on the type of rotation with other crops and areas that are being converted from sugar cane production to other crops. The estimated agricultural areas within the 50m alignment are shown in Table 1. The properties impacted are identified in Table 2.

Table 1: Estimated agricultural and other areas in easement

Indicator cropping:	Area (ha)	%
Sugar cane/fallow	31.6	43.5%
Sugar cane/Sweet potato	2.6	3.6%
Sugar cane/Soybean	2.1	2.9%
Sweet potato	4.2	5.8%
Macadamia*	9.5	13.0%
Grazing	11.6	15.9%
Lifestyle	2.1	2.9%
Vacant	8.9	12.3%
Total	72.6	100%

* Approx 7.4 ha being planted to macadamia, remainder established
 Source: Economic Associates research

About 85% of the land is used for agriculture. The remaining land comprises some small lifestyle blocks and vacant land owned by the Port of Bundaberg and the State of Queensland. The main crop is sugar cane. Some 31.6ha are grown as a mono crop with fallow periods prior to planting new sugar cane crops. Some of this land is located in low lying wet areas not well suited to other cash crops. Approximately 2.6ha are grown in rotation with small crops (with sweet potato being the main rotation crop). A further 2.1ha are grown in rotation with soybean. The main small crop in this area is sweet potato which can be grown throughout the year. There are approximately 4.2ha of dedicated small cropping land which would be impacted. The indicative alignment would also pass through macadamia plantations located to the west of Moore Park Road. This would include two properties where macadamia trees are being planted or recently established and a third property where trees have been established for some time. The alignment would also pass through a flat sandy, partially vegetated area which is generally not suitable for cropping. Currently, cattle are grazed as a means of controlling weed and vegetation growth. There is also a sand mine operating in this grazing area which is traversed by the indicative alignment.

The area of the easement represents about 3% of the allotments directly impacted. All allotments, with the exception of two small allotments, would lose less than 10% of their land areas to the easement. The remaining two allotments have a combined area of approximately 17ha and would lose about 34% of their land to the easement.

Table 2: Properties potentially impacted by indicative railway alignment and agricultural activities of rural properties

Lot	RP	Tenure	Owners	Lot area (ha)	Easement area (ha)	%	Type of activity	
1	3	RP847919	FH	Giuseppe & Victor Gerard & Mary Anne Rizzo	26.0	2.1	8.1%	Sugar cane
2	5	SP181209	FH	Eric Max & Yolanda Millar	54.7	1.6	2.9%	Fallow to macadamia
3	4	SP177621	FH	New Line Investments Pty Ltd	100.1	5.8	5.8%	Fallow to macadamia
4	1	RP29332	FH	Donald Alexander Hamilton & Jill Elizabeth Crawford	31.4	2.1	6.7%	Macadamia
5	2	RP204884	FH	David Keith Fisher & Bridget Maree Ramalli	66.4	4.2	6.3%	Small crops
6	11	SP205453	FH	Natara Pty Ltd	125.1	2.6	2.1%	Sugar cane/small crops
7	7	RP22199	FH	Amaryllys Holding Co Pty Ltd	20.5	1.1	5.1%	Sugar cane/soybean
8	2	RP79524	FH	Amaryllys Holding Co Pty Ltd	14.7	1.1	7.2%	Sugar cane/soybean
9	2	RP904989	FH	Austral Masonry (QLD) Pty Ltd	15.2	0.0	0.0%	Small crops
10	1	RP156172	FH	Bundaberg Sugar Ltd	1,038.5	11.6	1.1%	Grazing cattle
11	3	CK3584	FH	Bundaberg Sugar Ltd	522.5	11.6	2.2%	Sugarcane
12	1	RP83073	FH	Bundaberg Sugar Ltd	18.4	2.1	11.4%	Sugarcane
13	10	RP41027	FH	Waveway Pty Ltd as TTE	10.6	1.1	9.9%	Not farmed
14	2	RP83073	FH	Lesley Florence & Rodney John Jacobsen	2.8	0.0	0.0%	Not farmed
15	11	RP41027	FH	Waveway Pty Ltd as TTE	11.2	1.1	9.4%	Not farmed
16	1	RP90153	FH	Geoffrey Allan & Margaret Elizabeth Taylor	12.8	0.5	4.1%	Sugar cane
17	2	RP90153	FH	Justine Kate & Tynan Jacobsen	4.8	1.6	32.7%	Sugar cane
18	5	RP41027	FH	Bundaberg Sugar Ltd	12.1	4.2	34.8%	Sugar cane
19	25	RP41027	FH	Bundaberg Sugar Ltd	57.1	1.6	2.8%	Sugar cane
20	2	RP141051	FH	Bundaberg Sugar Ltd	34.1	2.6	7.7%	Sugar cane
21	74	C371027	SL	Bundaberg Sugar Ltd	96.5	5.3	5.5%	Sugar cane
22	23	SP171448	FH	Bundaberg Port Authority	58.9	5.8	9.8%	Vacant
23	7	USL38873	SL	The State of Queensland (Rep by the Dept NR&W)	40.1	3.2	7.9%	Vacant
Total					2,374.5	72.6	3.1%	

Source: Economic Associates research

1.3 Potential economic loss of agricultural production

Estimates of the potential loss of agricultural production within the indicative rail easement are provided below. The total economic value of agricultural production within the indicative easement is estimated to be approximately \$121,000 per annum, comprising production from sugar cane (17.3%), sugar cane with rotational cash crops (14.6%), small crops (30.1%), macadamia plantations (36.1%) and cattle grazing (1.9%). This excludes potential additional losses that could be caused by severance. This may occur due to problems relating to paddock access, and losses in farming efficiency, including interaction with the cane railway network. In some cases, the remaining land areas might be too small to efficiently farm. This may apply to the two allotments which would lose about 34% of their land area.

Table 3: Potential annual economic loss of agricultural production

Indicator cropping:	Area ha	GM/ha/pa	Total GM/pa	%
Sugar cane/fallow ^a	31.6	\$660	\$20,842	17.3%
Sugar cane/Sweet potato ^b	2.6	\$6,088	\$16,021	13.3%
Sugar cane/Soybean ^c	2.1	\$763	\$1,606	1.3%
Sweet potato ^d	4.2	\$8,644	\$36,396	30.1%
Macadamia ^e	9.5	\$4,600	\$43,579	36.1%
Cattle grazing ^f	11.6	\$200	\$2,316	1.9%
Lifestyle	2.1	\$0	\$0	-
Vacant	8.9	\$0	\$0	-
Total	72.6		\$120,760	100%

Potential losses relate to existing pattern of agricultural use within the indicative easement.
GM: gross margin (Income less variable costs of production)

Assumptions

- a Sugar cane/fallow 5 year cropping cycle. Average sugar price of \$350/t and CCS 13.8. Average yield of 110/t/ha for autumn planted cane in plant year, and 80/t/ha in ratoons 1 to 4. Gross margins: \$546/ha in plant year, and \$688/ha in ratoon years. Source: Bundaberg Sugar Company pers comm
- b Sugar cane/sweet potato 6 year cropping cycle. Sweet potato crop in rotation year, followed by spring planting of cane harvested in the following year, then 4 ratoons. Sweet potato assumptions in (d) below. Average cane yield in Year 2 of 120/t ha and gross margin of \$780/ha. Ratoon assumptions as above. Source: Bundaberg Sugar Company pers comm. and DPI&F (Sweet Potato GM model unpublished with costs adjusted for inflation).
- c Sugar cane/Soybean 6 year cropping cycle. Soybean crop in rotation year, followed by spring planting of cane harvested in the following year, then 4 ratoons. Soybean average yield of 3.7t/ha. Prices range from \$400/t - \$800/t. Mid range estimate of gross margin for soybean of \$1,045/ha. Assumptions for cane as above. Source: Bundaberg Sugar Company pers comm. and DPI&F (FEAT Model)
- d Sweet potato Average yield of 1,200 cartons/ha. Average price \$25/carton all grades. Average costs of \$21,356/ha, and average gross margin of \$8,644/ha. Source: DPI&F (Sweet Potato GM model unpublished with costs adjusted for inflation).
- e Macadamia Assume a cross section of trees ranging in age from 7 to 15 years, with average yields ranging from 2.5t/ha to 3.5t/ha, respectively. Average price per kg of \$2.90/kg, giving an income in the range of \$7,250/ha to \$10,150/ha, respectively. Costs per ha of \$3,300/ha to \$4,900/ha respectively. Mid point gross margin of \$4,600/ha. Source: DPI&F (2006), (2008); NSW Dept of Primary Industries (2004)
- f Cattle grazing Based on growing out steers 240-460kg in 12 months with an estimated gross margin averaging about \$200/ha. Source: NSW Dept of Primary Industries (2008)

1.4 Summary of main findings

Primary research was undertaken to assess the potential agricultural impact of constructing a rail easement from the North Coast Line to a proposed port facility on the northern side of the Burnett River, near the Port of Bundaberg (on the southern side of the river).

The indicative rail alignment was superimposed on a cadastral map of the area to identify the properties which would be directly impacted. Further research was undertaken to determine the types of agricultural activities occurring on these allotments.

About 73ha of land would be taken up by the easement, of which 85% is dedicated to agricultural production. About 50% of the easement land is cultivated for sugar cane, including 7% where sugar cane is grown in conjunction with rotational cash crops. The other agricultural areas include: small cropping (6%), macadamia plantations (13%), and cattle grazing (16%).

The potential value of lost agricultural production in the easement area was estimated to be approximately \$121,000 per annum. The main losses would relate to the production of sugar cane (17.3%), sugar cane with rotational cash crops (14.6%), small crops (30.1%), macadamia plantations (36.1%) and cattle grazing (1.9%). Additional losses could occur as a result of severance, but more detailed research would be required once the easement is finalised to determine actual losses.

1.5 References

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Bundaberg Rail Link Study
Regional economic overview

September 2008



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Bundaberg Rail Link Study

Regional economic overview

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1 REGIONAL ECONOMIC OVERVIEW

1.1 Introduction

The proposed Bundaberg Rail Link project is located in the Bundaberg Regional Council Area (the Bundaberg RCA). The local economy is also integrated with its wider regional economy in the Wide Bay-Burnett Statistical Division (the WBB region or the region). This section provides an economic overview, outlining its socio-economic profile, demographic, employment and business activity, and major projects within the Bundaberg RCA and its regional hinterland.

1.2 Socio-Economic Profile

A socio-economic profile of the Bundaberg RCA is provided in Table 1. Statistics are drawn from the 2006 Census of Population and Housing, and are compared with those for the larger WBB region and Queensland. Key observations are as follows:

- In 2006, the residential population of the Bundaberg RCA was 85,106, or some 32.3% of the WBB region population. Between 2001 and 2006 its population growth rate rose to 1.8% per annum from 1% per annum in the previous five year period. The population growth rate rose at the regional level as well from 0.8% per annum to 2.2% per annum. The comparative population growth rates for Queensland during the same periods were 1.6% per annum, and 2.1% per annum, respectively.
- The average age of residents in the Bundaberg RCA and WBB region rose during the 1996 to 2006 period. In 2006, it was approximately 41 years across the region, compared to a state average of 38 years.
- The changing age structure in the Bundaberg RCA and in the wider region is reflected in a lower proportion of 'couple' families (2 adult partners) with children and a higher proportion of couple families without children than at the state level. The average household size declined across the three jurisdictions as a consequence of demographic changes, but only to a small degree between 1996 and 2006. Household size state-wide was marginally higher than in the Bundaberg RCA and in the region in 2006.
- A comparison of household finances shows that household and family incomes are lower in the Bundaberg RCA and the region, in comparison with state averages. However, the impact of lower incomes has been partially offset by lower rents, and lower loan repayments. A significantly higher proportion of households in the Bundaberg RCA and the region have no outstanding debt on their homes.
- Labour market statistics show that the unemployment rate has declined significantly in the Bundaberg RCA and the region, but in 2006 remained higher than the state average. A lower proportion of the employed have been in full-time employment than in Queensland, while part time employment has been rising relatively strongly. The Bundaberg RCA and the region have had much lower labour participation rates than the state average.
- Generally, with the exception of post-school certificates, a lower proportion of the adult population in the Bundaberg RCA and the region have post school qualifications than in Queensland. There are substantially lower proportions for non-school qualifications, bachelor and higher degrees, and diplomas.
- The labour force profile shows that the Bundaberg RCA and the region have a markedly lower proportion of professionals, and a much higher proportion of labourers in the labour

force than in the Queensland labour force. Comparisons for other occupational groups show similar proportions across the three jurisdictions.

- In the Bundaberg RCA and the region, the 'agriculture, forestry and fishing', 'retail trade' and 'health care and social assistance' sectors were the three largest employment sectors, each accounting for more than 10% of total employment in both economies. By contrast, the Queensland economy has had a much lower proportion of its labour force employed in the 'agriculture, forestry and fishing' sector. The table also shows trends in the relative importance of employment by sector. Generally, it has declined for the 'agriculture, forestry and fishing' and 'manufacturing' sectors, while showing a consistent upward trend for the 'retail trade' and 'health care and social assistance' sectors.
- Overall, most of the differences between the profiles of the Bundaberg RCA and the WBB region are relatively small, but there are some strong differences between the profiles of these economies and the Queensland economy. The Bundaberg RCA, to a lesser degree, the regional economy have higher proportions of the labour force in the 'agriculture, forestry and fishing' sector. Unemployment is higher and incomes are lower than in Queensland. There are lower proportions of professionals and higher proportions of labourers in the labour force than in Queensland, and education qualifications are generally lower. However, comparatively more households in the Bundaberg RCA and the region fully own their homes, and households pay less rent than the state averages.

Table 1: Socio-Economic Profile: Bundaberg RCA, WBB region and Queensland, 1996-2006

Socio-economic Indicators	Bundaberg RCA			WBB region			Queensland		
	1996	2001	2006	1996	2001	2006	1996	2001	2006
Population	74,134	77,726	85,106	226,580	236,247	263,676	3,368,850	3,655,139	4,046,879
Ave. Ann. Population Growth	-	1.0%	1.8%	-	0.8%	2.2%	-	1.6%	2.1%
Age Distribution									
0-14 years	23.1%	21.9%	20.4%	22.9%	21.5%	20.3%	21.9%	21.3%	20.4%
15-24 years	12.1%	11.6%	11.3%	11.7%	11.0%	10.6%	14.8%	13.8%	13.6%
25-34 years	12.9%	11.0%	9.5%	12.4%	10.8%	9.5%	15.2%	14.2%	13.3%
35-44 years	14.4%	14.0%	13.1%	14.3%	13.9%	12.9%	15.0%	14.9%	14.6%
45-54 years	12.9%	13.5%	13.8%	13.0%	13.9%	14.0%	12.7%	13.7%	13.7%
55-64 years	10.3%	12.0%	13.8%	10.8%	12.6%	14.6%	8.4%	9.7%	11.4%
65+ years	14.2%	16.0%	18.0%	14.9%	16.3%	18.1%	12.0%	12.4%	13.0%
Average age (years)	37.0	38.8	40.7	37.6	39.4	41.0	35.5	36.6	37.6
Household Type (% of families)									
Couple families with children	33.5%	28.7%	25.9%	32.2%	27.3%	25.3%	33.7%	30.7%	29.4%
Couple families without children	29.1%	29.5%	31.0%	29.1%	29.8%	31.4%	25.0%	25.3%	26.0%
Single parent family	9.5%	10.7%	11.1%	9.1%	10.3%	10.5%	9.9%	10.8%	10.5%
Lone person households	20.1%	22.3%	21.6%	20.2%	22.3%	22.1%	20.6%	21.8%	21.0%
Average household size	2.7	2.6	2.5	2.7	2.5	2.5	2.8	2.6	2.6
Household Finances									
% of households fully owning home	46.7%	43.8%	39.4%	47.6%	45.3%	40.6%	38.7%	36.6%	30.4%
% of households purchasing home	22.3%	23.5%	27.3%	21.4%	22.0%	27.0%	24.8%	25.8%	31.4%
% of households renting	26.6%	27.4%	25.7%	26.0%	26.6%	25.1%	31.8%	31.6%	30.0%
Average weekly household income (rental h/holds only)	\$512	\$575	\$769	\$518	\$600	\$779	\$634	\$757	\$1,029
Average weekly family income (all h/holds)	\$716	\$877	\$1,135	\$679	\$861	\$1,112	\$918	\$1,175	\$1,499
Average monthly housing loan repayment	\$687	\$746	\$884	\$685	\$742	\$1,086	\$870	\$977	\$1,475
Average weekly rent payment	\$109	\$120	\$168	\$104	\$117	\$166	\$130	\$154	\$218
Labour Market									
Full-time employment (% labour force)	55.8%	53.4%	55.7%	55.9%	54.1%	55.9%	61.2%	58.6%	61.4%
Part-time employment (% labour force)	24.5%	28.1%	30.0%	24.1%	27.5%	29.8%	24.2%	26.6%	27.7%
Total employment (% labour force)	84.8%	87.7%	92.1%	85.1%	88.4%	92.4%	90.4%	91.8%	95.3%
Unemployment rate (% labour force)	15.2%	12.3%	7.9%	14.9%	11.6%	7.6%	9.6%	8.2%	4.7%
Participation rate (% of population > 15 years)	54.4%	51.2%	50.9%	52.9%	50.6%	50.3%	60.7%	60.6%	61.1%

Socio-economic Indicators	Bundaberg RCA			WBB region			Queensland		
	1996	2001	2006	1996	2001	2006	1996	2001	2006
Qualifications									
% of persons with a non-school qualification	22.3%	25.8%	30.3%	22.1%	25.7%	30.9%	27.6%	32.3%	37.5%
% of persons with Bachelor or higher	4.6%	6.0%	7.3%	4.6%	5.8%	6.9%	8.6%	10.8%	13.1%
% of persons with Diploma	3.9%	3.8%	4.4%	4.2%	4.0%	4.9%	5.4%	5.5%	6.6%
% of persons with Certificate	13.9%	15.9%	18.6%	13.4%	15.8%	19.0%	13.6%	16.0%	17.8%
Occupation									
Upper White Collar									
Managers	16.0%	15.2%	13.5%	17.4%	16.5%	14.3%	13.3%	12.9%	12.4%
Professionals	11.9%	12.8%	13.2%	11.8%	12.2%	12.4%	15.3%	16.4%	17.2%
<i>Subtotal</i>	27.9%	28.0%	26.7%	29.1%	28.7%	26.8%	28.6%	29.3%	29.6%
Lower White Collar									
Community & Personal Service Workers	6.9%	8.4%	8.9%	7.5%	9.0%	9.6%	8.1%	8.9%	9.1%
Clerical and Admin Workers	12.0%	12.4%	12.2%	11.8%	11.7%	12.1%	15.3%	15.0%	14.8%
Sales Workers	10.2%	10.9%	10.9%	9.5%	10.1%	10.1%	10.2%	10.7%	10.3%
<i>Subtotal</i>	29.1%	31.7%	32.1%	28.8%	30.8%	31.8%	33.6%	34.7%	34.2%
Upper Blue Collar									
Technicians & Trades Workers	15.3%	13.7%	14.6%	14.9%	13.7%	15.0%	15.6%	14.7%	15.3%
<i>Subtotal</i>	15.3%	13.7%	14.6%	14.9%	13.7%	15.0%	15.6%	14.7%	15.3%
Lower Blue Collar									
Machinery Operators & Drivers	9.4%	8.6%	8.0%	9.1%	8.3%	8.0%	8.3%	7.8%	7.2%
Labourers	15.6%	15.9%	16.9%	15.3%	16.3%	16.6%	11.4%	11.5%	11.9%
<i>Subtotal</i>	25.0%	24.5%	24.8%	24.3%	24.7%	24.5%	19.7%	19.3%	19.1%

Socio-economic Indicators	Bundaberg RCA			WBB region			Queensland		
	1996	2001	2006	1996	2001	2006	1996	2001	2006
Employment by Industry (% of employees)									
Agriculture, forestry & fishing	14.4%	14.6%	11.3%	14.3%	14.2%	10.3%	5.2%	4.9%	3.4%
Mining	0.3%	0.3%	0.5%	0.9%	0.7%	1.0%	1.6%	1.2%	1.7%
Manufacturing	10.8%	11.1%	9.5%	10.3%	10.6%	9.8%	10.1%	10.5%	9.9%
Electricity, gas, water & waste services	0.7%	1.0%	1.0%	1.3%	1.3%	1.4%	0.9%	1.0%	1.0%
Construction	6.3%	5.5%	8.1%	6.4%	6.1%	8.9%	7.0%	6.9%	9.0%
Wholesale trade	4.7%	4.8%	3.7%	4.3%	4.4%	3.0%	5.3%	4.9%	3.9%
Retail trade	11.2%	12.8%	13.3%	10.9%	12.3%	12.6%	10.6%	11.5%	11.6%
Accommodation & food services	6.4%	6.3%	6.7%	6.6%	6.7%	7.0%	7.2%	7.4%	7.0%
Transport, postal & warehousing	3.7%	4.1%	3.6%	4.1%	4.3%	4.1%	5.1%	5.2%	5.1%
Information media & telecommunications	1.3%	1.1%	1.0%	1.5%	1.1%	1.0%	2.1%	1.9%	1.4%
Financial & insurance services	2.2%	1.9%	1.9%	2.0%	1.6%	1.6%	3.0%	2.8%	2.9%
Rental, hiring & real estate services	1.5%	1.4%	1.8%	1.7%	1.4%	1.7%	2.0%	2.0%	2.1%
Professional, scientific & technical services	4.9%	2.9%	3.1%	3.4%	2.6%	3.0%	5.5%	5.4%	5.6%
Administrative & support services	1.8%	2.3%	2.7%	1.7%	2.4%	2.6%	2.7%	3.2%	3.0%
Public administration & safety	4.7%	4.2%	5.1%	4.8%	4.8%	5.7%	6.3%	6.2%	6.7%
Education & training	7.6%	8.5%	8.0%	7.9%	8.3%	7.9%	7.5%	8.0%	7.6%
Health care & social assistance	9.3%	10.3%	11.6%	9.4%	10.1%	11.1%	9.2%	9.5%	10.2%
Arts & recreation services	0.8%	0.9%	0.8%	0.7%	0.9%	0.7%	1.5%	1.5%	1.4%
Other services	3.8%	3.6%	3.6%	3.8%	3.7%	3.6%	4.3%	4.0%	3.7%

Source: ABS 2006 Census of population and Housing

1.3 Population & Household Projections

Table 2 provides a comparison of population and household number projections. The resident population of the Bundaberg RCA is projected to increase from 89,814 in 2007 to 128,212 in 2026, or by an average annual growth rate of 1.9% per annum, which is equal to the projected regional population growth rate, but remains below the projected state average of 2.1% per annum.

Across the region, the household formation rate is expected to be marginally higher than the population growth rate (2.1% p.a. compared to 1.9% p.a.). In 2007, there were 34,886 households in the Bundaberg RCA, and their number is projected to rise to 51,698 in 2026. The state household formation rate is projected to be higher at 2.4% per annum.

The average household size is projected to show a continued decline across the three jurisdictions, leading to an average of about 2.5 persons per household in 2026.

Table 2: Population and Household Projections, 2006-2026

	2007	2011	2016	2021	2026	AAGR 2007-2026
<u>Population</u>						
Bundaberg RCA	89,814	97,403	106,949	117,258	128,212	1.9%
Wide Bay-Burnett SD	275,734	297,921	325,255	356,748	390,851	1.9%
Queensland	4,182,062	4,561,432	5,075,906	5,613,004	6,155,629	2.1%
<u>Households</u>						
Bundaberg RCA	34,886	38,129	42,194	46,627	51,698	2.1%
Wide Bay-Burnett SD	107,898	117,603	129,528	143,337	159,531	2.1%
Queensland	1,563,363	1,724,870	1,941,836	2,172,689	2,433,055	2.4%
<u>Average Household Size</u>						
Bundaberg RCA	2.57	2.55	2.53	2.51	2.48	-0.2%
Wide Bay-Burnett SD	2.56	2.53	2.51	2.49	2.45	-0.2%
Queensland	2.68	2.64	2.61	2.58	2.53	-0.3%

AAGR Average annual growth rate
Source: PIFU (2006)

1.4 Employment retention

Employment retention is a measure of the number of jobs retained within a region relative to the number of employed residents. For example, there would be a low employment retention rate when a majority of the employed residents work outside the region. The retention rate can exceed 100% when there is a net inflow of employees from other regions. The table below compares the retention rates for the Bundaberg RCA, the WBB region, and Queensland.

Employment retention for the Bundaberg RCA at the time of the 2006 Census was relatively self-contained at 87.9%, and most sectors had retention rates above 80%. The sectors with the highest rates of employment retention were 'financial & insurance services' (98.9%), 'health care & social assistance' (96.8%), 'rental, hiring & real estate services' (96.1%) and 'education & training' (95.1%). The mining industry was the only industry to record a retention rate significantly below a self-contained level, at 16.5%. This reflects the strong demand for labour in the coal fields in the Bowen Basin, and hard rock mining areas in north western Queensland, and parallels the experience in other coastal centres in Queensland.

As the geographic area increases in size, so normally does the retention rate. The overall retention rate for the WBB region is marginally higher than for the Bundaberg RCA. The retention rate is higher for mining in the WBB region, indicating there are more opportunities for mine workers in the region, but still relatively low in comparison with rates for other sectors. For Queensland, as expected, retention rates exceed 90% in all sectors.

Table 3: Employment retention by industry (%), Bundaberg RCA, WBB region and Queensland

	Bundaberg RCA	WBB region	Queensland
Agriculture, forestry and fishing	89.5%	91.2%	96.4%
Mining	16.5%	54.7%	94.4%
Manufacturing	92.9%	91.9%	95.9%
Electricity, gas, water and waste services	85.7%	92.6%	97.7%
Construction	63.7%	65.4%	93.9%
Wholesale trade	89.9%	90.7%	96.9%
Retail trade	94.9%	95.0%	96.6%
Accommodation and food services	93.1%	93.1%	95.5%
Transport, postal and warehousing	85.4%	82.9%	94.9%
Information media and telecommunications	86.7%	89.6%	97.9%
Financial and insurance services	98.9%	96.4%	98.4%
Rental, hiring and real estate services	96.1%	95.4%	98.5%
Professional, scientific and technical services	92.6%	89.7%	98.4%
Administrative and support services	78.5%	80.2%	95.3%
Public administration and safety	93.0%	94.7%	97.0%
Education and training	95.1%	96.9%	97.8%
Health care and social assistance	96.8%	95.0%	97.2%
Arts and recreation services	93.9%	90.5%	96.9%
Other services	93.4%	91.4%	97.5%
Total	87.9%	88.1%	95.2%

Source: 2006 Census of Population and Housing

1.5 Enterprise Activity

1.5.1 Number of Businesses

Statistics are provided for the number of businesses in the Bundaberg RCA in Table 4. In June 2007, there were 3,780 businesses recorded for the Bundaberg RCA. They were almost equally divided between proprietor only entities (non-employing businesses) and entities with employees (employing businesses).

The largest numbers of businesses were recorded for the 'property and business services', 'retail trade', 'construction', and agriculture, forestry and fishing' sectors. These sectors accounted for over 60% of the businesses in the Bundaberg RCA. The sectors where there were relatively high proportions of non-employing businesses (greater than 60%) were 'agriculture, forestry and fishing', 'mining', 'finance and insurance', and 'property and business services'.

Table 4: Number of Businesses, Bundaberg RCA, June 2007

Sector:	Number of businesses			Proportion of businesses		
	Non-employing	Employing	Total	Non-employing	Employing	Total
Agriculture Forestry and Fishing	276	180	456	60.5%	39.5%	100%
Mining	6	3	9	66.7%	33.3%	100%
Manufacturing	87	132	219	39.7%	60.3%	100%
Electricity Gas and Water Supply	0	0	0	n.a.	n.a.	100%
Construction	294	255	549	53.6%	46.4%	100%
Wholesale Trade	48	117	165	29.1%	70.9%	100%
Retail Trade	195	411	606	32.2%	67.8%	100%
Accommodation Cafes and Restaurants	30	108	138	21.7%	78.3%	100%
Transport and Storage	111	99	210	52.9%	47.1%	100%
Communication Services	9	24	33	27.3%	72.7%	100%
Finance and Insurance	141	60	201	70.1%	29.9%	100%
Property and Business Services	507	252	759	66.8%	33.2%	100%
Education	15	12	27	55.6%	44.4%	100%
Health and Community Services	66	138	204	32.4%	67.6%	100%
Cultural and Recreational Services	39	30	69	56.5%	43.5%	100%
Personal and other Services	54	81	135	40.0%	60.0%	100%
Total All Industries	1,878	1,902	3,780	49.7%	50.3%	100%

Source: ABS Cat No 8165.0

Table 5 provides a comparison across jurisdictions for the composition of businesses and the average number of employees per business by sector. The comparison shows that the same sectors account for the highest proportions of businesses in each economic area. In the WBB region, however, these sectors accounted for more than 80% of businesses in the region.

Table 5: Number of Businesses, Bundaberg RCA, WBB region and Queensland

	Number of Businesses			Average Number of Employees / Business		
	Bundaberg RCA	WBB region	QLD	Bundaberg RCA	WBB region	QLD
Agriculture Forestry and Fishing	12.1%	29.1%	12.1%	10.2	4.8	3.6
Mining	0.2%	0.3%	0.4%	0.8	1.9	9.3
Manufacturing	5.8%	4.9%	5.2%	14.1	9.2	9.9
Electricity Gas and Water Supply	0.0%	0.1%	0.1%	n.a.	0.7	13.1
Construction	14.5%	15.6%	17.6%	4.7	3.4	3.2
Wholesale Trade	4.4%	3.1%	3.9%	20.5	10.0	7.3
Retail Trade	16.0%	11.8%	10.9%	8.4	7.1	8.1
Accommodation Cafes and Restaurants	3.7%	3.4%	2.7%	15.7	11.0	16.3
Transport and Storage	5.6%	4.9%	5.9%	5.1	3.9	3.7
Communication Services	0.9%	1.2%	1.1%	2.7	2.9	2.4
Finance and Insurance	5.3%	3.4%	5.7%	1.5	1.5	2.3
Property and Business Services	20.1%	14.6%	24.2%	3.3	2.9	3.7
Education	0.7%	0.6%	0.8%	17.5	8.8	6.2
Health and Community Services	5.4%	3.1%	4.3%	5.1	4.8	6.7
Cultural and Recreational Services	1.8%	1.4%	2.2%	17.0	5.8	5.6
Personal and other Services	3.6%	2.5%	3.0%	3.3	2.5	4.2
Total All Industries (no.)	3,780	22,869	404,457	7.0	5.0	5.0

Source: ABS Cat No 8165.0

In 2007, there was an average of approximately 7.0 employees per business in the Bundaberg RCA, which was higher than the averages recorded for the region and Queensland

(approximately 5 employees per business). In the Bundaberg RCA, sectors where the average number of employees were at least twice the overall average were: 'manufacturing' (14.1); 'wholesale trade' (20.5); 'accommodation, cafes and restaurants' (15.7), 'education' (17.5), and 'cultural and recreational services' (17.0). The patterns differed in the other economic areas. Only the 'accommodation, cafes and restaurants' sector had relatively high average employment per business in the three areas.

1.5.2 Turnover of Registered Businesses

As shown in Table 6, at June 2007, the average turnover per business in the Bundaberg RCA was approximately \$1.1 million. Most businesses earned no more than \$500,000 per annum. There were, however, 6 businesses with turnover of more than \$50 million. There were only two sectors where the average turnover per business was more than twice the overall average: 'manufacturing' (\$5.3 million), and 'wholesale trade' (\$3.8 million).

Table 6: Turnover of Registered Businesses, Bundaberg RCA, June 2007

	\$0- \$100k	\$100k- \$500k	\$500k- \$2m	\$2m- \$10m	\$10m- \$50m	\$50m+	Average Turnover ('000)
Agriculture Forestry and Fishing	216	150	78	9	3	0	\$436.68
Mining	3	6	0	0	0	0	\$179.17
Manufacturing	75	72	39	24	6	3	\$5,290.92
Electricity Gas and Water Supply	0	0	0	0	0	0	n.a.
Construction	198	234	90	21	6	0	\$712.16
Wholesale Trade	45	45	42	24	6	3	\$3,772.95
Retail Trade	165	219	156	51	15	0	\$1,268.75
Accommodation Cafes and Restaurants	24	69	24	15	6	0	\$1,430.43
Transport and Storage	96	75	36	3	0	0	\$360.00
Communication Services	21	6	6	0	0	0	\$257.95
Finance and Insurance	105	48	30	9	9	0	\$1,080.78
Property and Business Services	378	261	90	27	3	0	\$489.62
Education	18	6	0	3	0	0	\$461.11
Health and Community Services	48	102	48	3	3	0	\$943.75
Cultural and Recreational Services	24	33	12	0	0	0	\$305.43
Personal and other Services	81	45	6	3	0	0	\$222.50
Total All Industries	1497	1371	657	192	57	6	\$1,129.18

Source: ABS Cat No 8165.0 Note: average turnover calculated using full ABS data set

Comparative statistics for business turnover are shown in Table 7. All economic areas recorded above average turnover per business in the 'manufacturing', 'retail trade', 'wholesale trade' and 'accommodation, cafes & restaurants' sectors. When compared with the WBB region and Queensland, turnover per business was relatively high for 'manufacturing' and 'wholesale trade' businesses in the Bundaberg RCA, but was lowest for businesses in the 'mining' and 'transport & storage' industries. In 2007, the Bundaberg RCA recorded a higher average turnover per business than in the WBB region, and a comparable average turnover to Queensland.

Table 7: Comparison of Average Turnover per Business ('000), June 2007

	Bundaberg RCA	WBB region	QLD
Agriculture Forestry and Fishing	\$436.68	\$100.79	\$477.91
Mining	\$179.17	\$570.83	\$7,992.51
Manufacturing	\$5,290.92	\$2,007.10	\$2,450.39
Electricity Gas and Water Supply	n.a.	\$217.19	\$10,583.88
Construction	\$712.16	\$586.15	\$802.56
Wholesale Trade	\$3,772.95	\$1,723.88	\$2,535.94
Retail Trade	\$1,268.75	\$1,222.89	\$1,382.73
Accommodation Cafes and Restaurants	\$1,430.43	\$778.50	\$1,316.77
Transport and Storage	\$360.00	\$395.92	\$853.13
Communication Services	\$257.95	\$188.43	\$238.89
Finance and Insurance	\$1,080.78	\$871.48	\$1,916.42
Property and Business Services	\$489.62	\$470.62	\$733.79
Education	\$461.11	\$292.26	\$567.74
Health and Community Services	\$943.75	\$520.10	\$725.32
Cultural and Recreational Services	\$305.43	\$206.37	\$757.48
Personal and other Services	\$222.50	\$184.67	\$277.18
Total All Industries	\$1,129.18	\$651.65	\$1,055.21

Source: ABS Cat No 8165.0

1.6 Developed and potential major Projects

1.6.1 Bundaberg Regional Council Area

Possible mine development

Booyan Coal Pty Ltd is exploring for coking coal on an exploration lease to the north of Bundaberg between Yandaran and Miara. The aim is to develop a small open cut coking coal mine for export. A mining lease has not been granted and its potential for development is not known.

Bundaberg Turtle Interpretive Centre

As part of Bundaberg City's plan for economic development, \$6.4 million has been committed for the development of a Turtle Interpretive Centre. This facility will support the nearby Mon Repos area, a large Loggerhead Turtle nesting site. There is currently debate about whether to locate the facility in the Bundaberg central business district or at the Mon Repos site.

Austcorp International's Coral Cove Village & Golf Resort

Coral Cove is a new master-planned ocean front residential development, comprising residential land and a golf course. It is located 12 km south east of Bundaberg. Austcorp have recently expanded the development to 249 hectares with up to 771 home sites and 70 resort villas and hotel units with a completed value of \$153 million.

1.6.2 Wide Bay-Burnett region

Paradise Dam

The 300,000 megalitre Paradise Dam was commissioned late in 2005. It is located on the Burnett River, approximately 20km north west of Biggenden and 80km south west of Bundaberg. The

dam has increased the capacity for surface water irrigation and urban and industrial water provision in the region. The dam is operated by SunWater.

Burnett Program of Actions

The Burnett Program of Actions is a series of eight environmental projects funded by the Queensland government to complement an environmental management program for the Paradise Dam on the Burnett River inland from Bundaberg. Stage 1 of the program directed \$1 million to research. Stage 2 is now underway, with an additional \$6 million to be spent on practical projects to benefit the entire catchment.

Possible mine development

There are two relatively important mining projects in the 'development pipeline'. Firstly, exploration for coking coal is being conducted by Northern Energy Corporation Ltd at Aldershot to the north of Maryborough. The company has indicated the possibility of producing approximately 200,000 tonnes per annum for export, for possible commencement toward the end of 2009. At the time of writing, a mining lease had not been granted and the company was continuing to evaluate production and transport options, as well as conducting further exploration.

Secondly, Queensland Industrial Minerals Pty Ltd has a project under evaluation for mining zircon, ilmenite and other industrial minerals at Wateranga, some 70km south-west of Bundaberg. If the mine is developed, the company indicates potential for the mine life being in excess of 45 years with operational employment at approximately 100 workers. At this stage, an EIS has not been completed which is a requirement in this case for granting a mining lease. Transport options have not been fully evaluated.

Urangan Boat Harbour:

The proposed redevelopment of the Urangan Boat Harbour was announced by the Queensland Government in April 2006. The harbour is located on the western side of the Great Sandy Strait, the waterway which runs between Fraser Island and the Queensland mainland, and forms the primary marine infrastructure for Hervey Bay.

The redevelopment will include:

- An expansion of the harbour to incorporate a 200-berth marina;
- An upgrade of Miller St to create a boulevard entrance to Urangan boat harbour;
- Enhanced public car parking;
- Creation of a green corridor with walking tracks along Charlton Esplanade that will connect the harbour with the foreshores and Urangan pier; and
- A boardwalk around the inner boat harbour, connecting the new development with existing facilities.

Wide Bay Business Park

The Wide Bay Business Park is located at Maryborough and consists of 50 allotments ranging in size from 1,000 to 10,000 square metres. The Park offers predominantly industrial land with a limited number of ancillary retail and commercial sites. Stage 1 and 2 are currently open, and are expected to attract a large number of engineering, manufacturing construction and transport industry businesses.

Mary River Harvesting Scheme

It is proposed to develop the Mary River Harvesting Scheme, which would water harvest from a point on the Mary River in the location of Coles Crossing. Water would be transferred to an enlarged Borumba Dam. Subsequently, it is proposed that water would be released from Borumba Dam to Yabba Creek, via a hydroelectricity plant. The project is still in its planning stage. A preliminary investigation was carried out in January 2007, which was followed by a cost benefit analysis, completed in September 2007.

Hervey Bay Airport Redevelopment & Adjacent Industrial Park

The Hervey Bay Airport Industrial Park is located adjacent to the redeveloped airport. The 40 ha estate is being developed by the Hervey Bay City Council in joint venture with Seashift Pty Ltd. It is the only industrial park in Queensland with direct access for air freight services, which allows for express logistical support to industry. The master planned estate is divided into seven precincts so business groups can be clustered together. Effluent water is available on site to be used for irrigation and could be upgraded to be used for some manufacturing purposes if there is demand.

Fraser Coast Marine Industrial Park

The Fraser Coast Marine Industrial Park is a joint initiative of the Maryborough City Council, the Queensland Government, and the private sector. The 200-hectare development has access to the Mary River. It provides facilities for the manufacture of boats and light ships, marine components, the repair of vessels and the provision of a broad range of marine services. Land is currently available for sale or lease for marine related industries, with lot sizes ranging from 2,000 square metres.

Maryborough Urban Renewal Project

The Maryborough Urban Renewal Project consists of of a number of major, integrated projects designed to link the traditional central business district with the Mary River and the heritage hub of Portside, the city's original port district. The key projects are:

- The Brolga to the Bridge Concept Plan, adopted by Maryborough City Council on July 17 2007. The program aims, in the medium to long term, to establish Maryborough's original port district as an iconic centrepiece for Maryborough and a major tourist destination for the Fraser Coast. The revitalised riverside area will also act as a catalyst for new commercial activity and a modern image for Maryborough. This concept plan will provide a blueprint and vision to guide the future development of the area with an overriding goal to unify the Brolga Theatre, the City Centre and Portside. The plan will explore ways to establish this connection through a network of outstanding streetscapes and public spaces, strategically integrated with commercial, residential, cultural and tourism development. It will also identify realistic and achievable residential, commercial and retail opportunities for that area and determine the most desirable form of development for the land between March Street and the Granville Bridge. It is anticipated that implementation of the Concept Plan will be over a 15 to 20 year period, dependent on developer demand.
- The second stage of the Maryborough CBD beautification is currently underway. Maryborough City Council has secured \$2.2 million from the State Government's Regional Centres Program to assist in this venture

- The Portside Passage is a project to link Maryborough's central business district with Portside and the Mary River Parklands. The passage includes a pedestrian walkway with a shaded courtyard and seating provided in a calm inner city space. The project also includes the re-energization of the Gatakers Warehouse to give Maryborough its first dedicated arts space.
- Ongoing residential development is occurring with current projects including inner-city medium density developments in the Portside precinct and approvals for residential developments on Royle St and in Baddow.

Maryborough Airport Master Plan

The Maryborough City Council has commissioned a Master Plan to establish an aviation business precinct and airpark accommodation precinct at the Maryborough Airport. This follows a Future Directions Study that identified several existing opportunities to attract increased aviation activity and create a distinctive and sustainable niche for Maryborough Airport activities. Opportunities have arisen due to urban encroachment at some other airfields in southern Queensland.

Key opportunities identified in the Future Directions Study were:

- The development of a maintenance cluster for regional and general aviation aircraft;
- The development of airpark accommodation at the airport;
- The development of a commercial business precinct at the Airport; and
- A private hangar precinct.

The Master Plan will focus on preparing a detailed plan of development for the aerodrome and aviation functions to expedite release of land for aviation development.

1.7 Summary

The Bundaberg RCA economy has relative strengths in agriculture and manufacturing (primarily through sugar cane milling), and is supported by private and public service sectors. It has a large number of small businesses. It does, however, have a small number of businesses whose annual turnover exceeds \$50 million. Its population growth rate has been rising and is projected to be sustained at about the current rate through to 2026. The population is ageing and household size is declining, which is broadly reflective of trends across Queensland.

The local economy is reasonably well self-contained for employment. The exception is mining where the majority of mine workers (whose usual place of residence is the Bundaberg RCA) work outside the region. As for many coastal centres in Queensland, the local economy is benefitting from strong mining demand for labour in the Bowen Basin and north west Queensland.

A survey of major projects in the development pipeline and recently completed reveals a range of projects aimed at expanding the existing economic base. These are largely urban and industrial initiatives to strengthen the local economies in the region. Completion of Paradise Dam also creates more water security for the region. These projects will assist in underwriting population and economic growth. Apart from some possible mining projects, there are no industrial projects which would substantially increase bulk freight movements through the region.

1.8 References

Australian Bureau of Statistics (2007) *Census of Population & Housing, 2006 Census Community Profile Series*, www.abs.gov.au

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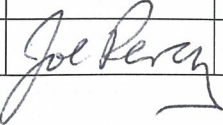

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