6 SOCIAL IMPACT ASSESSMENT FOR LNG FACILITY – GLADSTONE REGION COMMUNITIES

6.1 INTRODUCTION

This chapter describes the social impact assessment of the LNG Component, including the LNG Facility, associated infrastructure and activities. The chapter outlines the Project activities and existing social conditions in the Gladstone region, then assesses the impacts of Project activities on social conditions, and outlines mitigation and management strategies to minimise impacts and maximise benefits.

- Project Activities with Relevance to Social Impacts

6.1.1 Scope of Project Activity

6.1.1.1 Project Construction

Elements of the Project which have particular relevance to the social environment include the following:

- construction activities and transport logistics required for a three-train LNG Facility and associated infrastructure
- the workforce and the extent to which the workforce can be recruited locally
- impacts of construction of the LNG Facility and Pipeline Component (including a water crossing of The Narrows) on the social environment in the Gladstone region
- the provision and location of workers' housing and transport arrangements including workers' accommodation camps
- construction and operation of the marine terminal and loading berth
- marine traffic for construction supply and worker transport between Curtis Island and Auckland Point.

6.1.1.2 Project Operations

Operations would begin with the commencement of commissioning of Train 1 in late 2013, followed around nine months by Train 2. Development of the operational workforce would commence at the end of 2011, building from 50 to almost 200 personnel over the 12-month period. The majority of the workforce would be sourced locally. However, some specialist expatriate staff may be required. Workers would be housed primarily in the Gladstone and Brisbane regions.

LNG would be exported mainly to Asia. Approximately 60 LNG ships will be required per train per year, for a total of some 120 ships per year after Train 2 is commissioned, and an estimated 180 ships per year after Train 3 is commissioned.

6.1.1.3 Associated Works

The Queensland Government, with other parties, may construct a bridge across The Narrows to the LNG precinct on Curtis Island. While marine transport from Auckland Point to Curtis Island is QGC's preferred conveyance for workers and construction materials, social impacts of the bridge (if it is constructed) as it pertains to the Project have been assessed.

Dredging of the harbour to provide shipping access for LNG ships is proposed to be conducted by the GPC as part of the Gladstone Port expansion. This is likely to occur at the same time as the LNG Facility construction. Dredging by the GPC is subject to a separate EIS. However, to achieve compliance with BG Group standards, QGC is required to identify the impacts of dependent projects, i.e. other activities which are integral to the Project proceeding. *Volume 6* has scoped the social and cultural impacts which may be examined in the GPC EIS, including dredging for access to the LNG precinct, dredging with existing approvals, and the GPC's strategic dredging program. The potential impacts of the GPC dredging workforce and impacts of dredging on harbour access are considered in this chapter.

6.1.1.4 Issues expressed in consultation

Issues identified in consultation with Gladstone region residents as a priority for examination included:

- potential impacts on housing affordability (*Section 6.3.3*)
- existing lack of capacity in health and community services *Volume 8, Chapter 6* (*Section 6.2.6)*
- impacts of construction workforces on community values, such as the quiet character of South End, and public safety *Volume 8, Chapter 6* (*Section 6.4.5*)
- potential impacts on recreational boating, sailing and safe harbour (*Section 6.3.7.1*)
- potential impacts on indigenous cultural heritage (*Volume 8, Chapters 7 and 9*)
- potential for cumulative impacts on environmental and social values from multiple projects on Curtis Island and in Gladstone (discussed in each of the impact sections)
- valuing of employment and economic growth provided by industry, but concern about cumulative impacts on health, environmental values and social infrastructure *Volume 8, Chapter 6* (*Section 6.3*)
- the draw on labour from other businesses and potential workforce shortages for local businesses as a result of major projects' labour draw (*Section 6.3.1* and *Chapter 10*).

6.2 SOCIAL CONDITIONS

6.2.1 Gladstone Communities

Gladstone is a regional city of approximately 32,000 people. In 2008, Gladstone City LGA merged with Calliope and Miriam Vale Shire LGAs to form the Gladstone Region LGA. Data for the three former LGAs have been combined to provide data for the new Gladstone Region LGA. The newly expanded Gladstone Region LGA had a population of around 56,000 people in 2007, which was forecast to increase to more than 88,000 people by 2026[1].

Figure 8.6.1 shows the Gladstone LGA including former LGA boundaries and Statistical Local Areas (SLA).

The Gladstone region has a diverse character. Gladstone itself is a residential port city, with the amenities of a regional centre, and a close connection to the marine environment of its harbour and Great Barrier Reef.

The former Calliope and Miriam Vale Shires include rural areas and in the latter case coastal townships, but enjoy proximity to Gladstone's services and amenities.

The region contains a variety of residential settings, including coastal urban suburbs, rural and rural-residential subdivisions, the city centre and island communities. The main urban centres in the Gladstone LGA are:

- Gladstone City, the largest urban centre, including the CBD
- Calliope, a significant local town centre for rural Gladstone
- Boyne Island/Tannum Sands, a coastal community immediately south of Gladstone
- Agnes Water, a town centre for the southern coastal part of the LGA
- Miriam Vale, a rural town centre, one hour's drive from Gladstone City.

Other smaller centres include the town of Mount Larcom and the village of Yarwun on the northern rural fringe of Gladstone, and the communities of Benaraby and Town of 1770.

The population size and density of Gladstone communities are outlined in *Table 8.6.1*

1 DIP (2008) Population forecasts for Queensland, Planning information and Forecasting Unit

Legend

- Towns
- Study Boundary
- Statistical Boundary
- Gladstone Local Government Area

Source Note:
ABS (Australian Bureau of Statistics) 2006

Projection: UTM MGA Zone 56
Datum: GDA 94

0 5 10 20 km

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QUEENSLAND CURTIS LNG
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Environmental Resources Management Australia Pty Ltd

Project	Queensland Curtis LNG Project		
Client	QGC - A BG Group business		
Drawn	JB	**Volume 8**	**Figure 8.6.1**
Approved	PM	File No: 0086165b_EIS_SIA_GIS001_F6.1	
Date	17.03.09	Revision 0	

Title **Gladstone Regional Council Area and Population Centres**

Disclaimer:
Maps and Figures contained in this Report may be based on Third Party Data, may not to be to scale and are intended as Guides only.
ERM does not warrant the accuracy of any such Maps and Figures.

Table 8.6.1 Estimated resident population by major urban centre/locality, Gladstone Regional Council: 2007

Urban centre/locality	Estimated resident population as at 30 June 2007	Area km^2	Population density per km^2
Gladstone	31,442	67.1	468.7
Tannum Sands	4,548	4.8	954.1
Boyne Island	4,061	6.8	595.6
Agnes Water	1,889	45.6	41.4
Calliope	1,791	4.1	433.5
Benaraby (L)	681	3.5	195.3
Miriam Vale (L)	385	3.7	103.5
Mount Larcom (L)	274	1.6	167.2
Seventeen Seventy (L)	56	6.6	8.5
Gladstone Regional Council	55,556	10,487.8	5.3

Source: Office of Economic and Statistical Research (2009) Queensland Regional Profiles Gladstone Regional Council at www.oesr.qld.gov.au

The Gladstone Harbour and the southern beaches are defining natural elements of the Gladstone region. Both have important recreational, scenic and commercial values. Built features which influence the region's social amenity include:

- the Gladstone CBD and associated community, commercial and civic infrastructure
- the Port of Gladstone, one of the largest ports on the eastern seaboard
- regional social infrastructure including a hospital, health services, schools and further education facilities
- local town centres as noted in the table above
- a well-connected road network and an electrified rail network, including linkages up the east coast of Queensland.

The following sections outline social conditions and values in the Gladstone region, including, where relevant, comparisons to broader regional indicators.

6.2.2 Social and Cultural Profile

Statistics discussed in this section are derived from the ABS Census of Population and Housing conducted 8 August 2006.

6.2.2.1 Population Size and Growth

The total population for Gladstone LGA in 2007 was estimated at 55,556 people. Gladstone SLA which represents the former Gladstone City LGA is the main urban centre in the region, with an estimated population of 31,867 people in 2007. Estimated population sizes for Gladstone LGA from 2001, 2006 and 2007 are shown below in *Table 8.6.2.*

Between 2001 and 2007, Gladstone SLA (the most urban SLA) experienced strong growth at 2.9 per cent, while Calliope Part A (including Calliope town) experienced growth of 3.8 per cent, well above all averages, and reflecting the attractiveness and affordability of these areas. The more southerly coastal area of Miriam Vale also experienced high growth at 3.5 per cent, in part due to affordability and a relaxed coastal lifestyle. Neighbouring Rockhampton experienced an average growth of 1.9 per cent.

Table 8.6.2 Gladstone LGA Population 2001 to 2007

Region	Estimated Population			Average Growth Rate (%) 2001 to 2007
	2001	2006	2007	
Calliope – Pt A SLA	12,269	14,650	15,302	3.8%
Calliope – Pt B SLA	2,785	2,888	2,864	0.5%
Gladstone SLA	26,831	31,028	31,867	2.9%
Miriam Vale SLA	4,484	5,408	5,523	3.5%
Gladstone LGA	46,369	53,974	55,556	3.1%
Rockhampton LGA	98,225	107,630	110,247	1.9%
Fitzroy SD	181,747	200,604	204,537	2.0%
Queensland	3,628,946	4,091,546	4,182,062	2.4%

Source: Australian Bureau of Statistics (2008a)[2], Australian Bureau of Statistics (2007a)[3], Australian Bureau of Statistics (2003)[4]

Between 2001 and 2007, the Gladstone LGA had average growth rate of 3.1 per cent, which is above the Queensland average and more than twice the Australian average. On a percentage basis, the Gladstone LGA is one of the fastest-growing regions in Queensland, ranking seventh in the state. Industrial construction and operation is a major driver for Gladstone's population growth. If Gladstone's population grew at the same rate (3.1 per cent) in 2008–09, the population would be approximately 59,000 people in 2009 and 61,000 in mid-2010.

As seen in *Figure 8.6.2* below, steady population growth is forecast in the Fitzroy region and in Gladstone in particular. The population of Gladstone LGA is expected to increase by an additional 34,324 people, with an average annual growth rate of 2.4 per cent, taking the total population to 88,265 people in 2026. Rockhampton is also expected to grow by 39,167 people, at an average annual growth rate of 1.4 per cent. Gladstone's population in 2006 was 51 per cent the size of Rockhampton's, whereas by 2026, Gladstone's population is expected to equate to 61 per cent of Rockhampton's population. These increases are strongly linked to the growth of planned future industrial development in the region.

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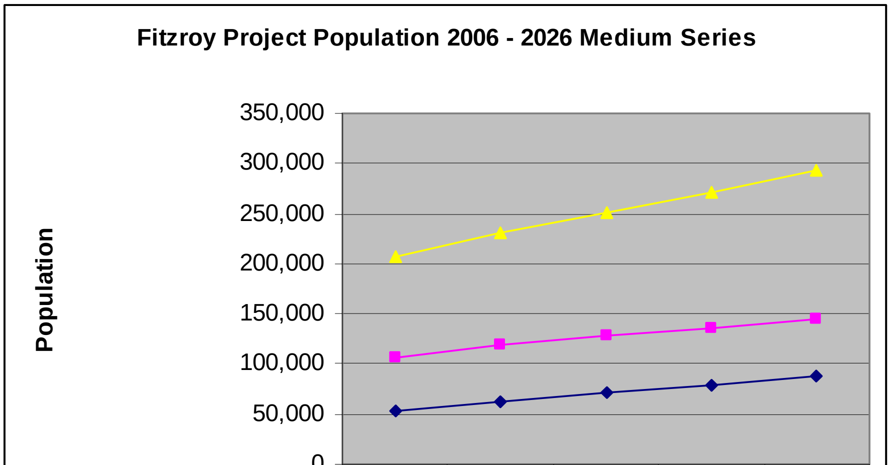
2 Australian Bureau of Statistics (2008a), *Regional Population Growth, Australia and New Zealand, 2006-07*. Cat. No. 3218.0, ABS, Canberra. Taken from Queensland Curtis LNG Baseline Communities Assessment prepared by AEC Group

3 Australian Bureau of Statistics (2007a), *2006 Census of Population and Housing.* Cat No. 2068.0, ABS, Canberra. Taken from Queensland Curtis LNG Baseline Communities Assessment prepared by AEC Group

4 Australian Bureau of Statistics (2003), *C-Data 2001, Second Release.* Australian Bureau of Statistics, Canberra, 2003. Taken from Queensland Curtis LNG Baseline Communities Assessment prepared by AEC Group

Figure 8.6.2 shows the medium series population projections for the Gladstone and Fitzroy subdivision.

Figure 8.6.2 Projected Population Growth Fitzroy Region – Medium Series



	2006	2011	2016	2021	2026
Gladstone LGA	53,941	63,120	70,927	79,102	88,265
Rockhampton LGA	105,517	119,422	127,771	136,069	144,684
Fitzroy SD	206,266	231,656	251,426	271,702	293,706

Source: Queensland Department of Infrastructure and Planning (December 2008)[5]

6.2.2.2 Gender and Age Profile

The proportion of males to females was slightly higher in the younger and older age cohorts in Gladstone LGA, but the proportions were almost equal in the 30 to 44 year cohorts. The proportion of males in the 45 to 64 year cohort was particularly high in comparison to the Queensland distribution for this cohort. The ratio of males to females in the 45 to 64 years cohort was much higher in the Miriam Vale and Calliope Part A SLAs. This partially reflects the higher availability of jobs where men traditionally predominate, such as construction and industrial operations.

5 Department of Infrastructure and Planning (2008), *Projected Resident Population, Queensland LGAs, 2006-2031*. Planning Information and Forecasting Unit, Department of Infrastructure and Planning, Brisbane. Taken from Queensland Curtis LNG Baseline Communities Assessment prepared by AEC Group

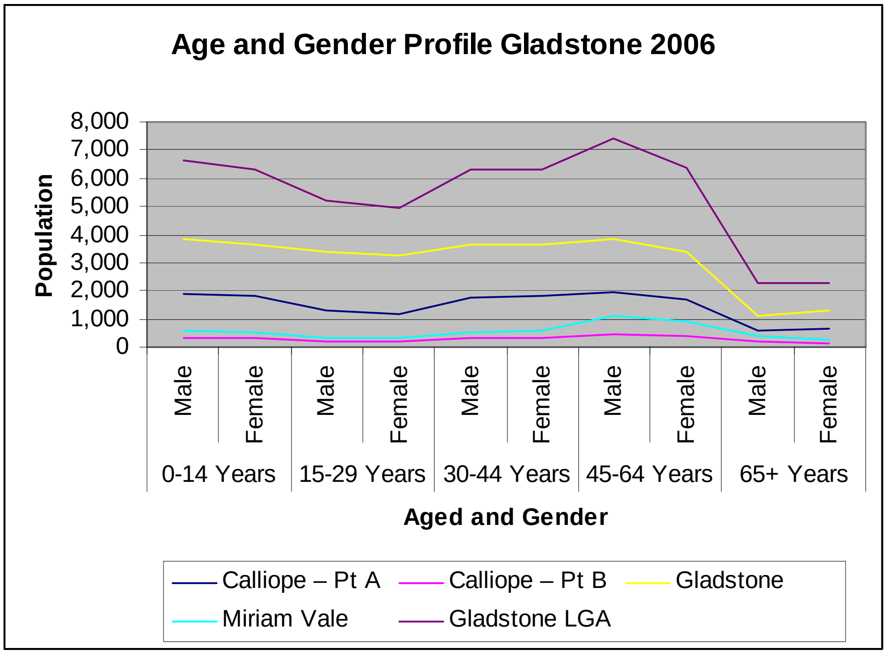
Table 8.6.3 Distribution by Age: 2006

SLA	0–14 Years		15–29 Years		30–44 Years		45–64 Years		65+ Years		Total		Total
	Male	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	
Calliope – Pt A	1,896	1,808	1,295	1,164	1,757	1,812	1,975	1,721	603	619	7,526	7,124	14,650
Calliope – Pt B	336	317	208	196	336	301	479	409	182	124	1,541	1,347	2,888
Gladstone	3,822	3,647	3,385	3,278	3,635	3,638	3,846	3,354	1,134	1,289	15,822	15,206	31,028
Miriam Vale	560	544	318	294	552	561	1,083	887	374	235	2,887	2,521	5,408
Gladstone LGA	6,614	6,316	5,206	4,932	6,280	6,312	7,383	6,371	2,293	2,267	27,776	26,198	53,974

Source: Australian Bureau of Statistics (2007a), AEC*group*

As shown in *Figure 8.6.3,* the age profile shows a distinct dip in the 15 to 29-year age group in the urban SLAs, reflecting the loss of young people to other regions for employment and tertiary study.

Figure 8.6.3 Age and Gender Profile: 2006



6.2.2.3 Household Type and Structure

Gladstone's average household size remained almost constant at 2.7 people per household in 2001 and 2006, slightly higher than the state average of 2.6 people per household. The table below presents the average household size in the Gladstone area.

Table 8.6.4 Average Household Size: 2006

Region	2001	2006	Change
Calliope – Pt A SLA	2.9	2.8	-0.1
Calliope – Pt B SLA	3.0	2.7	-0.3
Gladstone SLA	2.7	2.7	0.0
Miriam Vale SLA	2.5	2.3	-0.2
Gladstone LGA	2.7	2.7	-0.1
Rockhampton LGA	2.7	2.6	-0.1
Fitzroy SD	2.8	2.7	-0.1
Queensland	2.7	2.6	-0.1

Note: The change in average number of persons per household may not equal the difference between the 2001 and 2006 reported in the table due to rounding.

Source: Australian Bureau of Statistics (2007a), Australian Bureau of Statistics (2003), AEC*group*

In 2006, Gladstone LGA reported a higher proportion of "couple family with children" households than Queensland, at 37 per cent (compared to 32 per cent for Queensland). Similarly, the proportion of "couple family without children" households was also slightly higher at 30 per cent (compared to 29 per cent for Queensland).

Calliope Pt A SLA reported the highest proportion of "couple family with children" households, at 45 per cent. Gladstone and Calliope Part B SLAs also had higher percentages of "couple family with children" households than the state average while Miriam Vale had the highest proportion of "couple family without children" households, at 38 per cent.

The proportion of lone-person households in Gladstone was lower than the Queensland proportion of 22 per cent, accounting for 20 per cent of households. Miriam Vale SLA level had the highest proportion of lone-person households at 24 per cent, denoting the more aged population.

Household structure in 2006 was relatively consistent with state averages. Couple families with children represented just over a third of households. Couple families without children represented just under a third of households and lone-person households represented 20 per cent of households in Gladstone LGA.

Gladstone SLA has a higher proportion of single-parent households than other SLAs within the area.

6.2.2.4 Indigenous Population

At the time of the 2006 Census of Population and Housing there were 1,574 people in the Gladstone Region LGA who stated that they were of Aboriginal or Torres Strait Islander origin. These persons represented 3.1 per cent of the total population (compared with 3.3 per cent in Queensland). The indigenous population included:

- 1,330 persons of Aboriginal origin
- 92 persons of Torres Strait Islander origin
- 152 persons of both Aboriginal and Torres Strait Islander origin.

The majority resided in the Gladstone SLA, followed by Calliope. The percentage of indigenous people was less than those of adjacent communities, and slightly less than the Queensland average. The percentage increase of indigenous people between 2001 and 2006 was slightly less than that of the Gladstone population. A detailed analysis of indigenous community demography is in *Volume 8, Chapter 7.*

Table 8.6.5 Household Structure: 2006

Region	Couple Family with Children		Couple Family without Children		Single-parent Households		Lone-person Household		Group Household		Other		Total Households
Calliope – Pt A SLA	2,019	45%	1,361	30%	372	8%	672	15%	79	2%	19	0.5%	4,522
Calliope – Pt B SLA	326	35%	344	37%	70	7%	174	19%	18	2%	0	0%	932
Gladstone SLA	3,621	36%	2,715	27%	1,160	12%	2,098	21%	368	4%	86	1%	10,048
Miriam Vale SLA	475	25%	724	38%	172	9%	463	24%	46	2%	12	1%	1,892
Gladstone LGA	6,441	37%	5,144	30%	1,774	10%	3,407	20%	511	3%	117	1%	17,394
Rockhampton LGA	10,803	31%	10,165	29%	4,438	13%	8,404	24%	1,175	3%	406	1%	35,391
Fitzroy SD	22,069	34%	18,495	29%	7,101	11%	14,271	22%	2,121	3%	651	1%	64,708
Queensland	440,393	32%	398,117	29%	161,886	12%	312,288	22%	61,972	4%	16,976	1%	1,391,632

Note: Figures presented in this table may not equate to the percentage distributions presented in the section 3 due to rounding. Data is based on Dwelling Structure figures for 2006. Source: Australian Bureau of Statistics (2007a)

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Table 8.6.6 Indigenous Population Gladstone Region: 2006

Region	Estimated Population		Ave Growth Rate (%) 2001 to 2006
	2001	2006	
Calliope – Pt A SLA	259	328	4.8%
Calliope – Pt B SLA	99	75	-5.4%
Gladstone SLA	952	1,078	2.5%
Miriam Vale SLA	98	93	-1.0%
Gladstone LGA	1,408	1,574	2.3%
Rockhampton LGA	4,388	5,283	3.8%
Fitzroy SD	7,836	8,918	2.6%
Queensland	112,772	127,578	2.5%

6.2.2.5 Population Stability

Gladstone LGA recorded a slightly lower percentage of people living at the same address from 2001 to 2006 at 43 per cent than Queensland at 45 per cent. Banana Shire and Rockhampton LGAs both recorded higher proportions of people living at the same address from 2001 to 2006 than Queensland, at 51 per cent and 46 per cent respectively.

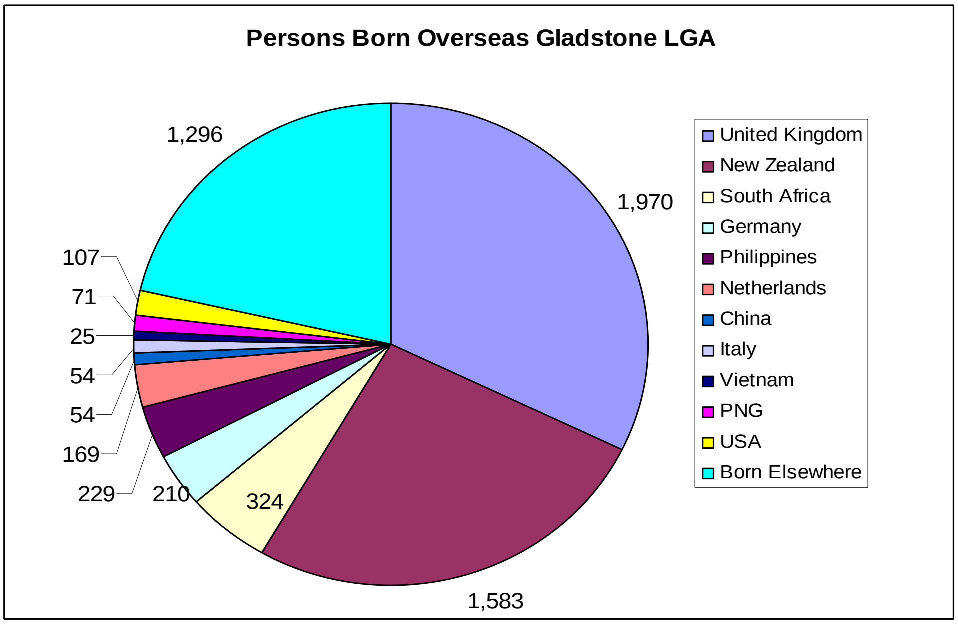
A further 19 per cent in Gladstone changed their address, but continued to live within the LGA, which compares favourably to the state average of 9 per cent and Australian average of 11 per cent. This characterises Gladstone as a relatively stable population, notwithstanding the mobility of young people.

6.2.2.6 Country of Origin

A high proportion of the Gladstone region population was born in Australia. In Gladstone, 9.6 per cent of people were born overseas, which is well below the Queensland average of 18 per cent and half the Australian average of 22 per cent. This indicates a fairly homogenous Australian-born population, and less cultural diversity than the average.

The United Kingdom and New Zealand accounted more than half the countries of origin for overseas-born residents. Other common countries of origin included South Africa, Germany, the Philippines, the Netherlands and China. Evidence from consultation indicates that an increasing number of cultural groups are becoming represented in Gladstone. A cultural diversity forum held in Gladstone (January 2009) noted recent migration from India, Iran, Indonesia, South Africa and the Philippines.

Figure 8.6.4 Person born overseas, Gladstone LGA



Source Australia Bureau of Statstics (2007a)[6]

At the time of the 2006 Census of Population and Housing, there were 1,018 persons born overseas in the Gladstone Region LGA who spoke a language other than English (LOTE) at home (19 per cent of the overseas-born population). Of these, 95 people stated that they spoke English not well or not at all. This was 1.8 per cent of the overseas-born population of the Gladstone Region LGA, compared with 5.1 per cent in Queensland as a whole.

6.2.2.7 Education

Educational Participation

In the 12 months ending 31 December 2006, 82.8 per cent of students attending a school in the Gladstone Region LGA attended government schools, and 17.2 per cent attended non-government schools. The corresponding percentages for Queensland were 69.9 per cent for government schools and 30.1 per cent for non-government schools[7].

There were 4,762 students attending government primary schools (Years Prep to 7) in the Gladstone Region LGA and 1,081 students attending non-government primary schools. In secondary school (Years 8 to 12) there were 3,268 government school students and 533 non-government school students[8].

6 Australia Bureau of Statstics (2007a) *2006 Census of Population and Housing.* Cat No. 2068.0, ABS, Canberra and Australian Bureau of Statistics (2003), *C-Data 2001, Second Release.* Australian Bureau of Statistics, Canberra, 2003. Taken from Queensland Curtis LNG Baseline Communities Assessment prepared by AEC Group

7 Office of Economic and Statistical Research (2009) Queensland Regional Profiles Gladstone Regional Council at www.oesr.qld.gov.au

8 Office of Economic and Statistical Research (2009) Queensland Regional Profiles Gladstone Regional Council at www.oesr.qld.gov.au.

Gladstone LGA has a higher proportion of pre-primary, primary and secondary school students than Queensland in 2006 (60 per cent compared to 54 per cent). A decline in numbers between the 10 to 15 and 15 to 19-year cohorts was significant for Gladstone LGA, at 18 per cent. By comparison, a decrease of 5 per cent was recorded for Rockhampton LGA, which was consistent with the Queensland average of 5 per cent. These figures reflect the movement of people (particularly 17 to 19-year-olds) to other urban areas for work or further education and training.

Table 8.6.7 Distribution of school-age children in the Gladstone Area

Region	5 to 9 Years Prep to Yr 4	10 to 14 Years Yr 5 to 9	15 to 19 Years Yr 10 to 12	Total
Calliope – Pt A SLA	1,210	1,418	1,097	3,725
Calliope – Pt B SLA	222	242	151	615
Gladstone SLA	2,513	2,511	2,224	7,248
Miriam Vale SLA	429	381	256	1,066
Gladstone LGA	4,374	4,552	3,728	12,654
Rockhampton LGA	7,651	8,705	8,300	24,656
Fitzroy SD	15,437	16,361	14,580	46,378

Source: AEC Report, ABS 2006

The proportion of all students attending technical and further educational (TAFE) institutions was around 6 per cent, and university or other higher education 7 per cent. Most people attending these institutions were aged 25 years and over and studying part-time.

Post-school Educational Attainment

There were 18,377 people aged 15 years and over with a qualification, 47.6 per cent of the population in this age group. This percentage was less than that for Queensland (50.4 per cent).

In Gladstone LGA, 3,210 people had a bachelor degree or higher, 1,772 persons had an advanced diploma or diploma, and 8,839 persons had a certificate.

Of those aged 15 years and over with a qualification, 17.5 per cent had bachelor degree or higher (compared to 26 per cent in Queensland), 9.6 per cent had an advanced diploma or diploma (13.1 per cent in Queensland), and 48.1 per cent had a certificate (compared to 35.5 per cent in Queensland).

Student Destinations

Gladstone High School noted that in 2007 more than 100 students left in Year 10 to take up apprenticeships or traineeships. This was much higher than previous years.

The Department of Education and Training's "Next Step'' report [9]provides the following information as a sample of high school students' preferences in the

9 Queensland Government (2008) Next Step Report – Year 12 2007

student destinations Gladstone State High School viewed at http://www.gladstonshs.eq.edu.au/Content/School%20Report/NextStep.pdf March 3 2009.

Gladstone region in 2007:

- 53 per cent of young people who completed their Year 12 at Gladstone State High School in 2007 continued in some recognised form of education and training in the year after they left school
- the most common study destination was apprenticeships (20.5 per cent), followed by university (17.2 per cent), with 6 per cent of respondents deferring a tertiary offer
- the combined vocational education and training (VET) study destinations accounted for 35.8 per cent of respondents
- in addition to apprentices, a further 9.3 per cent of respondents commenced employment-based training as trainees
- four per cent did not enter post-school education or training, and were either employed (37.1 per cent), seeking work (8.6 per cent) or, neither studying nor in the labour force (1.3 per cent).

Participation in VET courses (Certificate 1+) was highest from Gladstone and Toolooa state high schools, and consistent with the Queensland average, accounting for around 10 per cent of total Year 12 student destinations. These schools also reported the highest percentages of students entering or participating in an apprenticeships or traineeships, at approximately 10 per cent. Gladstone students (in common with other Queensland students) were more likely to be in an apprenticeship than a traineeship at all schools in the region[10].

6.2.2.8 SEIFA Index of Economic Resources

The Socio-Economic Indices for Areas (SEIFA) was developed by the Australian Bureau of Statistics (ABS) to allow ranking of regions or areas, providing a method of determining the level of social and economic wellbeing in each region. The Index of Economic Resources includes 15 variables selected to represent “access to economic resources”. It is a comparative tool showing levels of advantage and disadvantage. While this index includes a broad range of information, it does not include information, such as superannuation, that is not measured by the Census. This index ranks areas in terms of their relative economic resources.

Table 8.6.8 shows the Index of Economic Resources 2006 for the Gladstone area. Gladstone LGA reported economic resources scores above the Queensland benchmark at 1,009.5. The higher ratings generally reflect the contribution to the level of resources made by the mining industry and major industry projects.

At the SLA level, lower SEIFA scores in Miriam Vale reflect consistently lower household incomes and employment levels than Calliope SLAs. There are a more complex range of factors contributing to the lower score for Gladstone SLA. While individual and household incomes are comparable and the proportion of employment in the better remunerated industries of manufacturing and construction are similar to that in Calliope SLAs,

10 http://education.qld.gov.au/nextstep/pdfs/2007pdfs/nextstepreport07.pdf, Accessed December 2008.

unemployment is higher and Gladstone SLA has a younger working population.

Table 8.6.8 Index of Economic Resources: 2006

Region	Score	Rank of SLA In Queensland	Percentile of SLA in Qld
Calliope – Pt A SLA	1,054.2	358	76
Calliope – Pt B SLA	1,005.7	245	52
Gladstone SLA	996.8	216	46
Miriam Vale SLA	963.3	127	27
Gladstone LGA	1,009.5	N/a	N/a
Rockhampton LGA	925.4	N/a	N/a
Fitzroy SD	995.3	N/a	N/a
Queensland	1,000.0	N/a	N/a

Source: Australian Bureau of Statistics (2007a).

6.2.2.9 Need for Assistance

In 2006, 4 per cent of the Australian population and 3.8 per cent of the Queensland population required assistance with core activities (i.e. assistance with daily living due to disability). The percentage of the population identified as requiring assistance in Gladstone LGA was 2.9 per cent, reflecting the younger population. At the SLA level, most people requiring assistance resided in Gladstone SLA, which had 830 people identified as requiring assistance, and in Calliope – Pt A with 393 people requiring assistance. Miriam Vale had a level above the Australian average, reflecting the higher age of this area. Coupled with low-income levels and higher unemployment, this is an indicator of potential disadvantage in this community.

6.2.2.10 Internet Access

Analysis of the type of internet connection of households in the Gladstone LGA compared to Queensland shows that Gladstone had a larger proportion of households with either no internet connection or a dial-up connection, but the total level of households with access to the internet was similar to the state at 62.8 per cent, reflecting a higher level of people with a broadband connection.

6.2.3 Labour Force and Employment

6.2.3.1 Working Population

The working age population in Gladstone LGA totalled 38,595 people in 2006, representing 76 per cent of the population. This was slightly lower than the Queensland average. The majority of the working-age population were resident within Gladstone SLAs (57 per cent) and Calliope – Pt A (almost 27 per cent) with Miriam Vale (almost 11 per cent) and Calliope – Pt B (4.7 per cent) accounting for smaller proportions. Women represented a smaller proportion of each SLA's working population than men, and these percentages were below the Queensland average, indicating the higher employment availability for men in the Gladstone LGA.

Table 8.6.9 Working Age Population by Gender: 2006

Region	Working Age Population			Percentage of Total		
	Male	Female	Total	Male	Female	Total
Gladstone SLA	11,249	10,835	22,084	39%	37%	76%
Calliope – Pt A SLA	5,309	5,014	10,323	38%	36%	75%
Calliope – Pt B SLA	1,136	972	2,108	42%	36%	77%
Miriam Vale SLA	2,205	1,875	4,080	43%	37%	80%
Gladstone LGA	19,899	18,696	38,595	39%	37%	76%
Queensland	1,521,496	1,576,501	3,097,997	39%	40%	79%

Source: Australian Bureau of Statistics (2007a), AEC*group*

6.2.3.2 Employment and Unemployment

There were 23,842 employed people in Gladstone in 2006, with 58.5 per cent of those male.

The average unemployment rate in Gladstone LGA in 2006 was 5.4 per cent, higher than the Queensland rate of 4.7 per cent. Rockhampton LGA reported a similar level of unemployment, at 5.3 per cent. At SLA level, Miriam Vale had the highest unemployment rate for the Project area, at 8.8 per cent, followed by Gladstone SLA (5.4 per cent).

The unemployment rate for females was higher than males with the exception of Miriam Vale SLA. The greatest difference in unemployment rates between males and females was reported in Gladstone LGA, where the unemployment rate for females was more than 2 per cent higher than for males (6.7 per cent compared to 4.4 per cent). In all other areas, differences in unemployment rates between males and females were generally within 0.5 per cent.

Table 8.6.10 Employment and Unemployment by Gender: 2006

Region	Employed Persons			Unemployment Rate (%)		
	Male	Female	Total	Male	Female	Total
Calliope – Pt A SLA	3,914	2,667	6,581	3.0%	5.9%	4.2%
Calliope – Pt B SLA	776	467	1,243	3.8%	7.2%	5.1%
Gladstone SLA	8,170	5,943	14,113	4.4%	6.8%	5.4%
Miriam Vale SLA	1,097	808	1,905	9.3%	8.2%	8.8%
Gladstone LGA	13,957	9,885	23,842	4.4%	6.7%	5.4%
Rockhampton LGA	23,959	19,975	43,934	5.0%	5.5%	5.3%
Fitzroy SD	49,840	37,787	87,627	3.9%	5.2%	4.5%
Queensland	984,568	840,429	1,824,997	4.4%	5.1%	4.7%

Note: By place of usual residence.

Source: Australian Bureau of Statistics (2007a).

Table 8.6.11 highlights the level of unemployment by age in 2006. The unemployment rate for the 15 to 24 year olds in Gladstone LGA was 10 per cent in 2006, which was above the Queensland average of 8.9 per cent. Rockhampton LGA reported youth unemployment of 9 per cent.

Table 8.6.11 Unemployed Persons by Age Percentage 2006

Region	15-24	25-34	35-44	45-54	55-64	65+	Total
Calliope – Pt A SLA	9.6%	4.0%	2.9%	2.3%	3.4%	6.4%	4.2%
Calliope – Pt B SLA	12.3%	5.2%	3.9%	5.0%	3.2%	0.0%	5.1%
Gladstone SLA	9.9%	5.5%	4.0%	3.2%	4.7%	1.8%	5.4%
Miriam Vale SLA	11.9%	9.1%	7.8%	8.2%	10.8%	0.0%	8.8%
Gladstone LGA	10.0%	5.4%	4.0%	3.6%	5.0%	2.3%	5.4%
Rockhampton LGA	9.0%	5.8%	4.4%	3.4%	4.0%	1.4%	5.3%
Fitzroy SD	8.1%	4.7%	3.5%	2.9%	3.6%	1.4%	4.5%
Queensland	8.9%	4.6%	3.8%	3.2%	3.6%	1.8%	4.7%

Source: Australian Bureau of Statistics (2007a).

By September 2008, unemployment in the Gladstone LGA had improved to 4.1 per cent (from 5.4 per cent in 2006). This was similar to the Capricornia rate of 4.3 per cent, and the Central and North Queensland rate of 4.2 per cent, but higher than averages for Queensland at 3.6 per cent.

In September 2008, there were 1,848 job seekers in Gladstone, with an average age of 34 years, and with average unemployment duration of 22 months. Approximately 1,040 people had been unemployed for less than 12 months, with the remainder unemployed for longer than 12 months.

As shown in *Table 8.6.12* there were more residents in the community than suitable employment positions and therefore a resultant overall net outflow of workers from the area. The difference between resident workers and employment positions is just over 2,000. At SLA level Calliope – Pt A has a significant workforce outflow, as does Miriam Vale though to a much lesser extent.

Table 8.6.12 Percentage of Resident Workforce

Region	Employment Positions In Region	Residents In the Workforce	Employment Positions As a % of Resident Workforce
Calliope – Pt A SLA	3,282	6,581	200.5%
Calliope – Pt B SLA	1,751	1,243	71.0%
Gladstone SLA	15,050	14,113	93.8%
Miriam Vale SLA	1,395	1,905	136.6%
Gladstone LGA	21,478	23,842	111.0%
Rockhampton LGA	38,750	43,934	113.4%
Fitzroy SD	81,930	87,627	107.0%
Queensland	1,737,619	1,824,997	105.0%

Note: By place of usual residence and employment. Source: Australian Bureau of Statistics (2007a).

There were more people in full-time employment than part-time employment compared to Queensland. The notable exception was in Miriam Vale SLA where the proportion of full-time employment was 64 per cent, which was lower than the Queensland average of 69 per cent. Lower levels of full-time employment in this SLA probably contributed to the lower levels of income that were reported.

Table 8.6.13 Employment Tenure 2006

Region	Full Time	Part Time	Total	Total persons
Calliope – Pt A SLA	74%	26%	100%	6,581
Calliope – Pt B SLA	77%	23%	100%	1,243
Gladstone SLA	74%	26%	100%	14,113
Miriam Vale SLA	64%	36%	100%	1,905
Gladstone LGA	73%	27%	100%	23,842
Rockhampton LGA	70%	30%	100%	43,934
Fitzroy SD	73%	27%	100%	87,627
Queensland	69%	31%	100%	1,824,997

Note: By place of usual residence. Percentages may not sum to 100 per cent due to rounding.

Source: Australian Bureau of Statistics (2007a).

6.2.3.3 Employment by Industry

The employment by industry profile presented in *Appendix 8.1* shows a clear difference in industries of employment between Gladstone and Rockhampton. The dominant areas of employment in Gladstone were manufacturing (21 per cent), retail trade (14 per cent) and construction (13 per cent). Transport and storage, education, and health and community services represented 7 per cent each, while agriculture represented 3 per cent of employment, and mining 2 per cent.

The employment profile also shows a marked differentiation at the SLA level in Gladstone. Calliope Pt A had a much higher participation rate in the manufacturing industry than any other SLA within Gladstone at 26 per cent. In contrast, Miriam Vale had higher participation rates in construction (17 per cent compared to 12 per cent to 14 per cent for other SLAs) and lower participation rates in manufacturing (8 per cent compared to 21 per cent to 26 per cent in other SLAs).

Gladstone is a key regional port for commercial fishing in the Coral Sea. According to the 2006 Census there were 47 persons working in the Gladstone LGA that were employed in the commercial fishing sector in 2006 (Australian Bureau of Statistics, 2007a). This represented the majority of the 63 people employed in the commercial fishing sector working in the Fitzroy SD. Numerous commercial fishing boats are based in the Port of Gladstone and target reef fish in the surrounding waters (D. Branthwaite, Gladstone Promotion and Development Ltd, *pers. comm.*, 1/4/2009).

By comparison, in Rockhampton LGA, the most common industry of employment was retail trade (16 per cent), followed by health and community services (12 per cent) and education (10 per cent). For each LGA, the most common industries of employment were above the corresponding state and national averages.

6.2.3.4 *Skilled Construction Workers*

Gladstone has a strong and diversified construction labour pool, and the Project aims to maximise use of local[11] labour.

In 2008 there were around 5,216 technicians and trades people in the Gladstone region, as shown in the table below.

Table 8.6.14 Gladstone Region Labour Force Pool

	Gladstone City Council	Calliope Shire Council	Miriam Vale Shire Council
Size	163 km^2	6,547 km^2	3,778 km^2
Population 2006	29,019	16,706	5,626
Labour Force Pool	14,111	7,826	1,904
Technicians and Tradespersons	3,183	1,702	331

Source: Gladstone Region Project Status Report 2008 – Gladstone Area Promotion and Development Limited Initiative

Consultation with Gladstone Technical and Further Education (TAFE) College indicates that there were 1,153 apprentices in the Gladstone region in 2006, which increased by 10.3 per cent to 1,272 in 2007, and that there has been a steady increase in apprenticeship numbers since 2003.

Table 8.6.15 Gladstone TAFE College Apprenticeship Numbers[12]

Year	2003	2004	2005	2006	2007
Apprentice numbers	843	914	1,020	1,153	1,272
% change		7.7%	10.4%	11.5%	10.3%

6.2.3.5 *Income by Industry*

In 2006, Gladstone LGA reported an average weekly income of $902, higher than Queensland ($807), Australia ($841), and other communities in the Project area, at $902 (refer to *Appendix 8.1*).

Industries that had the highest average incomes included mining, manufacturing, electricity gas and water supply, construction, and transport and storage, all of which had averages over $1,000 a week. Representation in mining was only small, at 2 per cent, but employment in the manufacturing and construction industries accounted for more than a third of total employment within the LGA. These two industries undoubtedly play an important role in contributing to the local economy in Gladstone.

11 A non-local worker is defined for this report as an employee whose usual place of residence is at a distance from the Project that is not practical for the employee to return home each evening, and assumed (given the Project's island location) at 50 km from Auckland Point.

12 Educational Business Manager Gladstone Technical and Further Education College

By comparison, Rockhampton LGA had an average industry income of $782 in 2006, lower than the Queensland and Australian averages. The most common industry of employment in Rockhampton was retail trade, which had an average weekly income of $507. Manufacturing and construction industries had a significantly lower average income in Rockhampton than Gladstone, with Rockhampton reporting average incomes in manufacturing and construction of $792 and $871 respectively (compared to $1,203 and $1,115 in Gladstone).

6.2.4 Community Health and Safety

6.2.4.1 Introduction

The World Health Organisation defines health as ''a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity''[13]. There is a range of individual, social, cultural, economic, institutional and environmental factors that together determine the health status of individuals and populations. Those factors or characteristics that bring about a change in health, either for the better or for the worse, are defined as health determinants[14].

The draft International Finance Corporation's (IFC) Health Impact Assessment guidelines define a health impact assessment as the "disentangling of those determinants of health that are directly, indirectly, or cumulatively affected by a proposed project such that they can be effectively mitigated and managed"[15].

Determinants of health that are beyond the influence of the Project, such as individual determinants (genetic, biological etc) are not considered in this analysis.

This section therefore provides details of health and safety issues that are not covered elsewhere in the EIS, specifically:

- baseline health status in the Gladstone community, including self-reported health
- social determinants of health including health service access, employment levels, housing adequacy, and social capital
- consideration of groups that may be more vulnerable to the predicted Project impacts
- community safety.

6.2.4.2 Baseline Health Status

The following key health parameters for the state were identified in 2004 by Queensland Health[16]:

13 World Health Organisation (1946) Constitution of the WHO. Basic Documents, 37th ed. Geneva

14 Queensland Government (2004) Health Determinants Gladstone Health Service District

15 IFC 2008 Draft Introduction to Health Impact Assessment

16 Queensland Health (2004) Health Determinants at a glance –- Queensland 2004

- The life expectancy of Queenslanders born in 1999 to 2001 was 76.9 for men and 82.5 for women, similar to that of Australia. Australia has one of the highest life expectancies in the world.
- Death rates due to coronary heart disease in Queensland are the highest of the Australian states.
- In recent years, more Queenslanders are experiencing diabetes.
- Health behaviours such as tobacco smoking, physical inactivity, poor nutrition and behaviours contributing to obesity and high blood pressure are a sizeable proportion of the total burden of disease.

Hospital admissions

Data for hospital admissions is available at the level of the Central Queensland Health Service District which includes Biloela, Gladstone, Rockhampton and Theodore health facilities. In 2006–07 (the most recent local level data available), this district had over 39,000 hospital admissions, serviced over 469,000 non-admitted occasions of care, and handled 2,146 births[17]. The top 10 diagnostic related groups for the Health Service District (HSD) were related to births, injuries in those over 60 years, chest pain, digestive system disorders, dental problems, colonoscopy and antenatal and other obstetric admissions[18].

Queensland Health has identified those factors where Gladstone HSD currently has a higher prevalence of negative health determinant factors than Queensland and which are a priority for action[19]. These key health determinants or preventable morbidity factors are:

- overweight and obesity
- physical inactivity
- tobacco smoking
- poor diabetes management
- poor asthma management
- risk and protective factors for mental health
- hazardous and harmful alcohol consumption.

Of relevance to the potential Project impacts is that Gladstone currently has a higher proportion of males than average for Queensland. The health determinants of significant impact for this group are smoking, alcohol consumption, illicit drug use, sun protection and risk and protective factors for mental health[20].

17 Queensland Health (2007): *Queensland Health – Annual Report 2006-07*, Queensland Government, Brisbane, pp26-29 – preliminary data.

18 Compiled for this report from http://www.health.qld.gov.au/wwwprofiles/cqld.asp#drgs. Accessed on 24 November, 2008.

19 Queensland Government (2004) Health Determinants Gladstone Health Service District

20 Queensland Government (2004) Health Determinants Gladstone Health Service District

Self-reported Health Status

A computer-assisted telephone interviewing (CATI) survey was conducted in Gladstone from 20 to 23 November 2008. The participants were 600 randomly selected residents over 18 years, with a median length of residence of 16 years. The survey area included a radius of 20 km around the CBD. Four focus groups (with seven to nine participants each) were conducted prior to the survey to identify key themes for the survey. A range of questions about local values and industry impacts were discussed. A summary of the results is included as *Appendix 8.2.*

The survey found that 91 per cent of Gladstone region residents reported that they generally enjoy good health, while 2 per cent said they sometimes enjoy good health, and 7 per cent say they do not enjoy good health. The survey also asked residents to agree or disagree with a statement describing aspects of a healthy environment. Access to medical specialists and general practitioners was a common concern, with less than 50 per cent agreement from Gladstone residents with the following statements:

- “is accessible to major services and facilities” (47 per cent)
- “has a clean and healthy environment” (41 per cent)
- “offers affordable housing” (29 per cent).

Recent community forums have highlighted a lack of specialist medical services in the Gladstone region, and the need for aged care facilities which support healthy living in older years.

The Clean and Healthy Air for Gladstone Project was established in July 2007 in order to “respond to community concerns about air pollution from industry, and to enable a better understanding of the Gladstone airshed and any associated human health risks”.[21] In February 2009, the Clean and Healthy Air for Gladstone Project released the results of the Gladstone community health survey. The survey measures self-reported health issues, with a focus on conditions that may be associated with or aggravated by air pollution. It does not consider the causes of health ailments, but is instead focused on the concerns of residents. The key findings include:

- Reported prevalence of asthma in adults was 12 per cent, 2 per cent higher than in Queensland and 1.5 per cent higher than across Australia.
- Reported prevalence of wheezing in children was 32.6 per cent. Prevalence of severe episodes of wheezing was similar in Gladstone to elsewhere in Australia. However, in children under 10, there was an increase in reported prevalence of wheezing higher than elsewhere in Australia.
- The prevalence of eczema and allergic rhinitis in children was similar to other Australian studies.
- Conditions related to heart and circulatory disease were mostly similar to Queensland and Australian measures.

21 Queensland Government (November 2008) Clean and Healthy Air for Gladstone Project. Interim Report: Summary of data analysis from existing health datasets

- No difference in prevalence of diabetes between Queensland and Australia.
- Cancer is lower than the Queensland prevalence and the same as the Australian prevalence.
- High blood pressure and high cholesterol were lower in Gladstone than for both Queensland and Australia.
- Self-reported prevalence of smoking in Gladstone (21.8 per cent) was higher than the latest available data for Queensland.

The Gladstone Clean Air Project community health survey found a high degree of community concern about potential impacts of industry generally, and air pollution specifically, on their health and the health of their households. The survey did not draw any conclusions on the scientific basis about links between air pollution and health. The findings on community perceptions of health status include:

- A higher percentage of the Gladstone respondents (46.6 per cent) agreed or strongly agreed that they have very little control over risk to their health, compared with the Australian average (37.5 per cent).
- Of the respondents, 75.7 per cent expressed some level of concern about potential impacts of industry on health. Between 25 per cent and 33 per cent of respondents expressed high or extreme concern for most localities.
- Of those who expressed any level of concern, 68.7 per cent were specifically concerned about air pollution and dust.
- Of the respondents, 49 per cent reported that they perceived odour, believed to be from industry in or around their homes.
- Respondents had a slightly poorer perception of their health than Queensland and Australian comparisons[22].

It will therefore be important to ensure that residents are appraised of the nature of LNG facilities and their emissions, in order to allay concerns which are likely to be experienced about LNG as a new industry in the Gladstone area.

6.2.4.3 Social Determinants of Health

Social capital

Communities with strong social capital, that is where there are high levels of volunteerism, active community groups, a prevalence of people helping each other, and strong community networks, generally have a higher level of health and wellbeing. As described in more detail in *Section 6.2.5*, the Gladstone area has good social capital, underpinned by social networks derived from:

- schools and training facilities
- community, cultural, religious and environmental organisations
- community and cultural centres (such as the library, gallery and Community Advisory Centre)

22 Queensland Government (February 2009) Gladstone Community Health Survey

- marine recreation groups
- sporting and other recreational clubs
- business and industry networks.

It is therefore a key commitment by the Project to invest in community networks, to increase:

- their capacity to expand and sustain operations, to meet growth in the population and the economy
- inclusion of Project staff, their families and other new residents in community networks and activities
- community cohesion, through high participation and activity levels.

Other factors affecting community health are outlined below.

Health Service Access

Gladstone has an established network of health infrastructure and services, with good transport links, full details of which are outlined in *Section 6.2.6.* Equity of access is a particular challenge across the region, as is the growing population, particularly of young families working in the resources sector, which is leading to higher demand for health services. This is exacerbated by limited availability of affordable private health care and highlights a need to stimulate private sector investment. Drug and alcohol support services, children and young people's services, and domestic violence support services are particularly challenged.

Future planning is focusing on making better use of existing facilities and develops innovative models of delivery. There are a large number of sporting and recreational facilities and clubs, as well as an array of natural attractions and national parks.

Housing adequacy

Generally, there is an adequate stock of housing for the population. Nevertheless, housing costs in Gladstone have increased sharply during the last three years. ABS Census 2006 data indicates that 37 per cent of purchasers and 53 per cent of low income renters in Gladstone were experiencing housing stress, defined as when the cost of maintaining secure housing causes financial and/or family difficulties. The CATI survey identified pressure on housing affordability as one of residents' primary concerns. As housing is an important determinant of health, it is important to ensure that the Project does not impact on housing availability or affordability. This is addressed in *Section 6.2.7*.

Vulnerable Groups

This section presents baseline data on vulnerable groups (as shown in *Table 8.6.16*) in the general population, such that the impact analysis can consider whether they have the potential to be disproportionately affected by the Project activities. The groups described in *Table 8.6.16* are considered ''vulnerable'' due to increased propensity to illness (e.g. older people and children), decreased capacity to pay for health services (e.g. low income, aged or unemployed), difficulty accessing culturally and socially appropriate health services (e.g. people speaking LOTE, and people with disability). These health vulnerabilities are detailed in Queensland Health's (2004) ''Health Determinants of Queensland'' and briefly discussed below. According to the data in *Table 8.6.16*, Gladstone LGA shows a lower proportion of people in vulnerable groups than Queensland as a whole.

Gladstone shows much lower proportions of elderly people (aged 65 years or over) compared to the state figure. People with a disability tend to have poorer long-term health, and restricted employment opportunities, so less financial resources to maintain their quality of life. Analysis of the need for assistance of persons in Gladstone LGA compared to Queensland shows a smaller proportion of persons who reported needing assistance with core activities. Overall, 2.9 per cent of the population reported needing assistance, compared with 4 per cent for Queensland.

Analysis of the language spoken at home by the population of Gladstone LGA in 2006 showed a significantly smaller proportion of those speaking a LOTE at home. Overall, 2.9 per cent spoke a non-English language, compared with 7.8 per cent for Queensland. The dominant language spoken at home, other than English, in the Gladstone LGA was Afrikaans with 57 (or 0.2 per cent) people using this language.

People of lower socio-economic status experience worse health than those of higher socio-economic status for almost every major cause of mortality or morbidity[23]. Generally, socio-economically disadvantaged people experience poorer health and shorter life expectancy, including higher rates of diabetes, intentional and unintentional injuries and mental disorders. The most significant determinants of health for this group are diabetes management, alcohol, obesity, poor nutrition, physical inactivity, and risk and protective factors for mental health, as well as a lack of sense of control, lack of employment and poor housing.

Income data combined with data such as educational qualifications and occupation helps to evaluate the economic opportunities and socio-economic status of an area. Gladstone scored highly on the SEIFA pointing to lower levels of relative disadvantage. Miriam Vale had a high percentage of population with very low incomes at 4.1 per cent while the rest of Gladstone LGA had approximately 2 per cent in the very low-income group, which is similar to the state average of low-income population.

The Clean and Healthy Air for Gladstone identified long-term unemployment as a particular issue of concern in Gladstone[24]. For those who are unemployed, a higher proportion had been unemployed more than 12 months than in Queensland and Australia.

The table below shows the numbers and percentage of population of vulnerable groups. It should be noted that groups are not mutually exclusive and numbers should not therefore be added across rows.

23 Queensland Government (2004) Health Determinants Gladstone Health Service District

24 Queensland Government (February 2009) Gladstone Community Health Survey

Table 8.6.16 Vulnerable Groups, Number and Percentage: 2006[25]

Sensitive Group	Age 0–14 years		Age 65 years +		Low income(1)		Unemployment(2)		People with a Disability(3)		LOTE(4)		Total Population
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Calliope (S)	4,113	24.9	1,444	8.7	277	1.7	355	4.3	480	2.9	428	2.6	16,544
Gladstone(c)	6,999	24.1	2,270	7.8	569	2.0	813	5.4	830	2.9	829	2.9	29,085
Miriam Vale (S)	1,049	20.5	575	11.2	209	4.1	185	8.9	259	5.1	111	2.2	5,127
Queensland		20.7		12.4		2.4		4.7		4.0		7.8	50,756

Notes:

1. Income of $299 or less a week.

2. Unemployed people over 15 years, looking for work. Percentage is based on the labour force, not the total population.

3. People with a disability.

4. Language other than English spoken at home.

25 ABS (2007) 2006 Census Community Profiles by Location, ABS Canberra w.abs.gov.au/websitedbs/D3310114.nsf/Home/Census +Data Accessed September 2008

Safety and Security Status

During 2007–08, the Gladstone district reported 478 ‘offences against the person’, 2,348 offences against property and 3,368 other offences[26].

Community service providers have noted a worrying occurrence of domestic violence in Gladstone, and this is discussed in the social infrastructure section.

During the past 18 months there have been three homicides in the Gladstone area. The city has experienced sorrow and a sense that Gladstone’s small city life has been touched by violence. The influx of industry workers who are unconnected to the community has also been blamed.

At June 2008, there were 158 officers policing the district, and 30 other Queensland Police staff members. Police officers report that staffing levels are adequate, but they aspire to providing a higher level of service, including through community partnerships.

6.2.5 Social Amenity and Community Values

This section outlines the social amenity of the region, including residential purposes, rural uses, recreational and fishing areas, and environmental areas of importance to local lifestyles.

The section also describes community values, as identified through primary and secondary research, including the Project’s community attitudes survey, and the Gladstone Regional Vision 2028 Report[27]. Aspects of social capital such as sense of belonging and participation in community events and groups are also included.

Community, recreational and cultural infrastructure is outlined in detail in *Section 6.2.6.*

6.2.5.1 Land Use and Regional Planning

On 15 March 2008, the local authorities of Gladstone City, Miriam Vale, Calliope and Gladstone Calliope Aerodrome Board were amalgamated to form the GRC Local Government Area (LGA).

The former Gladstone City represents the most urban part of the LGA. The urban area's amenity is characterised by convenience to urban services such as shopping, social and recreational facilities, a mix of housing types, highly valued landscape character derived from native bush land, the topography and proximity to the ocean.

The former Calliope Shire LGA includes the rural towns and localities of Raglan, Mount Larcom and Yarwun to the north-west of Gladstone City, Calliope and Benaraby to the south-west, and the coastal areas of Boyne Island and Tannum Sands to the city’s immediate south. It includes a large agricultural area of more than 477,000 ha of land under rural production

26 Queensland Police Service (2008) 2008 Annual Report

27 Futureye (2008) Rio Tinto Community Fund : Gladstone Regional Vision 2028 Final Project Report. August 2008

consisting mainly of beef, dairy cattle, fodder cropping and tropical fruit production[28].

The former Calliope Shire also accommodates a number of heavy industry facilities. These have provided employment for locals for whom farming incomes have declined, and supported growth and employment levels in the area.

The former Miriam Value Shire area is a coastal and semi-rural residential area which includes the coastal towns and localities of Turkey Beach, Town of 1770, Agnes Water, and the interior towns of Bororen and Rosedale.

Gladstone LGA has a regional relationship with Rockhampton, the main urban centre for the Central Queensland region, in that higher order health, community service, education and commercial services are accessed in Rockhampton.

Local Planning Schemes

Planning for land use by Gladstone Regional Council is currently bound by the three planning schemes from the former local governments. While the three areas share Gladstone City as a regional centre, and rely on the services and facilities of both Gladstone and Rockhampton, their environments and communities are diverse. Key values identified in relation to strategic planning for land use are summarised in the *table* below.

Table 8.6.17 Local Planning Key Values

Gladstone City Planning Scheme (2006) – Key objectives	Calliope Shire Draft Planning Scheme (2007) – Desired Environmental Outcomes[29]	Miriam Vale Draft Planning Scheme 2006 – Aims
• a clean and sustainable environment which can be accessed and enjoyed by the city's residents, visitors and future generations • maintaining and enhancing Gladstone's role as the industrial centre for Queensland • achieving a balance between Gladstone's role as an economic centre of national and state significance and providing a complete ''home'' for its residents	• protection, maintenance and enhancement of natural features; air and water resources; sites of cultural heritage significance • protection and broadening of the economic base • work towards an equitable, sustainable and prosperous community characterised by a strong local community focus • housing choices in accessible locations	• support the expansion of the economy • promote the development of tourism and recreational facilities • encourage employment and community services and facilities to support a strong and viable community • maintain socio-economic diversity • promote high levels of amenity as a resource for residents and visitors, promote a high quality environment

28 Calliope Shire Council (2004) Corporate Plan

29 Gladstone City Planning Scheme (2006) viewed at http://www.gladstonerc.qld.gov.au/tpscheme/formergladstonecity/. Accessed in November, 2008

Gladstone City Planning Scheme (2006) – Key objectives	Calliope Shire Draft Planning Scheme (2007) – Desired Environmental Outcomes[29]	Miriam Vale Draft Planning Scheme 2006 – Aims
• consolidating future urban growth in Gladstone into areas able to be serviced easily and economically • development in the coastal area and hinterland compatible with values as identified in the Curtis Coast Regional Coastal Management Plan • protection of any indigenous or historic cultural resources	• satisfying and rewarding employment opportunities • convenient access to a range of community facilities and services • a clean, safe environment	• protect all environmentally significant or sensitive areas from adverse impacts of development

Regional Planning Frameworks

There are two planning and sustainability frameworks providing a broad perspective on environmental, economic, and social values in the region.

The Central Queensland Strategy for Sustainability – 2004 and Beyond (CQSS2)[30] is a regional plan for sustainability, focused on regionally significant assets and pressures. The CQSS2 vision is: ''In planning for the sustainable development of our region, we value healthy ecosystems, a strong regional economy and prosperous communities''.

The CQ (Central Queensland) – A New Millennium (CQANM) Regional Growth Management Framework's guiding principle for social and cultural development is

> "the social and cultural fabric and vitality of the community should be underpinned by sound, ethically based planning, institutional support and investment that recognises the past, embraces the present and prepares for the future".

The framework articulates the following regional values for the region:

- community vitality and safety
- cultural diversity and acceptance
- ecological sustainability
- improved health and wellbeing
- learning, knowledge and information
- social justice, namely equity, access, participation and equality
- regional and rural communities

30 Fitzroy Basin Association (May 2004) Central Queensland Strategy for Sustainability – 2004 and Beyond

- respect for the environment, the land, the climate
- shared and committed vision for the region
- a thriving economy.

A recent community-industry partnership, the Gladstone Regional Vision Project partnership, identified community values and goals across the Gladstone region. Key community goals include:

- to be responsive to emerging climate change and sustainability requirements
- to grow smartly, in a controlled, measured way
- to promote work-life balance and social inclusiveness
- to ensure all key icons are protected, including natural and built environment heritage
- to increase corporate citizenship, including involvement in partnerships and monitoring
- to ensure there is affordable housing and appropriate facilities and services for all who want to live or retire in the Gladstone region
- to become more resilient through strengthening essential local services (such as health), building a tight-knit community and enhancing capacity to be more self-sufficient
- to think and act regionally while maintaining local feel and unique identity of towns and places
- to ensure effective regional governance is developed.

It is clear from regional and local planning frameworks and community input that Gladstone residents value a healthy balance between Gladstone's key values for an active, safe and resilient community, and industry as Gladstone's economic lifeblood.

6.2.5.2 Sense of Community and Wellbeing

The community attitudes survey (refer *Section 6.3.4.2*) findings from the Gladstone region included:

- strongly positive and optimistic feelings about Gladstone
- recognition of industry’s contribution to Gladstone, and its support of the economy and lifestyle
- uncertainty and anxiety about Gladstone’s direction, and consciousness of a period of change
- housing affordability as a key concern, with people worried that the increasing population will put further pressure on housing, health and social infrastructure.

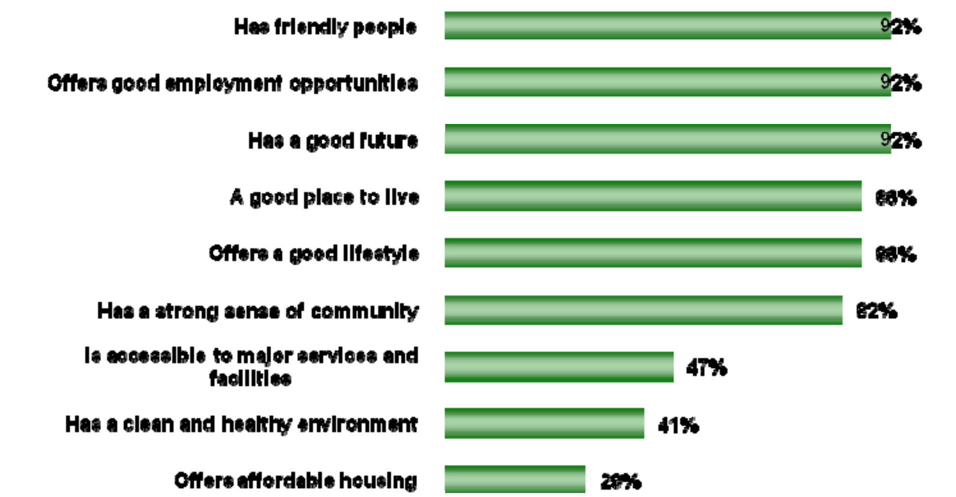
There is an excellent sense of community in Gladstone indicated by survey participants:

- 86 per cent feel part of the local community

- 84 per cent know the names of their neighbours
- 67 per cent participate in community events
- 53 per cent belong to one or more community groups.

There was also strong community pride and confidence in Gladstone, as evidenced by responses to the question: “Thinking about Gladstone, tell me if the following phrases apply or not apply?” as depicted in the figure below.

Figure 8.6.5 Survey: Gladstone Community Qualities – Agreement



The things people rated most highly as occurring in Gladstone included:

- has friendly people, offers good employment opportunities and has a good future (all at 92 per cent)
- is a good place to live and offers a good lifestyle (both at 86 per cent)
- has a strong sense of community (at 82 per cent).

People enjoy Gladstone because it offers most of the services of a regional centre with the diversity of coastal and rural lifestyles and, without big city constraints such as traffic and crowding.

The survey also identified significant concerns about a lack of coordination and planning to cope with Gladstone’s growth, with the view that ad hoc planning is the norm rather than integrated forward planning. They see the results of this in a lag between population increases and the provision of appropriate infrastructure to ensure quality of life (UMR 2008 p. 39).

6.2.5.3 Gladstone Recreational Boating and Sailing

As a harbour city, Gladstone has a strong boating culture and an active recreational fishing scene. Consultation with boating and fishing community members indicated that Gladstone’s boating and fishing culture is central to the local lifestyle, as described below.

There are approximately 13,000 marine licences and 6,890 recreational vessels registered in Gladstone[31], which indicates that at least one quarter of the region's residents have direct access to recreational boating, and a larger proportion would be engaged in less frequent marine recreation. As an indication of the strength of the boating culture, the local Volunteer Marine Rescue service has 1,600 members.

Sailing season is from August to April. The Gladstone Sailing Club has 200 sailing members and between 6,000 and 7,000 social members.

Gladstone Harbour, Auckland Creek, The Narrows and Grahams Creek are popular areas for boating, sailing and fishing, with The Narrows and Grahams Creek traditionally popular safe harbours for many smaller private sailing vessels during storms and cyclones. There is also a strong appreciation of the visual amenity afforded by the harbour.

In addition to private boating, a number of activities and events are a prominent part of Gladstone life. These include:

- learn to sail classes for both adults and juniors
- junior racing events crossing the harbour channels
- regular adult and family sailing events and races
- yacht and dinghy regattas with the occasional longer races to Keppel and Yeppoon
- Gladstone to Brisbane Yacht Race held every year during Easter (in conjunction with the Gladstone Harbour Festival).

Fishing is a popular activity in waters near Gladstone. In addition to casual family and social group fishing, local organisations such as the Gladstone Sport Fishing Association have an ongoing Catch & Release Club, social and club activities, and contribute to the ''Boyne Tannum Hook-Up'' – an annual fishing festival. Fishing competitions such as Boyne Tannum Hook-Up and Marine 100 are popular family events that also draw many visitors to the area. Fishing is part of the culture of Gladstone, and contributes strongly to its tourism values.

6.2.5.4 Curtis Island and Gladstone Harbour Islands

Curtis Island is located about 5 km north of Auckland Point, adjacent to Gladstone Harbour.

The South End community is located on Curtis Island's south-east point, approximately 9 km east of the proposed Project site. There are 101 residential properties and around 100 dwellings at South End. Eight to 10 houses at South End are permanently occupied, with a week-night population total of around 20 people. On weekends, the population swells from 100 to 200 people. Holiday seasons can see 500 to 600 people staying on the island. Curtis Island has had a residential and holiday character since the 1920s, with some families having a continuous connection with South End.

31 Derived from analysis of raw data from Queensland Transport licensing and registration figures for February 2009.

Residents and property owners value the beachside lifestyle, the casual amenity and beauty of the island, the somewhat transient community, proximity to Gladstone, and the environmental values of the island. The Capricorn Lodge is the local shop and community centre, providing local accommodation, take-away food, fuel, gas, picnic and fishing supplies and a licensed bottle shop.

Curtis Island enjoys a natural character, with marine and birdlife, and a variety of environmental landscapes. The headlands, points and beaches surrounding South End and along the eastern coastline are strongly valued for their environmental, social and landscape values, as described in the Curtis Coast Regional Coastal Management Plan which identifies environmental values including endangered regional ecosystems, RAMSAR-listed wetlands, coastal wetlands of state significance, beach ridge and swale systems, Flatback Turtle nesting sites, significant coastal landscapes; and habitat for threatened species, including the Yellow Chat.

Key areas of social and environmental amenity include:

- a residential community and holiday homes at South End
- an historic lighthouse at Cape Capricorn
- North Curtis Island State Forest, which covers an area of approximately 59 ha at the north-east extension of the island
- Grahams Creek, and its marine and riparian surrounds
- The Narrows, the channel between Gladstone and Curtis Island
- Curtis Island Conservation Park covering 340 ha near the eastern coast
- Curtis Island National Park adjacent to the north-eastern coast
- the mountainous area in the northern interior including the Ramsay Range, Mount Barker (149 m), Mount Barney (78 m) and Bald Hill (54 m)
- a free camping ground north of South End
- a small resort (Turtle Bay).

A pastoral lease on the southern interior of the island and the running of brumbies, which according to local history [32] were bred for military use by the British in India and turned out after the war, have degraded environmental values in this area.

In September 2008, the state Government declared an Environmental Management Precinct on Curtis Island representing 75 per cent of the recent extension to the State Development Area. The precinct was declared to protect the area from industry impacts, and provide a buffer between industry and other land uses including the community at South End.

Community values as articulated in consultation with the South End community include:

32 Country breakfast Story Archive 13 March 2004 , viewed at www.abc.net.au/rural/breakfast/stories/s1064825.htm 30 September 2008

- “We want South End to stay the same – to maintain a casual, relaxed lifestyle, and for our children and their children to experience the same freedom and safety that we did.”
- “South End residents are independent and resilient, and there is a very strong sense of community.”
- “We may have different opinions about Curtis Island as a whole, but South End’s community and lifestyle should not be damaged.”

In relation to general community views, survey responses indicated that around 66 per cent of survey participants had visited Curtis Island, with 38 per cent having visited in the last two years, and an additional 18 per cent having visited in the last 10 years. Views about Curtis Island among survey participants ranged from 88 per cent agreement to “it’s great to have on our backdoor”, to 51 per cent to “it’s natural and untouched” to “it’s just for a select few” at 29 per cent.

Other islands within the Gladstone Harbour include Facing Island, Farmers Point, Quoin Island, Garden, Picnic, Tide, Witt, Turtle, Compigne and Diamantina islands. Some of the islands have residential properties, including Tide and Witt, closest to the proposed LNG Facility. *Figure* 8.6.6 shows the location of the LNG Facility in relation to the South End community and other Harbour Islands.

6.2.5.5 Gladstone Industries

In December 1993, the Queensland Government declared approximately 6,800 ha of land at Aldoga as the Gladstone State Development Area (GSDA). The GSDA has been amended several times and now comprises approximately 21,000 ha. The GSDA includes the former Yarwun Industrial Estate, a transportation and services corridor linking the Aldoga and Yarwun areas to Fisherman’s Landing and the proposed Wiggins Island wharves, and more than 7,000 ha at Targinnie.

The GSDA was extended in July 2008 to include land on Curtis Island for an industrial precinct where the Project and other LNG projects would be located, and for an Environmental Management Precinct between the Industrial precinct and the community of South End. Community members expressed dissatisfaction with consultation on the GSDA expansion, and there are mixed community views about the LNG Precinct being located on Curtis Island, as noted in the survey results described in the following section.

As the focus for major economic development, the Gladstone State Development Area has been identified as the preferred location for future major industrial projects. This area is the subject of a Development Scheme prepared and approved under the State Development and Public Works Organisation Act 1972.

Gladstone’s major industries include:

- Boyne Smelters Limited (aluminium)
- Comalco Alumina Refinery
- Cement Australia Limited

Legend

- Proposed QCLNG Site Boundary
- Possible Curtis Island Road/ Bridge Corridor
- Proposed Export Pipeline
- Main Highways

Source Note:

StreetPro Australia - Pitney Bowes MapInfo
Curtis Island Road/Bridge - Connell Wagner
Cadastral Currency, August 2008
- Department of Natural Resource and Water

Projection: UTM MGA Zone 56 Datum: GDA 94

0 1 2 4 km

N

QUEENSLAND CURTIS LNG
A BG Group business

ERM
Environmental Resources Management Australia Pty Ltd

Project	Queensland Curtis LNG Project		
Client	QGC - A BG Group business		
Drawn	JB	Volume 8	Figure 8.6.6
Approved	MF	File No: 0086165b_EIS_SIA_GIS002_F8.6.6	
Date	24.04.09	Revision 1	

Title **Curtis and Gladstone Harbour Islands**

Disclaimer:
Maps and Figures contained in this Report may be based on Third Party Data, may not to be to scale and are intended as Guides only.
ERM does not warrant the accuracy of any such Maps and Figures.

- Orica (sodium cyanide, ammonium nitrate, caustic soda,chlorine and nitric acid)
- Queensland Energy Resources Limited Oil Shale Pilot Refinery
- Aldoga Aluminium Refinery (in the early stages of construction)
- Pacific Lime Pty Ltd Lime Production Plant
- Australian Magnesium Corporation Pilot Plant.

To date, industry has been accommodated within Gladstone without significant opposition from local residents. Of late, the intensification of industry, air quality concerns related to coal dust and the prospect of a new LNG industry has caused concern that industry impacts will cause a decline in the quality of life in Gladstone. There is also evidence that Gladstone's social infrastructure is under strain, and this is the subject of a current study by Gladstone Economic and Industry Development Board (GEIDB), the Department of Infrastructure and Planning, and Gladstone Regional Council.

6.2.5.6 Existing Community Issues

The CATI survey of Gladstone residents asked which of the following aspects in Gladstone concerned them. This provides an indication of the residents' current concerns about their social environment.

The things that worry more than 40 per cent of the survey participants "a lot or a fair bit" included lack of access to medical practitioners (56 per cent); air pollution from local industry (55 per cent); the cost of living (53 per cent); lack of affordable housing (48 per cent); and lack of activities for young people and teenagers (45 per cent). Of these five concerns, four are partly attributed either to industry either directly (fears about air pollution) or indirectly (costs of living, lack of affordable housing and lack of social infrastructure due to population increases).

Between 30 per cent and 40 per cent identified concerns regarding access to community services and facilities, including facilities for older people; industrial development on Curtis Island, too much industrial development generally, crime; and the quality of local roads.

6.2.5.7 Growth and Uncertainty

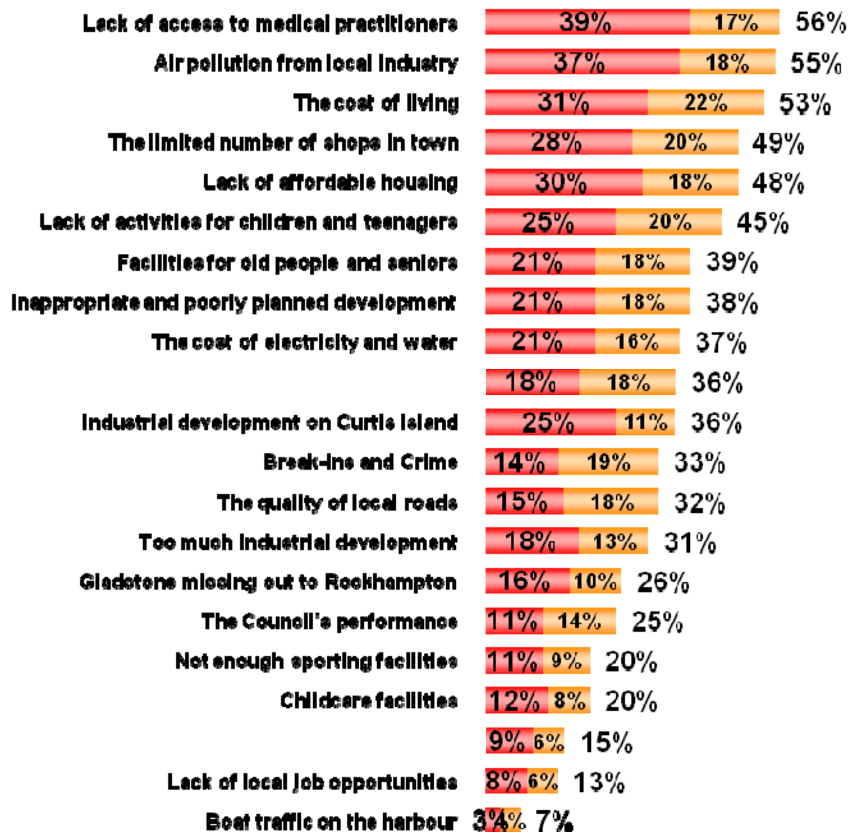
The community survey indicated that Gladstone residents, while generally optimistic about their town, are uncertain about Gladstone's future path. They like living in Gladstone due to qualities such as its friendliness and job opportunities. They are concerned however about major projects and the increasing population putting pressure on housing affordability, health facilities and infrastructure in general.[33]

Industry is the foundation of Gladstone's economy and financial security. Survey participants saw industry as responsible for values such as job opportunities, population growth, income levels, and sustaining the local economy, and social investments such as sponsorships services and

33 UMR (2008) Community Survey for QCLNG

infrastructure. Industry is also seen as responsible for air pollution (particularly coal dust but including other pollutants), environmental issues, upward pressure on housing and the cost of living, and pressure on social infrastructure.

Figure 8.6.7 Survey – Gladstone residents' concerns



Residents, when asked whether they believe overall that industry in Gladstone makes a positive or negative contribution to the local community, answered as follows: positive – 85 per cent; negative – 7 per cent; and unsure – 8 per cent. Focus-group participants in the survey project had significant concerns about a lack of coordination and planning to cope with Gladstone's growth. There was a strong perception that decision-makers take a ''see how it goes'' approach to planning for additional services and infrastructure in Gladstone, resulting in a lag time between significant population increases and infrastructure being upgraded to meet requirements.

6.2.6 Social Infrastructure

6.2.6.1 Regional Services

Gladstone City has a number of regional cultural, health, education and justice facilities, including:

- Gladstone Entertainment Centre

- Gladstone Regional Art Gallery and Museum
- Queensland Rail Heritage Museum
- Central Queensland TAFE
- Central Queensland University
- Gladstone Hospital
- Gladstone Courthouse.

Gladstone LGA is serviced by the Central Queensland Health Service District. A health service hub operates from the Gladstone Hospital and the new co-located district community health centre. This is one of a network of health services at Rockhampton, Emerald and Biloela. The main referral hospital for the Gladstone LGA is Rockhampton Hospital, approximately 110 km north of Gladstone. In addition, Gladstone has a women's community health centre, as well as three local community health centres which service the outer settlements of Miriam Vale and Agnes Water, along with the indigenous population in the Gladstone area.

There are no correctional centres located within Gladstone LGA although Capricornia Correctional Centre (for high-, medium- and low-security prisoners) is located 20 km north of Rockhampton.

6.2.6.2 District and Local Services

There are four state secondary schools and 18 primary schools (one in each being a Prep to Year 10) in the Gladstone LGA, with two secondary schools located in Gladstone City, one in Tannum Sands and one in Mount Larcom. Primary schools are provided in a number of smaller rural towns and settlements throughout the LGA.

There are 17 child care and seven kindergarten services in the LGA, with the majority located in Gladstone City. Although significant changes are occurring in early childhood education with the introduction of the preparatory year, and with the tendency for kindergarten to be provided within child-care centres, stand-alone, community-managed kindergartens appear to be a significant feature in Gladstone LGA.

There are three aged care service and respite centres in Gladstone LGA, including a centre-based Home and Community Care (HACC) service for Aboriginal and Torres Strait Islander (ATSI) people, a senior citizens' centre and a day respite centre for children.

There is also a range of community centres, libraries and youth facilities available in the LGA:

- Libraries: With the recent council amalgamations it is assumed that the Gladstone City Council library will become a central library, with the six smaller libraries in outlying rural towns and villages becoming branch libraries.
- Community centres: One district community centre is provided in Gladstone City and 11 local halls provide community spaces predominantly in rural villages and towns (as progress halls, Country Women's Association halls),

along with three local community centres (two in Gladstone and one at Boyne Island).

- Youth facilities: one Police Citizens Youth Club (PCYC) in Gladstone City (Gladstone PCYC) and one in Mount Larcom (Mount Larcom & District Youth Centre).

There is a range of emergency facilities provided including police, fire and rescue (two auxiliary[34]) and ambulance stations in Gladstone City and rural towns and villages across the LGA.

Table 8.6.18 outlines a spatial analysis of facilities in the Gladstone area, assigning their role within the infrastructure network hierarchy (as described in *Appendix 8.3).*

Table 8.6.18. Existing Hierarchy of Provision – Main Service Centres

Town	Population Of Town Locality	Service Centre (And Secondary) Hierarchy	Indicative Range Of Infrastructure
Gladstone City	28,808	Regional (District)	Entertainment Centre Art Gallery Museum Courthouse Hospital Community Health Centres Secondary school University TAFE
Agnes Water	1,619	Local (District)	Ambulance Police Child-care centre Primary school
Calliope	1,550	Local (District)	Ambulance Police Primary school Library
Miriam Vale	361	Rural Village (Local)	Police Primary school
Mount Larcom	253	Rural Village (District and Local)	Ambulance Youth centre Primary school Secondary school Library

Source: ABS (2006) Census QuickStats by Location and BG Group (2007) Community Infrastructure Inventory. Excludes overseas visitors. NB: benchmarking analysis is undertaken in five-year periods corresponding to the Census periods, and as such the 2006 population data has been used here.

6.2.6.3 Trends in Service Provision

The majority of regional-level facilities currently supplied in the study area are concentrated in Gladstone City, which is anticipated to accommodate the highest proportion of expected population growth over the next 20 years. Gladstone City, alongside its neighbouring regional centre Rockhampton, will continue to serve as a regional centre for other urban and rural settlements in the Gladstone and Banana LGAs.

34 Auxiliary stations are not permanently staffed, but are serviced by casual and part time fire fighters

Gladstone Regional Council faces a significant challenge in providing equitable service across the region subsequent to the recent council amalgamations. Population growth has been a longer-term challenge, with service demand impacts from mining and industrial projects, and inadequate increases in state and federal government funding to support the commensurate growth in demand for services. Population factors influencing demand for social infrastructure and community development include:

- high growth area, forecast at 88,000 people in 2026
- higher than Queensland average unemployment rate – general and youth
- higher proportion of families with children, including one-parent families
- low-income households being displaced to small villages (e.g. Barney Point, Mount Larcom and Miriam Vale).

The greatest service gap is in the area of children, young people and families, particularly families facing isolation through relocation and absentee parents (working in the mines or on construction projects). There is also a need for increased training and skill development services to enable indigenous people and young people to access employment opportunities, outside of the availability of apprenticeships and traineeships for industry jobs.

Financial counselling, drug and alcohol, legal aid and domestic violence support services are all under-resourced to meet current demand, as rising housing costs and working conditions (such as fly-in fly-out (FIFO) and shift work) place growing pressures on family and community harmony.

There is also a demand for community development programs that help to settle new residents and break down the social isolation of coming to a new community, exacerbated by partners being absent at workers' camps. GRC reports that much success has been achieved in this area through its community development programs to welcome new residents[35].
Public transport services are also reported to be inadequate to meet the needs of low-income households that have been displaced to smaller communities beyond Gladstone City (such as Mount Larcom and Miriam Vale).

The need for investment in social infrastructure is identified in the Queensland Government's Charter for Fiscal and Social Responsibility[36], which includes improved standards and accessibility of hospital and health services; strategies to support Queensland families; improving the lives of people with a disability, their families and carers; and strategies which contribute to safe communities. At state level, social policy is enacted by the Departments of Communities (including Housing), Education and Training, Premier and Cabinet (for the Arts) and Queensland Health, each of which have policy and a program structure aimed at enhancing quality of life and community wellbeing.

Most services are intended to be accessible to indigenous communities, although some services and facilities are specifically targeted to indigenous people.

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35 BG Group interview notes with Andrea Hughes, Community Development Officer, Gladstone Regional Council. 23 October 2008.

36 Queensland Government (2004) Charter of Social and Fiscal Responsibility, viewed at http://www.treasury.qld.gov.au/office/ knowledge/ docs/charter/charter2004/pdf

Baseline assessment identified a trend towards increasingly remote service delivery in such services as legal aid, education and specialist medical care through such modes as outreach, technological and other models of service delivery. Service providers, in particular the Queensland and Federal Governments are increasingly using technology to deliver information and services, mainly in response to the difficulty in attracting professional and specialised staff to live in these areas[37]. This trend is likely to alter community expectations for services, the role of services in contributing to community building, and the nature and use of the built infrastructure required to support them.

6.2.6.4 Health Services

Gladstone Hospital is the only public hospital in the Gladstone Region LGA.[38] It has 215 beds and offers a range of services including emergency, general medicine/surgery, obstetrics and gynaecology, paediatrics, pathology, medical imaging and pharmacy, plus several visiting specialist clinics.[39] In 2006–07, $8.7 million was allocated from the state budget towards the consolidation of Gladstone community, mental and oral health services[40]

The LGA has one private hospital, the Mater Misericordiae, which offers general medicine, surgery, obstetrics and gynaecology, oncology and palliative care, after-hours medical service, radiology, pathology and visiting specialist clinics.

Specialist medical patients are transferred to Rockhampton (110 km north), or to the Prince Charles Hospital, the Royal Brisbane and Women's Hospital, or the Royal Children's Hospital in Brisbane – over 530 km south. Most emergency trips are handled by the Queensland Ambulance Service which has stations located in Agnes Water, Calliope, Gladstone, Miriam Vale and Mount Larcom. The service works closely with rescue helicopters based at Rockhampton and Mackay and with the Royal Flying Doctor Service fixed-wing aircraft, also based at Rockhampton.[41]

The region is serviced by a number of private and community-based services, such as general practitioners and medical clinics, women's health centres, and branches of national bodies including the Red Cross Blood Service and the Breast Feeding Association. A range of allied health services (physiotherapy, occupational therapy, speech pathology, dietetics, social work and the like) and aged care support services is also found in Gladstone and some surrounding towns.[42]

37 Reported in the case of health services (Cath Borich, Q Health pers.comm. 14.12.08)

38 Australian Institute of Health and Welfare (AIHW) (2008): Australian hospital statistics (2008): Health Services Series No 31, Cat. No. HSE 55, AISHW, Canberra, Table A2.3

39 www.health.qld.gov.au/wwwprofiles/default.asp, Accessed August 2008.

40 Queensland Health (2007): Moving ahead – Queensland public hospitals performance report 2006–07, Queensland Government, Brisbane, p8.

41 www.ambulance.qld.gov.au/about/regions.asp, Accessed 7 September 2008.

42 www.gladstonerc.qld.gov.au, Accessed September 2008.

Queensland Health has advised [43] that it will be developing a health services plan for the Central Queensland HSD (which takes in the Gladstone and Banana LGAs) in 2009, applying an updated model of health services delivery as represented in the Social Infrastructure Planning Guideline No 5 (OUM 2007). This model is under development, and will have a services focus rather than facilities focus, reflecting the commitment in the Queensland Statewide Health Services Plan 2007–2012 to establishing links between services to create safe and sustainable service networks (Queensland Health 2007, page 15).

General practitioners are reported to be in short supply with some closing their waiting lists. A major emphasis of the health services plan for the district will be on attracting and maintaining appropriately trained staff. Service networks will be established between public and private health services where there is insufficient volume and throughput of patients to provide specialist services in a safe and sustainable way. The model will establish and publicise service networks using the ''hub and spoke'' and ''integrated multi-campus'' models of service delivery, including use of outreach models and tele-health.

6.2.6.5 Educational Facilities

Educational facilities available in the Gladstone region include:

- 17 kindergartens and preschools
- 20 primary schools
- four secondary schools (three in Gladstone and one at Tannum Sands)
- five combined primary and secondary schools (at Burua and Mount Larcom, plus three in Gladstone)
- three tertiary campuses (all in Gladstone).

There are also a few non-accredited education-related facilities (including several tutoring services, and a music academy in Gladstone); Special Education Units at Clinton, Tannum Sands and Gladstone; and numerous Parents and Citizens/Friends Associations attached to state and Catholic local primary schools.

Gladstone High School science students attend the Boyne Island Environmental Education Centre (BIEC), which is part of the Gladstone public school system, for several weeks as part of their curriculum. The centre and its programs allow students to develop knowledge in environmental sciences, marine biology and oceanography, and skills such as field sampling, sample testing, and data analysis.

The locality and enrolment figures for August 2008 (where available) are described below for each facility in the Gladstone LGA. Preschools, kindergartens and child care centre locations are identified in *Appendix 8.3.*

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43 Central Queensland Health Services District, Q Health (pers.comm. 4.12.08)

Table 8.6.19 Educational Facilities in the Gladstone Area, 2008 [44]

Primary Schools – State	**Locality**	**Enrolment 2008**
Agnes Water State Primary School	Agnes Water	275
Ambrose State School	Ambrose	61
Benaraby State Primary School	Benaraby	149
Bororen State School	Bororen	34
Boyne Island State School	Boyne Island	322
Builyan State Primary School	Builyan	8
Calliope State School	Calliope	441
Clinton State School	Gladstone	660
Gladstone Central State School	Gladstone	265
Gladstone South Primary School	Gladstone	286
Gladstone West State School	Gladstone	737
Kin Kora State School	Gladstone	758
Miriam Vale State School	Miriam Vale	111
Nagoorin State School	Nagoorin	10
Tannum Sands State School	Tannum Sands	654
Ubobo Primary School	Ubobo	25
Yarwun State Primary School	Yarwun	48
Primary Schools – Private		
St Francis Catholic Primary School	Tannum Sands	237
St John's the Baptist Catholic Primary School	Gladstone	455
Star of the Sea Catholic Primary School	Gladstone	332
Schools for Children and Young People with Disability		
Tannum Sands State School Special Education Program Unit	Tannum Sands	N/A
Gladstone West State School Special Education Program Unit	Gladstone	N/A
Clinton State School Special Education Unit	Gladstone	N/A
Kin Kora State School Special Education Program Unit	Gladstone	N/A
Rosella Park Special School	Gladstone	63
Secondary Schools		
Gladstone State High School	Gladstone	1109
Toolooa Secondary School	Gladstone	896
Tannum Sands State High School	Tannum Sands	1066
Chanel College	Gladstone	458
Combined Primary + Secondary Schools	Locality	Enrolments
Faith Baptist Christian School	Burua	80
Trinity College	Gladstone	176
St Stephen's Lutheran College	Gladstone South	166
Mount Larcom State School and Secondary Department	Mount Larcom	100
Toolooa State High School Special Education Program Unit	Gladstone	0
Tannum Sands State High School Special Education Program Unit	Tannum Sands	0
Gladstone State High School Special Education Program Unit	Gladstone	0
Tertiary Education	**Locality**	**Enrolments**
Australian Technical College	Gladstone	Not available
Central Queensland TAFE – Gladstone Campus	Gladstone	
Central Queensland University	Gladstone	

Other educational facilities and services in the region include:

44 http://education.qld.gov.au/schools/maps/, Accessed Nov 2008.

- Boyne Island Environmental Education Centre
- Gladstone and District Life Education Centre
- tutorial centres
- a private music academy
- Parents & Citizens/Friends Associations.

6.2.6.6 Police and Emergency Services

The LNG Facility area is covered by the Queensland Police Service Central Region. There are two police stations in Gladstone, which are located in the town centre on Yarroon Street and the Gladstone Police Beat shopfront is located in Kin Kora Mall. The nearest stations outside Gladstone are located in Tannum to the south on the coast and Calliope inland to the south-west.

There is also a water police station in Gladstone, which was established in December 2005 and operates from the Central Queensland Ports Authority.[45]

The LNG Facility area is serviced by the Department of Community Safety (Central Region). This region covers approximately 440,000 km^2 and serves a population of approximately 320,000 people, with the majority populating coastal cities such as Gladstone. [46]

There are five ambulance stations in the LNG Facility area, located in the townships of Gladstone, Calliope, Mount Larcom, Miriam Vale and Agnes Water. The service works closely with rescue helicopters based at Rockhampton and Mackay and with the Royal Flying Doctor Service fixed-wing aircraft, also based at Rockhampton. [47]

The Queensland Fire and Rescue Service has one permanent fire station in Gladstone, and auxiliary stations in Calliope, Gladstone, Mount Larcom, Miriam Vale and Agnes Water.[48]

State Emergency Services in the Facility area are located in the communities of Agnes Water, Calliope, Gladstone, Miriam Vale, Mount Larcom, Rosedale and Boyne Island. Of the 11 groups in Rockhampton LGA, the closest group to the Facility area is in Mount Morgan. [49]

6.2.6.7 Recreational and Sporting Facilities

There are over 50 active sporting clubs and recreational associations available in Gladstone LGA. These range from hockey and golf clubs to racquet and boating recreational associations. Sporting and recreation facilities providing services to the wider community and recreational clubs in the LGA are shown in *Table 8.6.20*.

Table 8.6.20 Major Recreational facilities

45 http://mywebsite.bigpond.com/ijpj/Police_Pages/history.html, Accessed December 2008.

46 www.ambulance.qld.gov.au/about/regions.asp, Accessed September 2008.

47 www.ambulance.qld.gov.au/about/regions.asp, Accessed September 2008.

48 http://www.fire.qld.gov.au/about/regions/region3.asp, Accessed November 2008.

49 www.emergency.qld.gov.au/ses/about/regions.asp#Central, Accessed September 2008.

Facility	Location
Gladstone Entertainment Centre	Gladstone
Harbour City Indoor Sports Centre	Gladstone
Central Coast Sports Club	Mount Larcom
Clinton Park Sports Assoc Inc	Gladstone
Gladstone and District Sports Foundation Inc	Beecher
Meteors Sports Club	Gladstone
Tanyalla Recreation and Conference Centre	Boyne Island
Tannum Sands Sports Complex Organisation Inc	Boyne Island
Gladstone Indoor Basketball Complex	Gladstone

Numerous public spaces including walking trails, cycle paths, parks and gardens are located throughout Gladstone LGA. Golf courses, picnic areas, large parks, cycling paths, showgrounds, skate parks, recreation grounds and walking trails are located in Calliope, Gladstone City, Miriam Vale, Yarwun, Boyne Island and Tannum Sands.

Gladstone City consists of approximately 38 km of footways and cycle paths. Gladstone City Council's Walk-Cycle Network Improvement Plan, June 2006, sought to review the existing cycle network and develop strategies to improve the quality, maintenance and support for the city's footways and cycle paths.

Integrated bike paths and walking trails have been developed by GRC particularly in Tannum Sands, Boyne Island and Gladstone City. The council, together with private organisations, the community and GPC, have constructed an 18 km foreshore bikeway along Tannum Sands and Boyne Island, called the Turtle Way. The cycleway joins many local schools, recreation areas, community facilities and shopping centres.[50] Gladstone City is developing a similar project, integrating a bicycle and pedestrian way with access to community facilities, shopping complexes and local schools in the area as part of the Walk-Cycle Network Improvement Plan.[51]

Gladstone LGA has several parks, gardens and recreational areas available throughout the area. Both Gladstone and Miriam Vale Shire Councils, as part of GRC, have developed Public Open Space and Recreation Plans. These plans discuss the use and ability of existing parks, open space and recreation facilities in the context of current and future population growth. The plans also outline an implementation guideline with desired standards for the service of public parks and infrastructure.[52]

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50 Gladstone Regional Council, TurtleWay Bikeway, http://www.gladstonerc.qld.gov.au/parks5Facilities/facilities/calliope/turtlewaybikeway.html , Accessed September 2008.

51 Gladstone Regional Council, Trails and Bikeways, http://www.gladstonerc.qld.gov.au/parks5Facilities/facilities/gladstone/trailsbikeways.html Accessed September 2008.

52 Miriam Vale Shire Council and Strategic Leisure Group, *Public Open Space and Recreation Plan,* Final Draft, April 2008.

6.2.6.8 *Cultural life*

Cultural events and festivals are also held annually and biannually throughout the region. Major entertainment and cultural events include:

- Calliope River Historical Markets
- SUNfest
- Boyne Tannum Hook-Up Annual Fishing Competition
- Old Station Flying and Airshow (Biannual)
- Gladstone Harbour Festival
- Brisbane to Gladstone Yacht Race
- The Gladstone Seafood Festival
- Multicultural Festival
- Gladstone Annual Show
- Mount Larcom and District Annual Show
- Calliope Annual Rodeo
- Calliope Gold Cup Annual Race Day (Boxing Day).

Cultural facilities and services are also provided at the regional level in Rockhampton LGA. These include Rockhampton Art Gallery, Walter Reid Cultural Centre, Regional Arts Development Fund program, Rocky Fringe Short Film Festival and Community Arts.[53]

6.2.6.9 *Roads and Transport*

Gladstone and Rockhampton cities are the major urban centres for the Central Queensland regional area. In particular, Gladstone City is a major industrial centre, consisting of a large network hub of road, rail, air and sea transport infrastructure to support the industries located there. Gladstone therefore plays a vital role in supplying extensive transport infrastructure links to the greater Gladstone LGA as well as the broader Central Queensland region.

Gladstone LGA is serviced by an established network of national highways and major roads. Highways in the LGA include:

- Bruce Highway (coastal) – linking towns north and south of Rockhampton
- Dawson Highway-Gregory Highway-Peaks Downs Highway – scenic highways linking Gladstone to Mackay via Emerald
- Capricorn Highway (west) – linking the East Coast to western regional centres.[54]

Table 8.6.21 indicates the lengths of national highways, local and state roads and public transport available in the Calliope Shire, Gladstone Shire and Rockhampton Shire in 2005.

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53 www.rockhamptonregion.qld.gov.au/common/Pages/Display/article_all_view.aspx?id=156 Accessed September 2008.

54 Queensland Government, CQ A New Millennium Infrastructure Technical Paper, January 2005, p 9

Table 8.6.21 Public Transport and Road Infrastructure in Gladstone LGA and Rockhampton LGA 2005

Shire	Local Government Road (laned)	State-Controlled Road	National Highway	Public Transport
Calliope	1,879 km	204 km	89 km	School services (contracted km-based, fully subsidised) Taxis in Tannum–Boyne (25 Gladstone Taxis).
Gladstone	419 km	34 km	10 km*	Buses Town Service (government subsidised) 25 taxis School services both subsidised and non-subsidised
Rockhampton	962 km	27 km	19 km	Capricorn Sunbus 61 taxis (seven wheelchair accessible) School services (government subsidised)

[55] Queensland Government, 2005

*This figure was taken from the 2001 CQ A New Millennium Technical Infrastructure papers, as no information was provided in the 2005 update[56].

Gladstone LGA's rail infrastructure plays an important role in the region and state's freight system (predominantly coal traffic) and passenger rail system. Main rail lines operating in the Gladstone LGA include the North Coast and Moura–Monto lines, with other smaller rail connections to wharves and power stations in the area.

Gladstone's passenger rail service provides connections via the North Coast line to Rockhampton and Cairns, and south to Brisbane. The North Queensland Tilt Train service was recently introduced to the North Coast line, operating from Brisbane through to Rockhampton, passing through Gladstone daily. This service has reduced travel time between Gladstone and Rockhampton, as well as Brisbane and Gladstone.

There are also a number of public and privately operated transport options available in Gladstone City, including a government-subsidised bus service and private taxi service. Major regional airports in Gladstone and Rockhampton and a minor, non-commercial airstrip in Calliope also service the area and are used by emergency air services when required. [57]

55 Queensland Government, CQ A New Millennium Infrastructure Technical Paper, January 2005, p 12.

56 www.cqris.com.au/opencms/export/sites/default/resources/documents/files/CQ_INFRASTRUCTURE_17_MAY_20.pdf, Accessed November 2008.

57 Queensland Government (2005): CQ A New Millennium Infrastructure Technical Paper, p 12; and Queensland Department of Transport (2001): Gladstone Integrated Regional Transport Plan 2001-2030, p 81.

6.2.6.10 *Analysis of Existing Demand*

Benchmarking Analysis

An analysis of current provision and demand for social infrastructure was conducted for the Project. The report is attached as *Appendix 8.3*. It includes a benchmarking analysis assessment of social infrastructure facility needs in Gladstone LGA.

Benchmarking analysis indicated the need for a young people's facility in the short term, and identified some need for additional facilities in the years to 2026. Benchmarking for a diverse area like Gladstone LGA which ranges from highly urbanised to quite small and remote rural communities is challenging. In reality, there may be a need for additional facilities in Gladstone City which is shielded by the number of small, inadequate facilities in small locations, and difficult to accurately assess using an LGA-wide, desktop approach.

Findings of the benchmark analysis for community facilities in Gladstone were as follows:

- There is an existing need for a district-level youth facility in Gladstone and upgrading of youth spaces in rural towns.
- Population growth in Gladstone City indicates a need for an additional community centre to meet the city's growth, one by 2016 and the second by 2026.
- The LGA has myriad small halls that are aged and require maintenance beyond the capacity of particularly smaller communities. There is an expressed need for expansion/renovation of existing community halls to adequately accommodate outreach and other services to support rural communities in the main service centres of Calliope, Agnes Water, Miriam Vale, Mount Larcom and Tannum Sands.
- There may be a need to expand the capacity of the existing courthouse to accommodate additional growth.
- Gladstone LGA has two regional arts spaces (Gladstone Civic Theatre and the Gladstone Regional Art Gallery and Museum) which are sufficient on a benchmarked basis to meet expected growth.
- There are no district-level performing arts spaces, and benchmarking indicates the need for two such centres, one of which may be able to be provided through an extension to the existing District Community Centre.
- Restoration of local halls would provide an opportunity to provide performance and workshop spaces at a local level.

Consultation

Gladstone Council has a long history of providing and planning social and human services. It has had a strong working relationship with communities since 2002, working towards social objectives and services. Council officers were included in consultation, as were members of the Gladstone Interagency network.

The following issues were identified in consultation with the council and

Gladstone social infrastructure providers:

- challenges ensuring equitable service delivery across the LGA, particularly with regard to lack of public transport services
- difficulty accessing doctors after hours and on weekends
- growth outstripping social infrastructure supply and capacity, particularly services and networks
- shortage of early childhood, family and early prevention services (e.g. for domestic violence and substance abuse)
- severe shortage of affordable housing (including family housing)
- displacement of lower income households to cheaper housing in rural villages/towns increasing the demand for outreach services (including satellite settlements more than half-an-hour's drive from Gladstone)
- shortage of aged-care packages and housing for older people
- lack of public transport impacting on particular groups (especially young people)
- need for community health centres (in addition to existing centre)
- need for increased community centre capacity in rural areas to accommodate support services (e.g. women's clinics)
- need for improved accessibility for young people and indigenous people to employment opportunities
- need to facilitate positive integration of resources workers with existing community and maximise strong acceptance of people/workers from beyond
- need to increase volunteering capacity
- declining capacity of rural communities to maintain existing community facilities (halls), with most halls aged and not suitable for multi-purpose use
- need for youth drop-in spaces in Gladstone and rural towns (separate to PCYC), particularly with lack of public transport services enabling access for those without independent transport (young people, low-income people)
- displacement of lower-income households to rural villages and towns increasing the demand for outreach services there.

With regard to health needs, Queensland Health[58] advises much greater pressure on health services in Gladstone relative to other areas, due to the limited availability of affordable private health services (including after hours and weekend doctors, and acute and emergency services), exacerbated in coastal settlements that have growing and ageing sea-change populations (such as Tannum Sands). This impact is felt in Gladstone City which is growing with young mining families and therefore has higher demand for mental health, community, children and family health services associated with the social dislocation brought about by absentee parents.

58 Central Queensland Health Services District, Q Health (pers.comm. 4.12.08)

In health services planning, there will also be an emphasis on making better use of existing facilities, and developing innovative models of delivery that are responsive to changing community needs. For example, many of the facilities are old, and do not meet contemporary service standards and practices. Many services are dependent on retaining the existing specialists without whom there would be no service (a number are already supported by agency staff). These issues will be addressed through the District Health Services Plan.

There is also a need to stimulate private sector investment in health services to complement the public health system, and help reduce the demand on the public system from people who have private health cover but no local access to private health services.

6.2.7 Housing

6.2.7.1 Housing stock[59]

There were more than 19,000 occupied dwellings in Gladstone in 2006, of which more than 15,805 were separate dwellings. Separate dwellings represented 87 per cent of housing stock in Gladstone, with highest proportions found in the rural area (former Calliope Shire). The highest proportion of multi-unit dwellings was in the most urban area (Gladstone SLA). The Gladstone LGA has similar proportions of separate and multi-unit dwellings to Rockhampton, but a higher proportion of separate dwellings than the Queensland average, which is typical of regional centres (refer to *Appendix 8.1*).

The table below shows the number of dwellings in the Gladstone LGA in 2001 and 2006. The number of dwellings increased by 13.7 per cent over the five years. Of the increase in stock in occupied private dwellings, approximately 85 per cent were separate dwellings, perpetuating the trend in dwelling mix

Table 8.6.22 Dwelling Structure: 2001 - 2006

Dwelling structure			**Change**
	2006	2001	2001-2006
Separate house	15,805	14,112	1,693
Semi-detached, row or terrace house,			
townhouse etc.	443	376	67
Flat, unit or apartment	1,528	1,294	234
Other dwelling(a)	1,223	1,001	222
Dwelling structure not stated	17	243	-226
Total occupied private dwellings	19,016	17,026	1,990
Unoccupied private dwelling	2,553	1,938	615
Total private dwellings	21,569	18,964	2,605
Non-private dwelling	83	71	12

The total housing supply in the Gladstone LGA at August 2006 was around 21,569 dwellings, of which 19,019 dwellings were occupied. Based on the trend in building approvals (see Section 6.3.7.4), there were likely to have been 1,200 residential building approvals during July 2006 to July 2008. Estimating that 80 per cent of those dwellings were built and occupied in that period, there were likely to have been 960 dwellings added to the housing stock of Gladstone in the two-year period, for a total of around 19,980 occupied dwellings in July 2008.

59 DIP (November 2007)Census fact sheet No. 1, Census data Gladstone Regional Council , based on local government boundaries effective March 2008 (ERP data), viewed at http://www.dip.qld.gov.au/resources/factsheet/PIFU/CensusFactsheet_ LGA_GladstoneRegionalCouncil.pdf

6.2.7.2 Housing Tenure

Gladstone LGA had a home ownership rate of almost 29 per cent in 2006, which was lower than the Queensland and Fitzroy averages. Home ownership was lowest (at 24 per cent) in the Gladstone SLA, and higher in the more rural areas of Miriam Vale and Calliope[60], where housing is more affordable and the population more stable than in urban areas. The percentage of renting households is slightly higher than average in the Gladstone SLA, representing a more transient population in this area. Percentages of households buying their homes were higher than Queensland averages across the LGA in 2006, with the exception of Miriam Vale.

As shown in the table below, Both the number and the percentage of fully owned houses declined from 35.2 per cent to 28.6 per cent between 2001 and 2006, and the percentage of houses being rented declined from 30 per cent to 27.6 per cent, while the percentage of houses being purchased increased. This reflects the number of young families establishing in Gladstone, and demonstrates both a commitment to investing in Gladstone, and vulnerability with respect to increasing housing costs.

Table 8.6.23 Household Tenure Gladstone Region LGA: 2001-2006

Tenure (occupied dwellings)	No.	%	No	%	Change
	2006		2001		2001-2006
Fully owned	5,448	28.6	5,997	35.2	-549
Being purchased	6,998	36.8	4,998	29.3	2,000
Rented	5,247	27.6	5,119	30	128
Other incl. rent-free	101	0.5	181	1	-80
Tenure not stated	1,225	6.4	745	4.4	480
Total occupied private dwellings	19,019		17,040		1,979

The latest property listing data[61] from Gladstone indicated a total of 909 properties available for purchase at 11 February 2009, up from 630 properties available in February 2008.

Rental vacancy rates are an important indicator to understand the rate at which houses can be available for rent. The latest available rental vacancy rate in the GRC area for the year 2007–08[62] is 3.2 per cent for all dwellings, comprising 3.1 per cent for houses and 3.5 per cent for units. This indicates that there were approximately 172 houses available for rent in August 2006.

The recent rental property listing data based on analysis of www.realestate.com.au listings in Gladstone indicated the number of vacancies at 11 February 2009 as 190, which accords with the above estimate.[63]

60 Refer to Appendix 8.1: Baseline Data Report.

61 www.realestate.com.au Viewed 11 February 2009.

62 Email correspondence from the Office of Economic and Statistical Research

63 www.realestate.com.au Accessed 13 February 2009.

An additional supply of housing may become available if Rio Tinto releases surplus housing stock of approximately 150 dwellings during 2009.

6.2.7.3 *Land for Residential Development*

The Planning Information and Forecasting Unit (PIFU) of the Department of Infrastructure and Planning provides information on the supply of land and housing statistics based on information supplied by the local governments. Residential land production in Gladstone region has trended up over the past 10 years, with 400 to 600 lot approvals per annum in the period between 1999 and 2003, a sharp increase to more than 1,300 lots in 2004, and a further increase to almost 1,800 approvals in 2006 (PIFU 2007).

The table below indicates the current numbers of residential allotments at different stages of approval in the GRC area, and the estimated number of persons who could be housed assuming further extrapolation based on an average household size of 2.7.

Table 8.6.24 Residential Housing Production for the Gladstone Regional Council Area: 2008–09

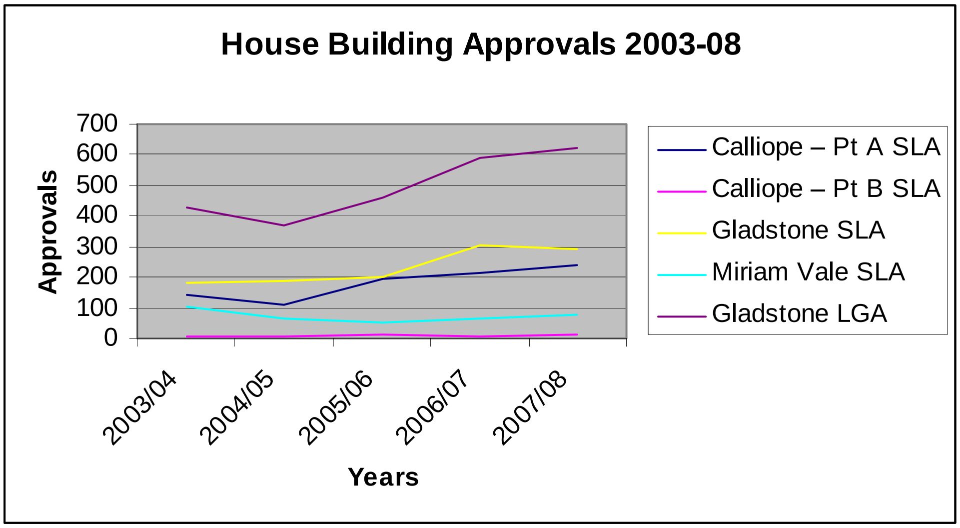
Development Stage	Number of lots	Persons Housed	Minimum Delivery Time
Approval to create allotments	1,407	3,798	13 months
Building Approvals	704	1,900	11 months
Housing Approvals	627	1,693	6 months

Council has advised that, in the context of the global financial crisis, speculation in the production of housing has slowed markedly with few proposals for broad-hectare housing developments being submitted. Interest rates having fallen, it is possible that housing development for rental purposes will increase.

6.2.7.4 *Dwelling Approvals*

There was an upward trend in house building approvals for the Gladstone LGAs between 2003–04 and 2007–08, with 625 approvals in 2007–08. House building approvals for Calliope – Pt A and Gladstone SLA increased annually from 2003 to 2008. Gladstone SLA in particular, experienced strong growth from 2006–7 to 2007–08, with approvals increasing by 65 per cent. For Miriam Vale and Calliope – Pt B SLAs, housing approvals increased and decreased throughout the five-year period. Miriam Vale SLA experienced the greatest decrease in housing approvals with approvals decreasing by more than 60 per cent from 2003–04 to 2004–05. Housing approvals have been steadily increasing for Miriam Vale SLA since 2004–05 but have yet to surpass the total recorded in 2003–04.

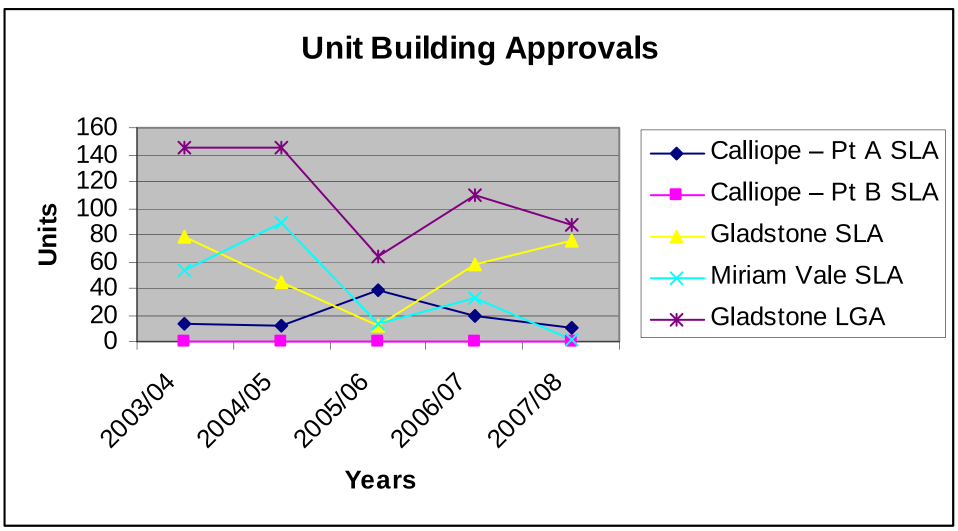
Figure 8.6.8 House Building Approvals: 2003 to 2008



Source: Australian Bureau of Statistics (2008b)

Unit, townhouse and apartment building approvals were of lesser volume and more erratic, with no clear trend apparent as shown in *Figure 8.6.9.*

Figure 8.6.9 Unit Building Approvals: 2003 to 2008



Source: Australian Bureau of Statistics (2008b).

6.2.7.5 *Housing Costs*

Average advertised dwelling costs in Gladstone for the period 8 September to 22 September 2008 were analysed through review of www.realestate.com.au listings and are summarised in the table below, with Rockhampton provided for regional comparison.

Average costs for two- to three-bedroom houses range from $340,000 in Miriam Vale to $382,000 in Gladstone, and $410,000 in Calliope. This was higher than the Rockhampton average ($325,000). Four-bedroom houses ranged from $385,000 in Miriam Vale, to $455,000 in Calliope, and $485,000 in Gladstone.

Table 8.6.25 Average Advertised Dwelling Costs: September 2008

Locality	Average Advertised Cost($)	
	2–3 bed house	4+ bed house
Gladstone	382,000	485,000
Calliope	410,000	445,000
Miriam Vale	340,000	385,000
Rockhampton	325,000	490,000

Source: Realestate.com.au Accessed 8 to 22 September 2008

Between 2001 and 2006, the Gladstone LGA experienced a slightly higher rate of increase in rents than the Queensland average. Increases were higher than the state average in each SLA except Gladstone SLA (reflecting the increase in new building approvals and probably rental stock here). The Miriam Vale SLA recorded the largest growth in rent in Gladstone LGA at 62 per cent, partly driven by realisation of its scenic amenity and lifestyle benefits. The Calliope – Pt A and Pt B SLAs recorded similar increases to the state average of 42 per cent, increasing by 43 per cent and 46 per cent respectively, demonstrating steady growth for a fairly rural area.

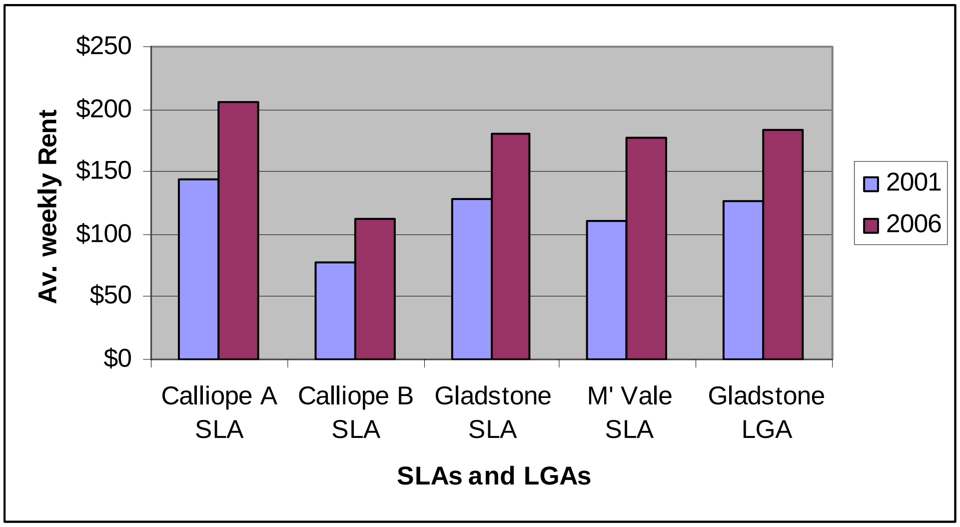
The Gladstone LGA experienced the greatest growth in average weekly rent over the five-year period, increasing by 44 per cent. This adjacent LGAs recorded rental increases between 31 per cent (Rockhampton LGA) and 33 per cent (Banana Shire LGA). It is likely that the strong rate of increase in rental costs in Gladstone is attributable to demand driven by the development and expansion of industrial projects. *Figure 8.6.10* shows the increase in rental costs as recorded in the 2006 census.

Residential Tenancies Authority data indicates that Gladstone's rental costs have continued to rise sharply over the past two years. Median weekly rents for a three-bedroom house have increased by one third, from $225 in June 2006 to $300 in June 2008.

A similar increase occurred in Rockhampton, with median rental costs rising 28.5 per cent from $210 in June 2006 to $270 in June 2008.

These trends correspond to the increasing demand for housing in Gladstone and Rockhampton in response to rapid industry growth and development. These trends are also in line with the Queensland trend where rents increased by 42 per cent over the two-year period.

Figure 8.6.10 Average Weekly Rent: 2001* to *2006



Source: Australian Bureau of Statistics (2007a), Australian Bureau of Statistics (2003), AEC*group.*

Table 8.6.26 Rental Costs for Three-Bedroom Dwellings: June 2006 to June 2008

Location	June 2006	June 2007	June 2008	% change 2006 to 2008
Gladstone	$225	$280	$300	33.3%
Rockhampton	$210	$250	$270	28.5%

Residential Tenancies Authority, 2008 [64]

6.2.7.6 Housing Stress

The ABS calculates the number and percentages of home purchasers and renters experiencing housing stress. Housing stress is defined as experienced when households in the lowest 40 per cent of household incomes are paying more than 30 per cent of their incomes on housing costs. Housing stress indicates that the cost of housing is affecting households' capacity to afford other life essentials, and demonstrates vulnerability to socio-economic disadvantage.

There were approximately 760 households experiencing housing stress in the Gladstone LGA in 2006, which was equivalent to 36.6 per cent of households paying off their homes. Housing stress was highest in the rural areas of Calliope and Miriam Vale. Almost half of all home-buyers in Miriam Vale were experiencing housing stress. Gladstone LGA (36.6 per cent) recorded the highest level of housing stress for low-income families in purchased dwellings, while Banana Shire LGA recorded the lowest (28.3 per cent). Refer to *Table 8.6.27* for a detailed account on the Project area.

64 Residential Tenancies Authority, June Quarter 2008 Median Rents.

Table 8.6.27 Households in Housing Stress Due to Home Loan Costs

Region	Households In Housing Stress Due to Home Loan	Total Dwellings Being Purchased (Households In Bottom 40% of Household Income)	Proportion of Dwellings Being Purchased in Housing Stress
Calliope – Pt A SLA	224	603	37.1%
Calliope – Pt B SLA	45	101	44.6%
Gladstone SLA	378	1,233	30.7%
Miriam Vale SLA	74	152	48.7%
Gladstone LGA	760	2,075	36.6%
Rockhampton LGA	982	3,452	28.4%
Queensland	69,721	137,875	50.6%

Source: Australian Bureau of Statistics (2007a).

The table below highlights the number of low-income households (i.e. in bottom 40 per cent of household income) in housing stress due to rent payments. Rental housing stress was highest in the urban areas and lowest in rural Calliope. The situation was no better in Rockhampton where more than 57 per cent of low-income rental households were in housing stress. However, rental stress in the Gladstone region, Miriam Vale and Calliope was lower than for the Queensland average (65.1 per cent).

Table 8.6.28 Low-income Rental Households in Housing Stress: 2006

Region	Households In Housing Stress Due to Rent Payment	Total Dwellings Being Rented (Households In Bottom 40% of Household Income)	Proportion of Dwellings Being Rented in Housing Stress
Calliope – Pt A SLA	172	340	50.6%
Calliope – Pt B SLA	15	58	25.9%
Gladstone SLA	651	1,169	55.7%
Miriam Vale SLA	66	145	45.5%
Gladstone LGA	906	1,712	52.9%
Rockhampton LGA	2,033	3,533	57.5%
Queensland	97,622	150,044	65.1%

Source: Australian Bureau of Statistics (2007a).

6.2.7.7 Social Housing

Stock figures for housing owned by Queensland Housing (or owned by community organisations with the assistance of a department grant) are listed below for the Gladstone and Calliope SLAs. Stock figures for Miriam Vale were not available.

Table 8.6.29 Social Housing

Gladstone & Calliope SLAs	Number of Rental Units
Public housing	763
Aboriginal and Torres Strait Islander Housing	35

Gladstone & Calliope SLAs	Number of Rental Units
Community Housing (Department owned)	71
Community Housing (Grant)	38
Total	907

Source: Department of Housing SAP R/3 @ 30 April 2008

The supply of social housing does not meet demand. At April 2008 there were at least 477 eligible households on the waiting list for public housing, with more than two thirds of the demand for units rather than houses, indicating that sole persons and seniors are experiencing most difficulty accessing affordable housing[65]. Average waiting times range from 1.7 years in Gladstone to 2.4 years in Calliope[66].

6.2.7.8 *Short-stay Accommodation*

Research for the Project identified the availability of short-stay accommodation in the Gladstone region. Within Gladstone City, there were 29 motel and serviced apartment facilities, with 767 motel rooms and apartments.

In the Gladstone LGA generally, short-stay accommodation includes:

- 39 hotels and motels, with 839 rooms (including those counted above)
- 14 serviced apartment facilities with a total of 424 rooms
- 131 onsite vans
- 94 cabins.

This was a total of 1,488 short-stay accommodation units in the LGA.

Data provided by the ABS for 2007 indicates that the average yearly occupancy rate in Gladstone was 63.9 per cent. Rates through the different quarters of the year were:

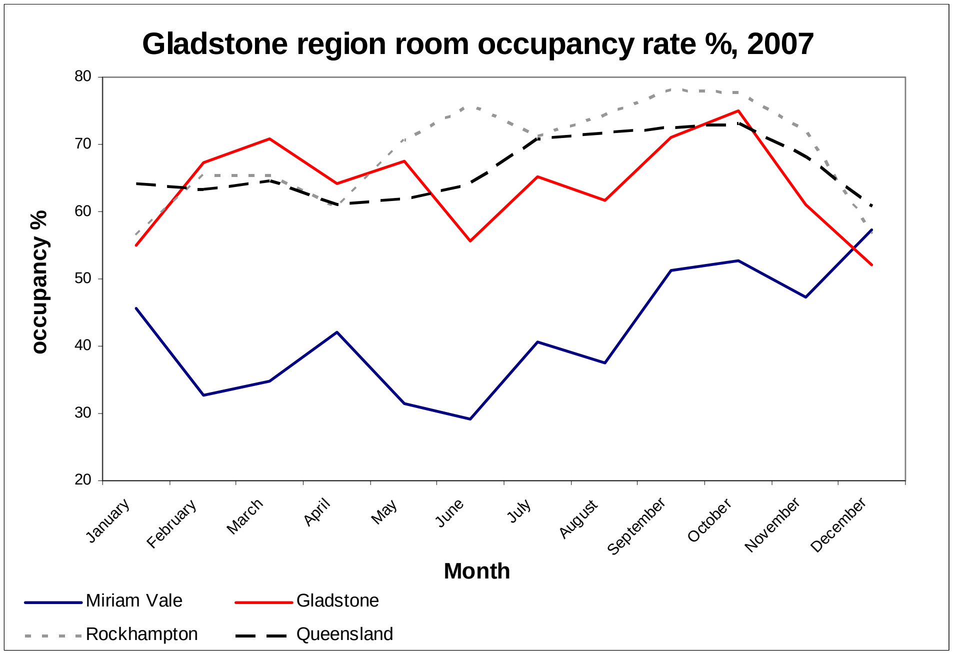
- 54 per cent in January (the traditionally quiet, post-Christmas period)
- 70 per cent in March for the autumn and Easter season
- 54 per cent for June (winter)
- up to 74 per cent in October 2007.

Average occupancy in Miriam Vale accommodation facilities was 41.3 per cent in 2007, and 68.7 per cent in Rockhampton, slightly higher than in Gladstone.

65 Department of Housing SAP Data R/3 @ 30 April 2008

66 Department of Housing SAP Data R/3 @ 30 April 2008.

Figure 8.6.11 Gladstone Region Room Occupancy Rate: 2007



6.2.8 Summary of Social Conditions

6.2.8.1 Population Size and Growth

The Gladstone LGA is one of the fastest-growing regions in Queensland, at 3.1 per cent per annum between 2001 and 2007. Industrial construction and operation is a major driver for Gladstone's population growth.

Gladstone's population in 2009 is approximately 59,000. The population is expected to increase with an average annual growth rate of 2.4 per cent, taking the total population to 88,265 in 2026.

6.2.8.2 Local Values

It is evident from local and regional planning frameworks, which are based on broad consultation and regional analysis, that the Gladstone and Calliope region values good planning for long-term economic prosperity, without compromising the social and cultural values of the region. As noted in consultation and in the survey results, residents strongly value the amenity offered by diverse environments and social settings. Notwithstanding their diversity, Gladstone's values framework shares several common elements:

- strong, vibrant townships, working to maintain liveability in the face of change
- economies reliant on a combination of agricultural and extractive industries
- an understanding of the disparate values inherent in land and water bodies, from spiritual to economic
- an appreciation of a casual, relaxed lifestyle which balances work and play

- outdoor recreation values including water-based and rural activities, with strong scenic values
- a current process of adjustment to amalgamated regional councils
- regional plans which aspire to balance social, environmental and economic sustainability.

Industry is valued as the economic lifeblood of the region, but the cumulative impacts of industry are of concern to Gladstone residents.

6.2.8.3 *Housing*

The total housing supply in the Gladstone LGA at August 2006 was around 21,569 dwellings, of which 19,019 dwellings were occupied. This was likely to have increased to around 19,980 dwellings in 2008, of which 27.6 per cent (5,514 dwellings) would have been rental dwellings. Gladstone LGA had a home ownership rate of almost 29 per cent in 2006, which was lower than the Queensland and Fitzroy averages.

The rental vacancy rate in the GRC area for the year 2007–08[67] was 3.2 per cent for all dwellings, which indicates availability of around 170 rental dwellings in July 2008.

Housing costs in Gladstone increased by 44 per cent between 2001 and 2006, and in 2006, 53 per cent of low-income households renting in Gladstone were experiencing housing stress.

There were approximately 909 properties available for purchase in Gladstone in February 2009[68], up from 630 properties available in February 2008.

6.2.8.4 *Social Infrastructure*

Gladstone City offers a range of health, employment and recruitment services, community and cultural services, youth services, family support services and family services based within Gladstone City. It was noted in consultation that many family support and health services are stretched beyond capacity, and that a range of specialist medical and therapeutic services are only available in Rockhampton.

Local and district-level facilities appear to be well provided, particularly emergency services, but may belie the tyranny of distance. Based on the information from consultation findings as well as population projections, it is likely that the main townships act as district centres, and may require higher levels of provision for some facilities to cater for the growing demand of FIFO, as well as permanent workers.

Existing facilities in local centres and rural villages will continue to serve the dispersed rural settlements, and are critical for the wellbeing of small communities that are not close to the nearest district and regional centres.

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67 Email correspondence from the Office of Economic and Statistical Research

68 www.realestate.com.au Viewed 11 February 2009.

There is a growing trend towards providing service delivery to rural areas through more remote models of delivery including outreach and technologically based models with implications for the role of services, community expectations and the built infrastructure required to support them.

Much of the infrastructure in rural and some coastal areas is old and unlikely to be well-suited to contemporary needs (as is the case for old community centres providing modern community health services, and local halls supporting outreach services and multiple programs).

6.2.8.5 *Social Indicators*

A summary of the status of selected social indicators is included in *Table 8.6.30.* This summary will inform:

- assessment of the changes to social conditions which may occur as a result of social impacts
- monitoring of Project impacts and benefits.

Table 8.6.30 Social conditions status

Indicator	Measures	Status[69] Gladstone	Comparator
Population stability	• same address five years	43%	45% (Qld)
Economic resources	• SEIFA Economic Resources Score	1,009	1,000 (Qld)
Community cohesion	• feel part of the community (survey)	86%	N/A
Cultural diversity	• % of overseas born people	9.6%	18%
Indigenous population	• % of indigenous people	3.5%	3.1% Qld
Health status	• self-reported good health	91%	N/A
Employment rates	• unemployment rate	4.1%[70]	3.6% (Qld).
	• indigenous employment rate	55.9%	74.1% (general)
Workforce skills levels	• % of workforce with certificate qualifications	23%	18% (Qld)
Community safety	• reported crimes against the person	478 [71]	N/A
Housing availability and affordability	• rental vacancy rate • average weekly rental	3.2%[72] $300	2.8% (Qld) $270 (Rockhampton)

69 Latest available comparable data – 2006 census if not otherwise noted.

70 September 2008

71 2007–08

72 September 2008 – OESR

Indicator	Measures	Status[69] Gladstone	Comparator
Social infrastructure access	• Quantitative and qualitative assessment	Sufficient facility numbers, services under stress	
Business and commercial services access	• Number of businesses	4,023	NA

6.3 IMPACTS OF THE PROJECT IN THE GLADSTONE REGION

6.3.1 Labour Force Impacts

6.3.1.1 Labour Force Availability

Gladstone has a strong and diversified construction labour pool. In 2008, there were an estimated 5,216 technicians and trades people in the Gladstone region[73] and approximately 1,200 apprentices.

Gladstone's unemployment rate in 2008 was slightly higher (at 4.1 per cent) than Queensland's (3.6 per cent).[74] In September 2008, there were 2,013 job seekers in Gladstone, with an average age of 34 years. Around half had been unemployed for more than 12 months.

The Project aims to maximise use of local labour, in order to maximise the benefits for local employment rates and incomes, and reduce social impacts[75]. However, the construction labour market in Australia has very high employment rates, and while there is some capacity in the local workforce for unskilled labour, shortages of labour for some skilled trades have been identified (as discussed in *section 6.3.1.2*). It is therefore likely that, while the Project will implement strategies for a maximum local workforce, labour will also be drawn from other parts of Australia and potentially overseas.

In April 2009, Rio Tinto Alcan advised that their Gladstone-based workforce would be downsized by about 600 people, and there have been a number of lay-offs from Bowen Basin mining operations during the past few months. This is an example of the current volatility in labour availability. Most of the workers laid off in early 2009 are likely to obtain other work (potentially in other areas) before construction of the Project begins. However, the economic volatility may lead to an increase in people available for longer-term positions available for the construction phase of the Project.

Local labour availability will be a function of the number of concurrent competing projects in the Gladstone region and other parts of Queensland, and the number of LNG plants being constructed both in Gladstone and in other parts of Australia. These factors are not quantifiable. For example, completion of the Yarwun 2 Refinery expansion in 2010 will release hundreds

73 Gladstone Region Project Status Report 2008 – Gladstone Area Promotion and Development Limited Initiative

74 OESR Regional (September 2008).

75 A non-local worker is defined for this report as an employee whose usual place of residence is at a distance from the Project that is not practical for the employee to return home each evening, and assumed (given the Project's island location) at 50 km from Auckland Point.

of workers to the labour pool, but Yarwun 3 Refinery expansion or Gladstone Pacific Nickel may take them up, and specialised labour could be drawn by another LNG plant if it proceeds.

The information in *Table 8.6.31* was drawn from GEIDB's Regional Development Review (February 2009), and shows the estimated number of construction jobs in major projects in the Gladstone region in 2009–10. If all projects proceed in their currently planned time frames, an average of around 3,000 construction jobs will be available. The Project may attract a large number of workers released when these projects are complete, as the labour force builds during 2011.

Table 8.6.31 Projects under construction and approved Gladstone

Project	Commenced/ to commence	Forecast Complete	Construction Workforce
Under construction 2009			
RTA Yarwun Stage 2	Q3 2007	Q2 2010	2,800 (peak)
Cement Australia Mill	Q1 2008	Q2 2009	100
Orica	Q1 2008	Q1 2009	50
Boyne Smelters upgrading	2009	Q2 2012	450 peak
Potential construction			
Wiggins Island Coal Terminal	Unknown	Unknown	500
Gladstone Pacific Nickel	2009	2012	1,000–2,300 peak

6.3.1.2 Project Labour Requirements

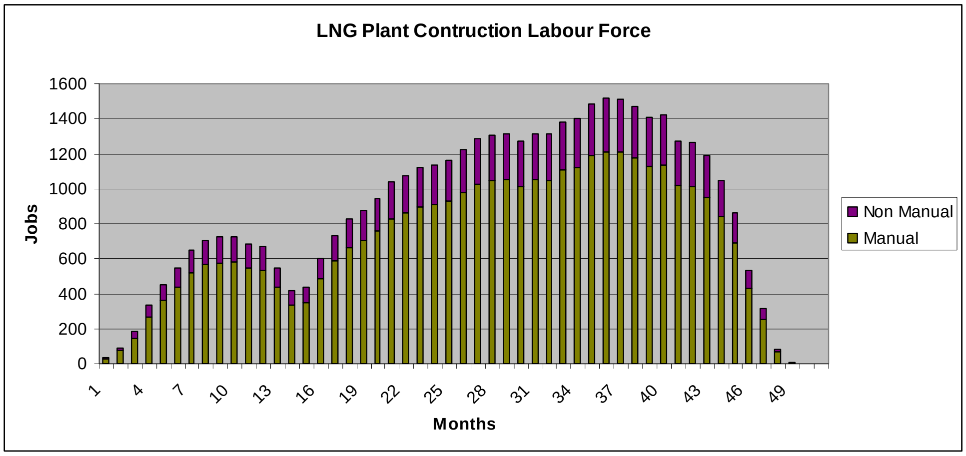
Data below indicates the total number of manual and non-manual employment jobs in the Project's LNG Facility construction phase (Trains 1 and 2). Construction start-up is estimated for the second quarter (Q2) of 2010. Labour force demands for associated works are addressed in *Section 6.3.1.6* on cumulative impacts.

Early works construction would begin with a small start-up workforce, building to a peak of 724 in month 10 (around Q1 2011), before declining slightly as early works are completed.

The labour force would then build sharply from 603 workers in Q2 2011 to 1,307 in Q2 2012 and to a peak of 1,517 workers in month 36 (around Q2 2013). At peak, more than 1,200 manual workers would be required along with around 300 non-manual workers.

Major construction is planned to be completed by September 2014.

Figure 8.6.12 LNG Labour Force Histogram



The table below indicates workforce numbers for LNG Facility construction at key intervals and peaks. The average number of jobs over the entire construction period is 860. During the most intensive two years of construction (months 21 to 44), an average of 1,289 jobs will be maintained.

Table 8.6.32 LNG Labour Force: Intervals Months 1–51

Month	**1**	**10**	**16**	**22**	**28**	**34**	**36**	**40**	**46**	**51**
Estimated Timing	Apr 2010	Jan 2011	July 2011	Jan 2012	Jul 2012	Jan 2013	Mar 2013	Jul 2013	Jan 2014	June 2014
Manual	27	579	482	860	1,046	1,119	1,213	1,137	427	0
Non-manual	7	145	121	215	261	280	303	284	107	0
Total	34	724	603	1,075	1,307	1,399	1,517	1,421	534	0

Construction of Train 3 will occur during the operational phase, and will require around 950 trades staff. This will provide ongoing employment for more than half the peak workforce for Trains 1 and 2, and will contribute strongly to population and workforce stability in the Gladstone region.

If construction of Train 3 is deferred, it is possible that some local workers will seek employment (and potentially residence) in other regions of Queensland. This is a normal part of the state's changing population distribution and has little significance at the local or regional level.

6.3.1.3 Type of labour required

The types and amounts of labour required by the Project are outlined in *Table 8.6.33*

Table 8.6.33 Trade Groups Required LNG Facility Construction at Peak

Trade Groups	Number
Civil Trades	203
Ironworking Trades	71
Piping Trades	330
Millwright Trades	78
Electrical Trades	192
Instrumentation Trades	95
Site Preparation Subcontractor	431
Painting, Fireproofing & Insulation Subcontractor	77
Buildings Subcontractor	68
Jetty Subcontractor	201
Tank Subcontractor	267
Other	185

Given the specialised nature of some crafts required, it cannot be assumed that increasing unemployment due to slowdowns in production or construction of other projects will translate to the availability of specific construction employees for the Project. For example, skill shortages identified in the local labour market, include:

- scaffolders
- insulators
- steel fixers
- concrete finishers
- specialised welders.

In the absence of skilled trades workers in the local area, workers will be drawn from other Australian regions and potentially overseas, as discussed below.

The indicative work plan is a 9/90 schedule, with construction shifts of 10 hours per day, nine days a fortnight (five working days, two days off, four working days, three days off). This indicative work plan has been used as the basis for assessment of impacts in this document.

However, it may change due to ongoing industrial relations negotiations as well as local labour market conditions at the commencement of construction. Monitoring of changes to proposed shift arrangements in respect to transport, travel, housing, infrastructure and social impacts will be required as part of ongoing environmental management processes.

6.3.1.4 Workforce Origin

The Project aims to achieve a high level of local employment. Bechtel's experience with construction of the Yarwun Aluminium Refinery indicates that local employment of up to 95 per cent can be achieved for a project of comparable size. However, given the number of projects which could be constructed in the same timeframe as QCLNG, the specialised nature of some trades required, and economic uncertainty affecting labour conditions, 3 labour availability scenarios - for 80 per cent, 70 per cent and 50 per cent - have been considered in the table below.

It is likely the Project would draw on the labour pool in the region around Gladstone, including Rockhampton and Banana Shire residents. Further, it would draw on labour pools from other parts of Australia, particularly specialist labour based in the Northern Territory, Western Australia or overseas. Achieving 70 to 80 per cent local employment at peak would require between 300 and 455 workers from other areas, while achieving only 50 per cent local employment would require around 760 non-local workers at peak. The coincidence of the project with LNG Projects will increase the demand for non-local workers.

During the most intensive two-year construction period, 70 to 80 per cent local employment would require between 250 and 390 imported workers, and 50 per cent local employment would require around 645 imported workers.

Table 8.6.34 Workforce origin scenarios

	Peak – Month 36			**Average for Months 21 to 44**		
Percentage local workers	50%	70%	80%	50%	70%	80%
Local labour	759	1062	1,214	645	902	1,031
Non-local labour	759	455	303	645	387	258
	1,517 workers			1,290 workers		

The benefits and impacts of maximising local employment are considered below, while the consequent impacts for population and housing are discussed in the following sections.

6.3.1.5 Labour Draw from Local Businesses

The Project is likely to draw labour from existing businesses and services in Gladstone. During 2007–08, general labour shortages due to industries' increasing activity impacted on local businesses, which were unable to get skilled labour. For example, a local car dealer has six auto mechanics from the Philippines on a work-visa program because local labour wasn't available, and shops and services such as hairdressing could not keep staff because wages were higher in industry and construction. The Project will consult with local businesses about the effect that the Project's labour draw has on local businesses and services, and consider alternative recruiting strategies (e.g. increasing recruiting in Rockhampton and other nearby centres). It should also be possible to consider local businesses' recruitment strategies with regard to the Project, and to cooperate with them in recruitment for the city's total business and service needs.

In addition, maximising local and Australian employment will create substantial demand for construction labour which could result in difficulty maintaining labour supplies for other projects in the region. This is considered in the population and housing sections, and described in more detail in *Volume 8 Chapter 10*).

6.3.1.6 *Cumulative Construction Labour Impacts – Gladstone*

Table 8.6.35 and *Table 8.6.36* summarise proposed projects which could be constructed from 2010 to 2013. The data provides a rough indication of jobs potentially available in the construction industry in or adjacent to the Gladstone LGA and GSDA in the period 2009 to 2013. Complexity in predicting labour availability is increased by the economic volatility experienced since October 2008. Cancellations and deferrals of some projects are likely. These proposals indicate:

- around 2,200 jobs could be available in construction of pipelines, rail lines and industrial plants
- an additional 5,000 jobs are potentially available in industrial facility construction.

The likely impact of a number of projects proceeding is a strong draw on Queensland's construction labour pool, and could result in restricted availability for projects in other parts of Queensland. The rate at which projects proceed is partly constrained by labour availability. An indirect impact is the potential for labour prices in the region to rise, to attract workers from other regions, which could increase incomes but also the price of labour for other companies and projects. This is considered in the Economic Impact Assessment (*Volume 8 Chapter 10).*

Table 8.6.35 Major Construction Projects Proposed for Gladstone Region: 2010 to 2013[76]

Project	Commence	Complete	Jobs	Capital Expenditure
Boulder Steel	2010	2012	900	$1.2 b
Arrow & AGL Moranbah to Gladstone pipeline	2009	2010	300	$300 m
Queensland Energy Resources semi works and plant decommission	NA	NA	300	$250 m
Surat Rail to Wiggins Island Coal Terminal	2010	2012	Est. 600 (capital expenditure est. $1 billion)	$1b
Gladstone Area Water Board Gladstone–Fitzroy Pipeline	2009–10	2012–13	Est. 100	$320 m
Transpacific Industries	2009	2012	70	
Fisherman's Landing Expansion	2011	2012	Est. 50	$150 m

76 Extrapolated from Gladstone Economic and Industry Development Bureau (February 2009) Regional Development Review

Project	Commence	Complete	Jobs	Capital Expenditure
Queensland Rail Moura–Aldoga Rail	2009	2012	NA	NA
Australian Inland Rail linked to above	NA	NA	NA	NA
Arrow Boyne River CSG	NA	2011	NA	NA

Table 8.6.36 LNG Projects Proposed for Gladstone

Project	Commence	Complete	Jobs
QCLNG	Q1 2010	Q3 2013	1,500 in Gladstone
Santos GLNG (Santos and Petronas)	Q1 2010	Q3 2013	3,000 Various locations Assume 1,500 in Gladstone
Origin & Conoco Phillips	2011	2013	3,000 peak. Assume 1,500 in Gladstone
Southern Cross (LNG Impel) terminal – Train 1 of 3	NA	2013	350
Gladstone LNG (LNG Ltd + Arrow)	2009	2011	120
Sun LNG (Sojitz)	2009	2011	400
Origin – CSG from Walloon to Yarwun refinery	N/A	Q2 2010	Unavailable

The Project is participating in the Gladstone Engineering Alliance Manufacturing and Engineering Skills Formation Strategy, which aims to develop the capability of the workforce in the Gladstone region. The project aims to facilitate industry and government collaboration on analysis of workforce skills and gaps, and development of strategies to address workforce capacity issues.

6.3.1.7 Cumulative QCLNG construction workforce

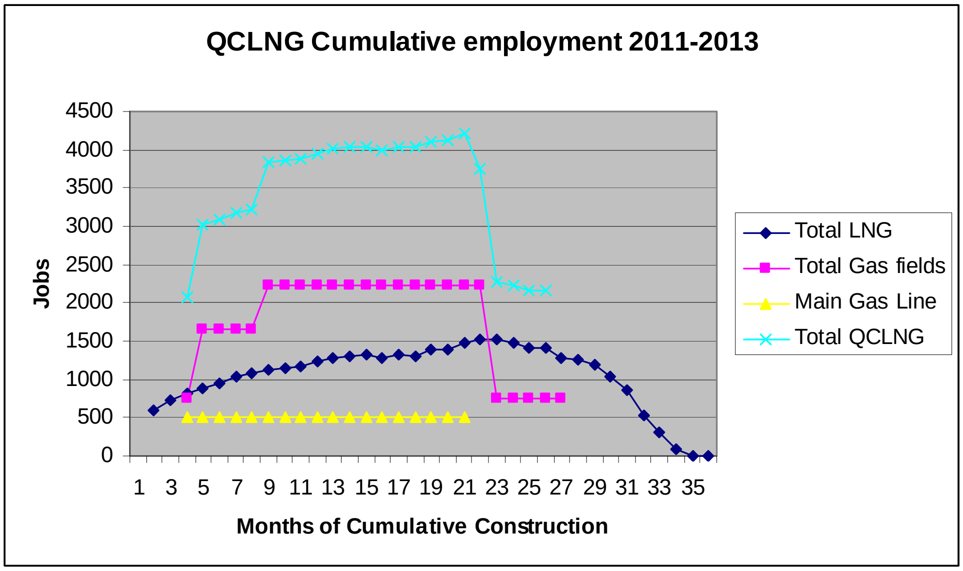
The LNG Facility has a 51-month construction timeframe, with early works expected to begin in early 2010. The Gas Field Component of the Project has an initial construction period of 24 months, assumed to start in June 2011, and the Pipeline has a construction period of approximately 12 months, also starting in June 2011.

At month 18 of LNG Facility construction, (around June 2011), Gas Fields and Pipeline construction begin, and coincide with LNG Facility construction until month 33 (around the end of 2012) when the Pipeline construction will be complete. Gas Field construction continues coincidentally with LNG Facility construction until month 41 (around May 2013).

The number of cumulative jobs offered by the Project as a whole will increase steadily during the second half of 2011, from about 800 in the LNG Facility in June 2010, to almost 3,900 jobs across the Project area in January 2011, and a peak of more than 4,100 jobs in late 2012. On average during 2012, the Project will account for around 4,000 jobs in Queensland.

The histogram below represents the total Project construction workforce.

Figure 8.6.13 QCLNG Cumulative Construction Employment June 2011 to June 2013



The provision of this number of jobs will be a significant boost to employment in Queensland, particularly if the effects of the current economic downturn are still being felt. This is discussed in detail in *Volume 8 Chapter 10.*

Ancillary Works

The additional workforce requirements for the bridge, services corridor and road construction (being assessed by the Queensland Government and potentially for construction concurrently with the Project) may total an additional 300 personnel, for a period of up to two years. It is assumed for this assessment that bridge and road construction will be undertaken by construction companies sourcing their workers from the Gladstone region if possible, and importing specialist crews from other parts of the state. Bridge construction workers are a mobile workforce given the time-limited nature of their projects, and are likely to drive–in, drive-out, or FIFO staying in local motels for the duration.

In addition, dredging activities proposed as part of the Gladstone Port expansion (and servicing the Project) could require up to 300 crew members, assuming the operation of three to four dredges and accompanying support vessels from 2010 to 2011. As these are specialist staff, they would be accessed from other parts of Australia and overseas, and there is unlikely to be any impact on local labour availability or skills levels. It is expected that the GPC's contractual arrangements for dredging will include provision for worker accommodation in mainland workers' camps such as that already approved by GRC.

6.3.1.8 Operations, Train 3 Construction and Shipping

Operations

During the operational phase, the Project will offer up to 200 jobs. Most trades labour jobs (around 70) will be filled by local personnel, travelling to Curtis Island daily on 12-hour shifts. Up to 100 personnel will be based in Gladstone to support the Facility operation and QGC's business in the region. There is also potential for in-migration of up to 20 specialist expatriate personnel. An additional 30 or so personnel supporting the Project could be based in Brisbane.

Staff required for operations will be sourced from the Project construction workforce and the Gladstone labour pool where available.

Every five to six years, a shutdown and maintenance period will be required. This will require a workforce of approximately 500 people. There may also be minor or partial shutdowns every 12 to 18 months, leading to small peaks in employment at these times. Given the local skills base it is likely that much of this labour could be obtained locally. Alternatively, labour from other regions would be sought.

As such, no negative impacts on long term labour force availability are expected.

During the operation phase, forecasts[77] suggest total employment creation in the Fitzroy region from the proposed project could reach approximately 656 full-time equivalent (FTE) employees in 2021. This implies indirect employment creation from the Queensland Curtis LNG Facility of approximately 450 FTE employees. This will be a significant and sustainable boost to employment opportunities in Gladstone, and provide significant social and economic benefits to people employed through indirect job creation.

Train 3

Construction of Train 3 will occur during the operational phase, and require around 950 manual staff and 200 non-manual staff at peak. The majority of these will be drawn from the local area, as workforce capacity will have increased and have relevant skills, or through supply arrangements developed for construction of the previous trains. On the assumption that housing solutions are in place, the Train 3 construction workforce is not expected to induce any negative effect on population characteristics. This should be reviewed prior to construction of Train 3.

Operational staff will increase by around 50 upon commissioning of Train 3.

Shipping

On a typical LNG ship arriving to load at Gladstone there will be a crew of about 30 people. Most of the officers will be from Greece, Croatia, Ukraine, UK, the Philippines, or USA. The majority of the unlicensed crew will typically be from the Philippines, with possibly some from China or Indonesia.

All crew members will be required to have valid passports and a Maritime Crew Visa (MCV) as required by the Australian Government for all foreign ship crew members (except New Zealanders) arriving on foreign ships. Typically, the Australian immigration authorities will issue a shore pass to all crew members after vetting them via the official crew list received from the vessel

77 Please see Volume 8 Part C for more detail.

Master. They may interview some of the crew onboard the vessel as part of the immigration clearance process carried out upon vessel arrival.

As most of the crew is committed to duties during the 24-hour port visit, typically five to 10 of the crew may have a chance to go ashore for a few hours, however overnight leave is not permitted. The Master will be required to brief the crew on local regulations and restrictions and remind them that they are ambassadors of the shipping company that they are working for, BG Group, or their shipping companies, and that poor behaviour will not be tolerated.

Shipping is not expected to induce any negative impacts on community wellbeing in Gladstone.

Total QCLNG operational workforce

The operational workforce for the Project, from Q2 2014, is estimated as follows:

- almost 200 people for the LNG Facility
- 20 people for the Pipeline
- 800 for the Gas Field (exploration and drilling, gas gathering, water treatment and support staff).

The total operational workforce is therefore estimated at around 1,010 permanent jobs.

Construction of Train 3 will occur some time during the operational phase and require around 950 manual staff and 200 non-manual staff. During construction of Train 3, the Project's total operational and construction workforce will peak near 2,000 jobs for the total Project area.

The impact of 1,000 permanent jobs is strongly positive for the regional and Queensland economy, as discussed in *Volume 8, Chapter 10.*

6.3.1.9 Mitigation

Maximising local employment

Maximising local employment has the following community benefits:

- security of employment
- increase in residents' incomes through full employment or higher wages
- upgrading of local skills, which flow on to support future projects
- family cohesion, in that workers are at home more
- community cohesion, in that people can live, work and play in the same area

In support of maximising local employment, the Project will:

- establish a Project employment program where potential employees can meet Project staff, learn about the Project, and register their interest for training and employment

- cooperate with Skilling Solutions Queensland to identify workers within the region who can obtain qualifications based on the principle of prior learning
- develop recruitment and retention programs and strategies to attract skilled trades and supervision personnel from the Gladstone area, and workers in other regions with a base in Gladstone
- undertake ongoing labour availability analysis to ensure training strategies are well-targeted to local labour
- in partnership with local training providers, supply a program of up-skilling, training and development to increase local availability of those trades with a local shortage
- target skills development and recruitment programs to unemployed and young people, to enhance capacity and resilience of disadvantaged people
- develop a local content strategy focusing on the Project area, based on an accurate understanding of current and potential future business capacity
- develop an attractive wage and conditions package for local staff
- ensure the housing and job-related transport needs of all workers are considered as part of Project planning.

Community and government expectations are that all avenues to employ locally and within Australia are exhausted. To address any local shortages, the Project intends to target labour across Australian states and potentially New Zealand.

Supporting local businesses

The negative impacts of maximising local employment include:

- staff may be drawn from other local businesses, forcing recruitment from other areas to fill vacancies.
- other projects may struggle for labour, and will also need to import workers.
- contributing to a boom-bust cycle may exacerbate instability in the labour market.

The Project will consult with the Gladstone Development and Promotion Limited to identify strategies to support Gladstone businesses. Strategies may include:

- a cooperative recruitment scheme which identifies new employees for both the Project and small local businesses
- consulting regularly with business associations to monitor the Project's effects on local businesses
- identifying local supply options for consumables and services
- promoting local businesses to new families coming to Gladstone for the Project
- providing support for regional promotion of local businesses
- supporting entrepreneurial schemes to diversify Gladstone's business sector, including indigenous businesses.

6.3.2 Impacts on Social and Cultural Profile

This section discusses changes to the social and cultural profile of the

Gladstone region.

For the purpose of modelling impacts on Gladstone's demographic profile, local employment has been estimated at 70 per cent. In addition, a scenario of 50 per cent local employment has been modelled for sensitivity testing, to identify the potential impact if local labour availability is severely constrained.

6.3.2.1 Construction

At peak, LNG Facility construction will require 1,517 workers, comprising 1,213 manual workers and 304 non-manual workers.

As outlined in the previous section, with 70 per cent of the labour force drawn from the Gladstone region, 455 non-local workers will be required, while 758 non-local workers will be required with 50 per cent local availability.

Population Growth

It is likely that some workers from the region and other parts of Australia will move their families to Gladstone. In Queensland in 2006, 32 per cent of households were couples with children, 29 per cent were couples, and 12 per cent were single parent families. This was a total of 73 per cent of family households. Construction workers are typically younger and more mobile than the general Queensland profile, and less likely to move dependants from town to town.

For the purpose of forecasting population impacts, this analysis has assumed:

- 50 per cent of workers have families or partners, and 50 per cent are single with no dependants
- given the long construction period and Gladstone's attractiveness as a regional centre, 50 per cent of workers with families would move their families to Gladstone by the end of 2011
- workers with partners would each bring an average of two dependants, one of them a child.

Table 8.6.37 summarises the potential direct population increase resulting from the Project on shift days.

Under the 70 per cent scenario, and without a workers' camp, the direct Gladstone population increase would equate to around 680 people. This would include more than 100 workers with partners or dependants who would settle their families in Gladstone within the first year of construction, due to the duration of employment offered. Under the 50 per cent scenario, the increase would equate to around 1,140 people. This includes single workers who are likely to move on after 2013. The potential impacts of single workers on community values are described in *Section 6.4.5*.

It is likely that at least half the non-local workers would return home or visit other centres on days off, reducing the non-resident population by around 200 for those days.

To mitigate the Project's impact on population size, housing demand and social infrastructure, it is proposed to construct a workers' camp on Curtis

Island. An approved total capacity of up to 1,200 beds is planned with the camp built in stages as the workforce builds. This will ensure that, should cumulative impacts severely constrain local labour availability, the non-local workforce will be accommodated without impacting housing stock in Gladstone. All non local workers will be required to live in the camp on shift days.

The direct Gladstone population increase will be reduced by the provision of the workers' camp. It is anticipated that fewer married workers would move their families to Gladstone due to less available accommodation and the ready supply of single persons' accommodation.

Provision of the camp could therefore reduce the direct Gladstone population increase by around 57 married workers, 114 dependants and 228 single workers. This would reduce the population increase from around 684 people to around 171 people under the 70 per cent local availability scenario. Under the 50 per cent scenario, it would reduce the direct population increase from around 1,100 people to around 285 people.

Impacts on housing and social infrastructure are discussed in *sections 6.3.3 and 6.3.4*.

6.3.2.2 Indirect population impacts

Indirect population increases are likely to occur as the result of:

- stimulation of manufacturing, hospitality, personal services and other business growth
- recruitment to the Project from local sources will increase the likelihood that other major projects and local businesses will subsequently recruit from outside, adding an additional population inflow.

On average, the Project is estimated to result in an average increase in employment in the Fitzroy SD during the construction phase of approximately 1,100 employees, including direct and flow-on impacts. Up to 30 per cent of the total net employment impact will be as a result of flow-on or indirect impacts.

Table 8.6.37 Direct Population Increase – LNG Plant construction

Workers	70% local availability	Number	50% local availability	Number
Total peak workforce	100	1,517	100	1,517
Local home (within Gladstone LGA)	70%	1,062	50%	758
Regional/National (outside Gladstone LGA)	30%	455	50%	758
Without workers' camp				
Regional/National Partnered/with dependants	50% x 455	228	50% x 758	379
Partnered/with dependants and move to Gladstone (a)	50% x 228	114	50% x 379	190
Dependants (b)	2 per worker	228	2 per worker	380
Partnered & live as single (c)		114		190
Single (d)	50% x 455	228	50% x 758	380
Population increase (a+b+c+d)		684		1,140
With workers' camp				
Partnered/with dependants and move to Gladstone (a)	25% x 228	57	25% x 379	95
Dependants (b)	2 per worker	114	2 per worker	190
Population increase (a+b)		171		285

The average indirect employment increase would therefore be up to 330 positions. This is a regional employment benefit where the region spans part of Banana Shire, Gladstone and Rockhampton. However, indirect employment includes primarily jobs due to business stimulation and service demand, and workers to replace those drawn from other businesses to Project employment. As such, the majority are expected to be around Gladstone.

Assuming that 50 per cent of these 330 new Gladstone employees would have dependants (assuming two dependants each), this could lead to an indirect population increase of 660 people during the construction period.

6.3.2.3 Total Population Impact

Population increases and housing demand which could be attributed to the Project – assuming 70 per cent of jobs are filled locally – are summarised below. For this purpose, the total population ''load'' is assumed, regardless of the proportion of Project workers who would leave the region on off-shift days.

With the labour force curve building from 2011, this has been used as the base year for modelling population increases. Department of Infrastructure and Planning projections (December 2008) indicate a base population of 63,120 people in 2011. This analysis assumes that Project workers who move to Gladstone will do so by 2011.

The extent to which the Project will increase (rather than sustain) Gladstone's 2011 population is dependent on the rate and quantum of decline in local employment due to the global financial crisis, and to the competing demands of other major projects. Likely population impacts include the following as detailed in *Table 8.6.38*.

- With a camp:
  - the direct population inflow would be around 170 people, which is equivalent to a population increase of approximately 0.027 per cent
  - the total direct and indirect inflow would be approximately 831 people or a 1. 3 per cent increase in the population in 2011.
- Without a workers' accommodation camp:
  - the total direct population inflow would be approximately 684 people
  - the total direct and indirect inflow due to the Project would result in an increase of around 1,344 people, equivalent to an increase in Gladstone's estimated population in 2011 of around 2.1 per cent.

Table 8.6.38 Population Influx Direct and Indirect

Total Peak Workforce – 1,517	**Population Increase at 70% local employment**		**Totals**
With workers' camp	**Workers**	**Dependants**	
Direct population increase	57	114	171
% increase on 2011 population			0.027%
Indirect population increase	330	330	660
Total increase	387	444	831
Population in 2011			63,210
Population with Project			64,041
Increase %			***1.3%***
Without camp	**Workers**	**Dependants**	
Direct population increase	456	228	684
Indirect population increase	330	330	660
Total increase	786	558	1,344
Population in 2011			63,210
Population with Project			64,554
Increase %			***2.1%***

Population increases are seen as a positive contribution to the Gladstone's growth targets, particularly given it is supported by long-term employment by construction industry standards. Impacts on social infrastructure demand and housing are considered in *Sections 6.3.3 and 6.3.4*.

Most single workers without dependants are expected to move on when peak employment is finished, unless other major projects in the area are secured during the Project construction period. Should half the single in-migrant workers leave after construction, the sustained population increase will reduce.

At the regional level, the population of Fitzroy Statistical Subdivision will also increase. If it is assumed that 70 per cent of the people who move to Gladstone do so from outside the Fitzroy region, the regional population could increase from the projected base population of 231,656 people in 2011 up to 582 people (at 70 per cent local employment, without a workers' camp) or about 861 people with a workers' camp. This is not considered significant in the context of the region's role in accommodating major industrial projects.

Cumulative – Common User Infrastructure Workforce

Dredging for the Materials Offloading Facility is likely to require a dredging crew of up to 20 to 25 people, sourced from outside the region. Up to 180 additional dredging crew members could be required for GPC's dredging of a channel and swing basin for the Project.

As these are likely to be temporary, specialist crews, it appears unlikely that many would move to Gladstone, rather relying on camps and short-stay accommodation.

6.3.2.4 Demographic Profile

Age profile

As can be seen in *Section 6.3.3*, the provision of a workers' camp is likely to be necessary – depending on labour availability – to avoid impacts on housing availability and affordability.

With the proposed workers' camp, the direct contribution to Gladstone's population is about 171 people based on an average of one adult dependant and one child dependant for each of the 57 married workers (an estimate of 114 adults and 57 children). These small numbers are not expected to skew the age profile. However, it is likely that a small increase in the number of 15 to 29-year-olds would result as young people are retained in the area for employment on the Project.

The total direct and indirect population growth will comprise around 609 adults and 222 children. This indirect population growth is part of the organic growth Gladstone expects as a result of industry projects and associated business growth.

Cultural diversity

In 2006 there were approximately 6,092 people in the Gladstone region (11 per cent) who were born overseas, and this is likely to have increased in the past two years, with the increase in overseas migrants observed. The Gladstone Cultural Diversity forum noted a recent influx of skilled migrants coming from either interstate or overseas, and that Gladstone's social infrastructure does not have the capacity to cope with a further influx of migrants over the next few years.

Approximately 18 per cent of Australians were born overseas. If 18 per cent of the 1,403 adults who could move to Gladstone at the maximum scenario were overseas-born, this would lead to an increase of around 250 new residents who were born overseas. It is likely that many of these people were born in English-speaking countries, but that a small proportion speaks languages other than English, thereby increasing Gladstone's cultural diversity.

6.3.2.5 Population Change – Operations

Up to 200 staff could be based in Gladstone to manage and operate the LNG Facility, from 2014. As the intent is that most positions would be filled from the construction workforce of the Project and other parts of the Gladstone workforce, little population increase or change is expected during operations.

During the operation phase, forecasts suggest total employment creation in the Fitzroy region from the Project could reach 656 FTE employees in 2021. This implies indirect employment creation from the Project of approximately 450 FTE employees. Many of these would have moved to Gladstone as part of the construction phase stimulus to business. Assuming an additional 120 people (450 operation indirect positions minus 330 construction indirect positions) and using the assumptions outlined in the previous section, it is likely this would equate to an additional indirect population increase of around 240 people. This is not considered a significant impost on the city's housing or social infrastructure.

6.3.2.6 Mitigation

Gladstone's population growth has been strongly related to major industrial projects – the population doubled from roughly 7,000 to 14,000 people between 1960 and 1970, the decade that Queensland Alumina Limited's (QAL) refinery was established, and between 1970 and 1980 it grew by around 9,000, alongside the power station establishment. No one project was responsible for these population booms, but each provided a powerful stimulus for population growth and stability, due to:

- in-migration of workers with their families
- providing continuity of employment to maintain the population base
- stimulus for business growth and recruitment.

The Project will have a positive effect on new household formation as discussed above, as skilled workers move to the area from interstate and intrastate. It will also stimulate further population growth from business growth. The Project is also likely to provide employment for local and regional residents from the mining, refinery workers and construction industries, and as such will contribute to population stability. Indirectly this is likely to enhance social resources, as fewer people will be lost to networks, neighbourhoods and social groups.

To maximise community cohesion, the Project will undertake regular analysis of employment levels, and undertake early engagement with local labour pools, training providers and educational facilities to enhance the relevant skills base locally. This analysis and engagement should extend to the Rockhampton region whose workforce is heavily dependent on the mining industry.

The critical requirement is to ensure that workers and other people attracted to Gladstone as a result of the Project are able to become members of the community, both social and economic. To this end, the Project will offer allocations through the QGC Community Development Fund to:

- community networks and organisations, to increase their capacity for membership
- family support programs, to support the transition to Gladstone for workers' families
- enterprise development and mentorship for unemployed locals, particularly young people and indigenous people

- sporting groups, to increase the capacity of their programs, for example through support for sporting volunteers.

Should the Project need to import labour from overseas due to a number of projects proceeding in Gladstone and Australia, cultural diversity in Gladstone will increase. The Project will work to ensure that imported workers have a cultural fit with local communities, and/or are comprehensively supported to assimilate with local social conditions. This would include:

- accessing the State government's Queensland Skills Matching database to identify registered skilled migrants wishing to move to Queensland
- ensuring the Project's family support programs address the needs of families who may join workers in Gladstone.

The Project may also have a very small, positive effect on population stability in Rockhampton, if workers resident there obtain work on the Project, but is unlikely to make a significant change to the size or composition of the Fitzroy subdivision as a whole.

The population increase due to the Project could be viewed as part of Gladstone's planned population growth, supported by Gladstone's role as an industrial centre. Positive effects on population composition, household formation, employment stability and income levels are likely to be felt across the Gladstone region, regardless of whether a construction camp is built, albeit the camp would reduce the magnitude of most impacts. It cannot be overlooked though that with Project benefits, come demands on the social resources of the city and region. This is discussed in detail in following sections.

6.3.3 Housing Impacts

6.3.3.1 Policy Setting

Housing affordability is a primary agenda for the Queensland Government.

The Queensland Government's Sustainable Resource Communities Policy was released in July 2008 and is focused on resources communities where rapid development is having significant impacts on housing affordability, community infrastructure and social structures.

The development of a Major Projects Housing Policy is committed as part of the Sustainable Resource Communities Policy, to address the availability and supply of housing to support major projects and to guide investment in the provision of housing. The Major Projects Housing Policy will set out the Government's requirements for the provision of housing to accommodate major project workforces "and provide a framework within which major new and … expanded development proposals can be consistently considered" (p.4). A partnership approach to addressing cumulative impacts in the regional development is also forecast.

The policy is in development, but indications from recent approval conditions indicate a renewed focus on sharing responsibility for housing issues with industry.

A housing action plan for Gladstone was last produced in 2002[78], ‘‘to provide an effective response to the housing impacts of industrial development in the Gladstone/Calliope region’’. The plan’s current status is unclear, but it noted that:

- the extent of concern about housing issues is community-wide, including local government.
- experience shows that impacts assessed have sometimes been greater than anticipated because project size or duration have changed.

The action plan recommended major developments clearly identify how construction and operational workforces will be accommodated and how housing impacts will be managed, through preparation of housing and accommodation management plan[79]. This has been addressed in *Volume 8, Chapter 8*.

6.3.3.2 Construction – Housing Demand Without Camp – Direct and Indirect

As previously discussed, without a workers’ camp, Gladstone could experience a population increase of more than 1,300 people as a result of Project construction. If only 50 per cent local labour was obtained, the population increase could be up to 1,800 people.

Table 8.6.39 summarises the expected housing demand resulting from direct and indirect population increases without a camp. It relies on the assumptions outlined for *Table 8.6.37* and *Table 8.6.38,* and the additional assumption that single workers and unaccompanied married workers would share dwellings (unit or houses) at two people per dwelling. This analysis indicates that, without a construction camp, and if 70 per cent local employment is achieved:

- 285 dwellings would be required to meet the needs of the direct population increase
- of these, 114 would be family dwellings and 171 would be shared dwellings for single workers
- 533 dwellings would be required for the total direct and indirect population increase
- of these 279 would be family dwellings and 254 would be shared dwellings for single workers.

78 Lee G (2002) Housing Action Plan for Gladstone/Calliope, Queensland Government – Department of Housing and State Development.

79 Ibid p. 33

Table 8.6.39 Estimated Total Housing Demand for LNG Facility at peak – no camp

Source of housing impact	Local employment 70%		Local employment 50%	
	People	Dwellings required	People @ 50%	Dwellings required
Direct impact				
Regional/National (outside Gladstone LGA)	455		758	
Partnered/with dependants	228		379	
Partnered/with dependants and move to Gladstone	114	114	190	190
Partnered as single @ 2/dw*	114	57	190	95
Single persons housing @ 2/dw	228	114	379	190
Direct Dwelling demand		**285**		**475**
Indirect impact				
Indirect workers	330		330	
Total indirect workers with partners/dependants	165	165	165	165
Single workers @ 2/dw	165	83	165	83
Indirect dwelling demand		**248**		**248**
Total Direct and Indirect housing demand		**533**		**723**

* people per dwelling

If labour availability is severely restricted and only 50 per cent local employment is achieved, 475 dwellings would be required for the direct population and 723 dwellings for the total direct and indirect population.

6.3.3.3 Consultation

Local housing providers consulted as part of the SIA noted that Gladstone's housing stock availability fluctuates with the demands of major projects, which leads to instability and insecurity for low-income households. They also indicated that, in addition to stock and price fluctuations, there are ongoing needs to:

- support families struggling with rental or mortgage payments
- provide tenancy support and advice as agents' expectations of rental returns increase in line with their costs
- support low-income families and young people to maintain secure housing.

The economic crisis (including job losses) has increased support requirements, particularly for people whose income has reduced to a greater degree than their housing costs.

Five local real estate agents with individual experience in Gladstone of up to 20 years were consulted in March 2009. Their comments in summary provide the recent context for housing demand in Gladstone.

From 1998 to 2008 Gladstone has generally had a rental vacancy rate of around 2 per cent (now around 3 per cent), and the current level of around 200 rentals available in Gladstone has not changed much in the past six months.

Lower demand has seen lower costs. Recently (in March 2009) Gladstone broke the ‘‘300 barrier’’ for the first time in many years, with three-bedroom houses now listed less than $300,000 and a few three-bedroom houses rented for less than $300 per week. For the first time in almost a decade, outside investors’ interest in rental housing has dropped away.

Agents indicated that overall purchase prices have fallen about $50,000 since 2008. Three-bedroom homes and to a lesser extent units are the first movers in both sales and rentals, with first-time home owners and existing home owners wanting to upgrade while interest rates are low. It would be fair to conclude (although agents did not) that the housing market in Gladstone is either depressed or returning to a more moderate, less overheated set of conditions.

Agents noted that until recently, construction projects have created a ‘‘rollercoaster’’ housing market. For example, the Comalco construction project in 2002 saw rental rises that forced people on fixed incomes to outlying rural communities with an associated drain on scarce services; and rising purchase prices (up to $100,000 more within one year) forced locals to relocate to Bundaberg and Hervey Bay (with associated loss of family networks and social capital). They noted that recent industry initiatives such as putting a cap on rentals paid and head-leasing houses in order to manage demand had worked to moderate housing demands.

They also noted that, after construction finishes, the market can collapse causing financial hardship to property owners trying to sell. The current lower demand for housing purchase in Gladstone is probably attributable to mining and industry slowdowns. Real estate agents supported the single persons’ accommodation concept, because it helps immunise the market from the worst of the rollercoaster effects, and allows existing accommodation stock to accommodate families and couples.

Agents also noted that there is an oversupply of residential land in Gladstone relative to current (dampened) demand. They believed that industry investment in, for example head-leasing agreements would prompt construction from local developers who are in a position to build within six to nine months. These developments may include:

- Emmadale Gardens and Emmadale Heights with more affordable house and land packages
- Kirkwood Corridor development with 70 lots currently available and a further 420 in the overall master plan
- Sahben proposing to build a 74-unit complex near CBD
- CQ Housing, a 30-unit executive style housing development
- Gladstone Heritage Retirement Village (not-for-profit management board) has 20 units ready to build by end of year, and another 32 planned for 2010.

As such there is capacity in the land supply for an immediate increase in housing availability, but investor and home-buyer confidence is low, affecting the rate of development.

6.3.3.4 *Construction – Effect on Local Housing Supply*

Home Purchase

Approximately 37 per cent of Gladstone households are in the process of purchasing their homes. Applying that home purchase rate to the estimated total (direct and indirect) 280 families that may move to Gladstone with 70 per cent local labour availability, the housing demand at peak would see the purchase of around 100 dwellings, with around 40 of those from the direct Project impact.

The latest property listing data from *www.realestate.com.au* in Gladstone indicated a total of 909 properties available for purchase at 11 February 2009, up from 630 properties available in February 2008. Given recent slow growth in the housing construction market, perhaps 1,100 properties could be available for purchase in 2011.

The Project could therefore lead to a requirement for around 10 per cent of the housing available for purchase[80]. As industry is expected to be the driver for most population growth, this requirement is not considered to place undue demands on housing supply, or lead to price hikes. It could lead to an increase in builder and speculator confidence, and some modest support for improved house sale prices.

Home Rental

The total supply of occupied dwellings in the Gladstone LGA in 2006 was 19,016. At June 2008, this would have increased to approximately 20,000 dwellings, given dwelling approvals of around 700 per year, and construction of 80 per cent of those approvals, and to around 21,500 dwellings by 2011. Around 6,020 (28 per cent[81]) would be rental dwellings.

The latest available rental vacancy rate in the GRC LGA for the year 2007-08[82] was 3.2 per cent for all dwellings. Applying this vacancy rate to the estimated rental dwelling provision provides a total availability of 193 rental dwellings in 2011. The latest rental property data based on analysis of *www.realestate.com.au*[83] listings in Gladstone indicated the number of vacancies at 11 February 2009 as 190, and local real estate agents estimated in April 2009 that 200 to 220 houses were available for rent in the Gladstone LGA. Given uptake due to other population growth, it is reasonable to assume that around 200 rental houses will be available in 2011 based on current supply and demand trends.

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80 This conclusion is based on the assumptions outlined, is subject to market variability, and should not be relied upon in making investment or financial decisions.

81 Rental tenure rate in Gladstone, ABS 2006

82 Email correspondence from the Office of Economic and Statistical Research

83 www.realestate.com.au Accessed 13 February 2009.

An additional supply of housing may become available following release of some of Rio Tinto's rental stock (150 dwellings) in late 2009. Release of this stock has been assumed, and if half the stock was taken up by the existing market, this would see around 300 rental dwellings in Gladstone by early 2011.

Without a construction camp, the Project's direct demand from LNG Facility construction would equate to around 250 dwellings (assuming 10 per cent of new workers buy housing immediately and the rest rent). This would clearly exhaust the local housing supply and cause demand-pull inflation, with increased housing stress and displacement of low-income families likely. The total direct and indirect housing impact without a camp is estimated at more than 530 dwellings, and with the immediate purchase of 53 dwellings (10 per cent), demand for rental dwellings as a result of the Project could be in the order of 480 dwellings. This demand could not be accommodated within current stock.

Analysis of ABS data indicates that in 2006, 37 per cent of low-income purchasers and 53 per cent of low-income renters in Gladstone were experiencing housing stress, where the cost of maintaining secure housing causes financial and/or family difficulties. In consultation, residents identified industrial project construction and growth as the primary causes of increased rental costs and shrinking availability. It is therefore particularly important that the Project avoid or mitigate demand for low- to medium-cost rental dwellings.

6.3.3.5 Provision of Workers' Accommodation Camp

It is imperative that workers' accommodation be supplied to reduce impacts on local housing supply.

The construction labour force will build to a peak of around 724 workers in month 10 (in 2011), which at 70 per cent local labour availability would see more than 200 non-local workers requiring housing. If 25 per cent were seeking family housing and the remaining 75 per cent sought shared housing at two people per dwelling, this would see demand for around 125 dwellings.

It is reasonable to expect that a new project will take up rental housing. However, 200 non-local workers could require more than 40 per cent of Gladstone's projected availability of around 300 rental dwellings. Given indirect impacts on housing supply and housing stress levels, this is likely to be an excessive demand on local rental stock. As an example, the development of the first stage of the Yarwun Alumina Refinery in 2002, contributed to an approximate 40 per cent increase in rents in Gladstone between December 2001 and December 2002[84].

It is therefore estimated that a workers' accommodation camp is required where there will be more than 100 non-local workers are employed (which without a camp would see a requirement for around 62 houses). The camp requires a four-month construction period. An alternative approach is to monitor rental housing vacancy rates and start construction of the camp if vacancy rates dip below the current vacancy rate of around 3 per cent, which would indicate restriction in supply and the likelihood of demand-pull inflation.

84 Residential Tenancies Authority, 2004

All non-local workers will be required to stay in the camp. As can be seen from *Table 8.6.38* the workers' camp would therefore reduce the direct demand for dwellings to around 60, while the indirect demand is assumed to stay the same at around 250 dwellings.

An impact on rental housing availability (and therefore availability) is expected regardless of whether a camp is provided, due to indirect demand. Given the current economic situation, it can't be assumed that speculative investors will step into the breach, and it will be necessary for the Project to mitigate its direct housing impact through provision of a camp.

Two possible workers' camp sites have been investigated. The preferred site is for a camp located on Curtis Island within the LNG Facility site, which would avoid impacts related to worker traffic and recreation in town. The other site considered is at Calliope River Road, where approval for a 240-bed camp has been acquired by another party, with a view to expanding to an ultimate capacity of 2,000 beds. A Curtis Island location is strongly preferred by the Project.

The Project proposes to seek approval to build a camp with up to 1,200 places, to manage impacts in the event local labour targets cannot be met. If approved, the Project will identify the extent of local labour availability and the extent of demand for camp accommodation, and construct the camp to that requirement. For example, should 70 per cent local employment be achieved, fewer than 500 camp places would be required.

The first stage of the camp would be constructed with sufficient places to house 100 per cent of non-local workforce. The camp would include:

- accommodation units and office and meals facilities
- recreation facilities
- sewage treatment facilities for all site personnel
- best practice in the location, provision and management of workers' accommodation camps.

As outlined, a workers' camp would reduce the peak direct housing impact from around 285 to 60 dwellings.

It is also likely that some Pipeline Component construction workers would require accommodation in the Gladstone area during construction of the Export Pipeline through the GSDA and the crossing at The Narrows. Given the short-term nature of this construction phase, and the fact that Pipeline workers are transient in nature, they are not expected to make demands on local housing stock. Pipeline worker accommodation is discussed in more detail in *Volume 8, Chapter 5*.

6.3.3.6 Construction – effect on local housing supply with camp provided

As can be seen from *Table 8.6.38*, less than 60 workers with families are expected to move to Gladstone if a workers' camp is built, and all single workers would be required to stay in the camp.

The workers' camp would therefore reduce the direct demand for dwellings to around 60, while the indirect demand is assumed to stay the same at around

250 dwellings, for a total of around 310 dwellings. At 90 per cent rental (as expected for new residents) this would lead to a demand for around 223 rental dwellings.

An impact on rental housing availability (and therefore availability) is expected regardless of whether a camp is provided, due to the indirect demand. Given the current economic situation, it can’t be assumed that speculative investors will step into the breach, and it may be necessary for the Project to contribute to mitigating the total direct and indirect impact.

6.3.3.7 Short-stay Accommodation Requirement

With 10-day shifts and the length of the construction period, and without a workers’ camp, it is likely that most workers would seek rental housing. It could be assumed that a proportion would seek short-stay accommodation in motels, hotels, serviced apartments or cabins.

At peak with 70 per cent local employment, there would be around 171 unaccompanied Project workers seeking housing. If 40 per cent of those use short-stay accommodation rather than rental housing, this will lead to a demand for around 68 rooms, and will reduce the rental housing demand by about 34 dwellings.

Within Gladstone City, there is a total of 29 motel and serviced apartment facilities, with a total of 767 motel rooms and apartments. Occupancy currently runs at an average of 64 per cent and a peak of about 74 per cent. At average occupancy, this would see 276 rooms vacant, and at peak occupancy about 200 rooms vacant.

The requirement for 68 rooms would represent around one third of the rooms currently available in peak season. While this would increase occupancy and turnover for short-stay accommodation owners, it could displace seasonal visitors and tourists.

Ancillary works (bridge construction and dredging) would also create a demand for short-stay accommodation for the periods in which they are in progress. If they cannot be accommodated in a workers’ camp, the cumulative impacts of the Project and associated works may put severe constraints on the availability of short-stay housing.

Some workers are also likely to require short-stay housing in Gladstone and its region on off-shift days. At peak, up to 228 single non-local workers have been estimated. (It is assumed that married/partnered workers will return home). Half of these remaining in Gladstone during their week off would represent significant demand (and bolstering of occupancy) for local short-stay rooms. This demand is likely to be spread across the region.

6.3.3.8 Operations and Train 3

As most positions will be filled from the existing Project and other Gladstone workforce, little population increase or change is expected during operations, and therefore no additional housing impacts are expected.

Construction of Train 3 will occur some time during the operational phase and require around 950 manual staff and 200 non-manual staff. The majority of these are likely to be drawn from the local area and it is unlikely that any housing impact will result. The Project will need to assess the availability of local labour and housing prior to Train 3 construction to ensure existing mitigation strategies are sufficient to address any impacts.

The maintenance of a construction camp option for Train 3 should be considered, and evaluated in light of the availability of local labour and housing prior to construction on Train 3. Assuming the LNG Facility footprint leaves sufficient land to maintain a smaller camp, continuation of the workers' accommodation camp could ensure no demand on housing for Train 3 construction. This will also ensure:

- mitigation of any housing impact from workers required for major maintenance periods (up to 500 workers)
- the availability of refuge accommodation for locally based workers, when and if weather precludes the use of marine transport.

6.3.3.9 Cumulative Impact

Should construction (and the indirect impacts of labour requirements) coincide with construction of other major industry facilities, given existing housing stress in the Gladstone community, the cumulative impacts on housing are likely to be severe. It is likely that Gladstone will experience severe housing shortages, sufficient to displace low-income households.

This is being addressed by the Partnership Group established under the Sustainable Resource Communities policy, and will be considered in the current strategic assessment of social infrastructure impacts in Gladstone.

6.3.3.10 Mitigation

Accommodation of LNG Facility construction staff using domestic housing supply will place pressure on the local housing supply, restricting residents' options and potentially affecting rental costs. Indirect housing demands will bring increasing pressure, sufficient to displace existing lower-income households[85]. Housing affordability is fundamental to wellbeing at individual, family and community levels, and a foremost concern for residents in the study area[86].

The objectives of the Project's housing strategy during construction are:

- avoid exacerbating the current low availability of rental housing
- avoid upward pressure on housing prices
- ensure temporary housing solutions provided by the Project do not impact on local values
- support local and regional tourism/hospitality providers to maintain steady occupancy while avoiding displacement of tourist stays.

85 This assumes no response to this demand from the local housing construction market, as a requirement for 205 dwellings is unlikely to be a major stimulus to the industry, given uncertainty about economic conditions.

86 See, e.g. UMR Community Attitudes Research 2008, Gladstone 2028 Vision project, Qld Government Sustaining Resource Communities background research, local media.

A camp would not mitigate indirect housing impact, and it will therefore be necessary for the Project to provide other mitigations as discussed below.

Key strategies as outlined below include:

- a workers' housing pool to ensure minimal impact on rental housing availability, which would reduce overall demand for housing
- investment in affordable housing stock in Gladstone.

A Housing and Accommodation Management Plan will be developed, monitored and regularly reviewed.

Worker Housing Pool

This assessment has estimated that a workers' accommodation camp would reduce the direct demand to 60 dwellings. Previous construction projects in Gladstone have head-leased a ''bulk lot'' of housing to be available for the workers. While head-leasing allows for easier management of workforce housing demands, and provides surety for rental dwelling owners, it has seen some houses sitting empty, exacerbating housing pressures in an already tight rental market. It also removes that pool of stock from residents' possible options. This strategy should therefore be used with caution, and include provision of properties vacant for more than six weeks for short-term emergency housing in partnership with local housing providers.

The Project will monitor housing supply and demand and, if rental vacancy rates are less than 3 per cent upon commencement of construction, will invest in a joint venture for construction of dwellings for rental to Project staff. Following construction, houses which are surplus to operational requirements could be retained by QGC or made available for lease to community housing providers in Gladstone.

Other strategies will include:

- further consultation with Gladstone Area Promotion and Development Limited, Urban Development Institute of Australia, Queensland Master Builders Association, Real Estate Institute of Queensland and GRC about future housing demand and supply
- liaising with local and regional tourism/hospitality providers, to manage worker demands to maintain steady occupancy in local accommodation facilities while avoiding displacement of seasonal tourist stays
- monitoring the housing demand induced by workers, and taking other corrective action as required.

Affordable Housing

QGC intends to demonstrate its commitment to community development and reducing potential inequity in Gladstone by contributing to affordable housing. QGC's social investment policy would ensure a focus on the housing needs of:

- indigenous families
- key workers

- single people over 60 years
- young people
- low-income families.

The intent is to strengthen the capacity of local providers and provide a sustainable addition to housing stock. QGC may also be interested in a cooperative venture to establish a local housing company to build and manage affordable housing stock, and this could include:

- Queensland Government
- Gladstone Regional Council
- GEIDB
- community housing providers
- indigenous community organisations
- the housing development industry.

A housing company could provide a vehicle through which multiple companies and projects could make a judicious investment in housing affordability.

6.3.4 Social Infrastructure Impacts

6.3.4.1 Construction

A detailed analysis of existing provision, existing needs and the impacts of the Project is attached as *Appendix 8.3.* This section summarises social infrastructure impacts in the Gladstone region during construction and operation. Key needs identified in the social infrastructure analysis (of existing and projected needs without the project) include a district youth centre, an upgrade to community halls, performing arts spaces, family support services, and health services.

Family and community support services

In the Gladstone region, the Project is estimated to directly generate more than 700 jobs by 2011 and 1,500 jobs by 2012, at a time when significant job losses in the region are occurring. It will also provide indirect employment benefits throughout the four-year construction period and throughout operations. This has two positive effects:

- the generation of employment is likely to alleviate demands that would otherwise be felt on human services to support families and households experiencing unemployment (such as financial counselling, health services, substance abuse, domestic violence and criminal justice).
- locally based workers are expected to return home each night, avoiding increased demands on family support services that result when one parent is away for extended periods.

Local experience with workers who are based in Gladstone and travel out to work camps provides clear evidence that this workforce arrangement stresses families and places demands on family health and support services. In recognition of this, local workers will have the option of returning home at night rather than staying in the camp. Employment of FIFO workers based in Gladstone will be minimised through local training, recruitment and support strategies throughout the Project area. If a substantial Gladstone-based FIFO workforce were required, the Project will need to provide support to workers which ensures a work-life balance and supports healthy family functioning.

The direct population increase due to the Project is likely to be small at between 170 people (for 70 per cent local labour) and 285 people (for 50 per cent local labour). This will have minimal impact on demand for human services.

However, the Project is expected to generate a total population increase (direct and indirect) of at least 800 people[87]. As indicated by consultation, Gladstone LGA is experiencing significant gaps in human service provision for children, young people and families, particularly families facing isolation through relocation and absentee parents (working in the mines or on construction projects). The additional population likely to be stimulated by the Project will generate additional demands on these support services. This impact will also be cumulative along with other similar projects impacting on Gladstone.

The GRC has recently established a community development program to help settle new residents. It has been successful in creating the social support networks needed to help newcomers manage in their new circumstances, and preventing or reducing the negative impacts often associated with social isolation and stress. The Project may need to provide support for community development to ensure workers and their families become part of the local community.

Child Care

Expressed needs indicate an existing demand for child care, particularly for babies and toddlers, confirming the need for additional child-care centres indicated by the benchmarking. However, benchmarking child-care centres is complex and the industry is currently in a state of flux with the collapse of ABC Learning Centres (with four centres in Gladstone).

The Project is likely to cause a small increase in demand for child care in Gladstone's urban area. This is likely to be addressed through the expansion of, or addition to, existing commercial centres. The need for centres is likely to be most acute in the growth areas of Gladstone City, Calliope and Tannum Sands.

Education

With a workers' camp, the Project's direct population increase is estimated at approximately 170, of whom approximately 57 would be children requiring school attendance. Benchmarking indicated that Gladstone has a large

87 Assuming 70 per cent local employment.

number of primary schools distributed in rural villages and towns. This population increase is within the service capacity of local schools, and Department of Education has advised that existing primary schools are adequate to meet this additional demand.

The total direct and indirect population increase is estimated at approximately 830 people, of whom approximately 220 could be children.

The Project will need to liaise with the Queensland Department of Education and Training to ensure it is aware of the Project's cycle, stages and workforce availability issues, and can plan accordingly.

Consultation with secondary school principals in Gladstone indicated an opportunity exists for the Project to assist with skills and workforce development by contributing to the development of an onsite training facility. Through such a facility, local school students can develop skills and appropriate safety and work readiness attitudes suitable to future employment in the LNG industry (similar to the facility located at NRG Power Station). They also noted the need to ensure that school-based apprenticeships, apprenticeships and traineeships are offered to local youth as soon as possible after Project commencement.

Health Services

A workers' camp is proposed for Curtis Island to accommodate FIFO workers from outside the Gladstone region. These workers would be engaged in a 10-days-on, four-days-off shift, returning directly to Gladstone at the end of the shift period. The Project will provide onsite health care and establish a protocol for medical evacuation arrangements.

Consultation with Gladstone Hospital directors indicated that demands on emergency services and outpatients had increased markedly over the past few years, partly due to the fact that doctors' surgeries close after 5 pm and on weekends. The recently developed District Community Health Centre in Gladstone is already operating at capacity, and there is also a need for some modification to rural centres used for community health services, so they are fit for use for contemporary health services delivery.

While medical and emergency services will be provided on site at the LNG Facility, there is a potential for increased demand on general practitioners and the Gladstone Hospital to provide medical treatment and health services. Consultation with Gladstone Hospital indicated that existing demands on the accident and emergency and outpatients' facilities are very high. The development of any other projects is likely to generate cumulative effects of these impacts.

The expected indirect population increase will contribute to cumulative pressure on health services characterised by excessive demand on the public health system and a shortage of affordable private health services (including primary, acute and emergency services). This demand would be further accentuated by families who have higher demands for mental health, community, children and family health services associated with the social dislocation of moving to a new town.

A further issue identified in consultation is attracting and maintaining appropriately trained health staff. There may be some scope to augment local health services with the services of primary health care[88] personnel brought into the area by QGC to support the health needs of workers employed on the Project. This may require additional or upgraded health service accommodation, which should be determined in consultation with local agencies and Queensland Health.

It is likely that some workers will be foreign workers on temporary skilled migration visas. Some families may also be attracted to relocate to the region from non-English speaking backgrounds (NESB). This would lead to a small additional demand for translation services and increased cultural awareness to support service providers working with people from non-English speaking backgrounds. This impact will also be cumulative along with similar projects in the region.

Facilities for Community Development and Service Provision

The Gladstone community has experienced significant effects of resources industry growth over the last decade, including increased demands on community facilities. Benchmarking and community consultation indicate a particular need for suitable facilities for young people.

In addition, the region has myriad small halls which are aged and require maintenance that is beyond the capacity of particularly smaller communities, and which need rationalisation and refurbishment/expansion of existing community halls to accommodate outreach and other services (five centres in each of Calliope, Agnes Water, Miriam Vale, Mount Larcom and Tannum Sands).

There is scope for the Project to support the development of this infrastructure and community capacity for service delivery and this is addressed in *Volume 8, Chapter 8.*

6.3.4.2 Operations

The operational workforce for the LNG Facility will be approximately 200 people.

About 150 workers will reside in Gladstone at any one time. Most of these would be existing workers from the construction stage, and/or existing local residents. This is considered part of organic population growth and would make no significant additional demand on social infrastructure.

The remaining workers would be based in Brisbane or elsewhere and make no additional demand on social infrastructure in Gladstone LGA.

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88 Defined by the Australian Primary Health Care Research Institute as: socially appropriate, universally accessible, scientifically sound first-level care provided by a suitably trained workforce supported by integrated referral systems and in a way that gives priority to those in most need, maximises community and individual self-reliance and participation and involves collaboration with other sectors. It includes the following: health promotion, illness prevention, care of the sick, advocacy and community development. General practitioner, physiotherapy, and occupational therapy services are included.

Once operational with two trains, the Facility will supply up to two ships per week on an average. Impacts of shipping personnel are not expected, as discussed in *Section 6.1.1.*

An additional operational workforce of about 50 is expected to be required for Train 3, and this is not expected to have other than a small incremental effect on social infrastructure.

6.3.4.3 Cumulative demands

FIFO Workers on Leave

Single non-local workers are estimated to number between 400 to 800, depending on local labour availability. Some single workers are likely to base themselves temporarily in the Gladstone area for the week-off shift, while most would return to their home towns, or go to Brisbane and the wider Gladstone region, including Boyne Island/Tannum Sands, Agnes Water, Bundaberg coastal areas and Rockhampton.

Workers remaining in Gladstone for the week off shift are not likely to have a significant impact on social infrastructure. However, together with FIFO workers from other projects based temporarily in Gladstone, this is likely to contribute to cumulative demands on human services. This is further discussed in *Section 6.4.5.* The Project will deliver a comprehensive management system to ensure the workforce does not impact on local values (as described in *Section 6.3.7*), and will invest in building capacity within local community service organisations to address any residual concerns.

The Curtis Island workers' camp would be self-contained and secured as a closed camp, and would not create any demand on facilities in the residential area at South End. Workers would be conveyed by boat and then by bus to the city centre or airport, so very limited additional requirements on emergency services and traffic policing are expected.

The through movement of FIFO workers to the Gladstone airport will be significant at shift changes. Impacts on social infrastructure as workers change shift are not expected because they will be transported directly to and from the airport and workers' camps. Depending on local labour availability, shift changes could see 200 to 400 workers through the airport. However, the airport is well accustomed to managing shift change demands, and the Project is not expected to cause airport capacity to be exceeded. However, a cumulative impact may occur depending on the extent of FIFO workers moving through the airport from other projects in the region.

Incremental Demands on Social Infrastructure

It is difficult to untangle the specific relationships between industry development and particular social infrastructure needs. The incremental demands are made more complex by the cyclical nature of resources industries. It is likely that current job losses in the mining industry and industry expansion projects will impact heavily on community services as families make do with less income, and family stress increases.

The Department of Communities, GRC and community service planners have identified a range of issues, services and facilities under strain due to population growth, interaction of temporary workers with the community and the vagaries of industry cycles. These include:

- family support services (needs exacerbated by long working hours, shift work and moving between towns)
- support for children whose families are transient, following construction work
- housing costs and health and community services across the region
- staff retention in community, council and health service roles
- community safety.

Many community services noted that government funding for community services is not keeping up with Gladstone's growth. For example, Roseberry Community Services Inc. runs a variety of programs and services for young people and families, including outreach support services, reconnect services and a youth shelter. The service stated that its funding had not increased in real terms in six years, despite mounting demands.

Community services providers have noted that government funding seems deficient comparable to other larger towns, and there is an expectation that industry should contribute to social infrastructure funding. The need for flexibility in funding community services and community development was reinforced, as needs change from year to year.

The GRC is dealing with a backlog of physical infrastructure requirements driven by population growth, along with amalgamation costs. While it has strong involvement and support for the community services sector in Gladstone, funds to support expansion are limited.

A detailed study of social infrastructure needs across the Gladstone region is being undertaken by the Department of Infrastructure and Planning in partnership with the GEIDB and GRC. This study is giving consideration to the range of industry projects proposed, and the cumulative impacts of Gladstone development in the years to come.

6.3.4.4 Mitigation

Mitigation of impacts on social infrastructure in the Gladstone area is proposed to include establishment of the QGC Community Development Program, with provision of funding over four to five years, to achieve the following improvements to social infrastructure capacity in Gladstone:

- augment existing health services by engaging health care personnel to provide services to Project staff
- support efforts to recruit medical practitioners to Gladstone
- invest in the expansion of community-based programs and family support services
- contribute to the development of a youth facility
- monitor the impact of medical evacuation arrangements on local health service capacity, and take corrective action to increase capacity if required

- invest in the development of local human service provider capacity to support people with culturally diverse needs (including linguistic and cross-cultural awareness)
- undertake community development initiatives targeting behaviour awareness and management for workers and local young men and women, and assertiveness training for local young men and women
- achieve enhanced social performance by helping to meet existing identified needs in the community for refurbished community facilities.

The Project is also considering capital contributions to upgrading health facilities in Gladstone, to be discussed with relevant Queensland Government agencies.

6.3.5 Community Health and Safety

This section outlines Project benefits and potential impacts on community health and safety. It describes potential impacts on social determinants of health, and potential impacts on project management determinants of health.

Technical detail supporting analysis of environmental health factors is contained in *Volume 5*, as follows:

- water quality in *Chapters 9* and *10*
- air emissions in *Chapter 12*
- transport impacts in *Chapters 14* and *15*
- waste in *Chapter 17*
- health and safety compliance and hazard and risk assessment in *Chapter 18*.

6.3.5.1 Construction

Potential Impacts on Social Determinants of Health

Demographic Change

Gladstone currently has a higher proportion of males than average for Queensland. The health determinants of significant impact for this group are smoking, alcohol consumption, illicit drug use, sun protection, and risk and protective factors for mental health[89].

While the Project employs an equal opportunities policy, the pool of skilled workforce from which the company recruits is already biased towards men and it is therefore likely that the recruitment will reflect this bias.

The number of jobs generated by the Project will have negligible impact on the demographics of the population as a whole. Nevertheless, when considering social investment projects, this Project will take into account both the specific health determinants impacting on the increased male demographic as well as the priority needs of the community as a whole identified in *Appendix 8.3.*

89 Queensland Government (2004) Health Determinants Gladstone Health Service District

The Project is likely to have a strong positive effect on income levels in the Gladstone area. Continuity of employment and attractive remuneration conditions will provide an expansionary and stabilising effect on incomes, for both Project workers and business owners. It is likely to have a positive effect on economic resources and financial security. This effect is discussed in detail in *Volume 8, Chapter 10*.

Access to health infrastructure and services

Section 6.3.2 outlines in detail the expected population changes arising from the Project. In summary:

- The increase in direct and indirect population due to the generation of employment, together with dependants of those workers, is likely to lead to increased demand on general practitioners, community health services and the Gladstone Hospital to provide medical treatment and health services.
- FIFO workers will most likely use either the health care provided by the Project or the health care services in their home location during leave periods. However, some demand on emergency medical services is likely.
- The Project will invest in community development to increase the capacity of family support and community inclusion services to mitigate both direct and indirect demands on social infrastructure.

Social Capital

There is potential for the influx of construction workers to have a negative impact on social cohesion and therefore social capital and community health and wellbeing. This is addressed in *Section 6.3.7.*

Impacts on Vulnerable Groups

Consideration of vulnerable groups in an impact analysis focuses on whether they have the potential to be disproportionately affected by the Project activities.

Low socio-economic status and lack of employment are closely linked to almost every major cause of mortality and morbidity. During construction the Project will have a positive direct and indirect impact on the economy and hence on the socio-economic status of those involved. Project prioritisation of the recruitment of local workers will maximise the potential benefit of this impact on the health status of the population as a whole.

As discussed in *Section 6.3.5*, a reduction in access to health facilities and services during the construction period may occur. This may disproportionately impact on pensioners and/or those with disabilities. The Project will work with local providers to contribute towards the provision of health services in the locality.

Stress

A common definition of psychological stress is ‘‘a condition or feeling experienced when a person perceives that demands exceed the personal and social resources the individual is able to mobilise"[90]. The demands of coping with sudden changes, perceived and actual, positive and negative, have demonstrable effects on stress levels. Potentially significant negative social impacts described elsewhere in this report, such as housing affordability and lack of housing security or concerns about safety of the LNG Facility, may contribute to underlying stress.

Given that Gladstone is an industrial port, and the population has experienced construction projects in the past, this is not expected to be a significant impact. Moreover, the Project's economic benefits are likely to counterbalance some stress that is inevitable during a time of broader economic and employment uncertainty. Nevertheless, given the potential for increased competition for access to health services, the Project will work with local providers to contribute towards health services.

Perceived Impacts – Concerns about Safety

During consultation, concerns were expressed about the risks to public safety associated with Project construction and operations. Concerns ranged from the potential for accidental LNG spillage or ignition to the hazards associated with LNG ships and the cumulative impact of air emissions.

Survey participants were asked about the perceived safety of LNG and LNG ships. Less than one third (28 per cent) were concerned about LNG industry safety practices, while 58 per cent had no concerns about safety (the remainder were undecided). Similarly, 64 per cent were unconcerned about LNG ship safety, while 29 per cent held concerns.

Such concerns contribute to levels of individual stress and anxiety which can in turn have a broader detrimental impact on health. This is particularly the case when there is a feeling of lack of control over a risk, and as discussed in *Section 6.2.2,* Gladstone residents report feeling less control over risks to their health than the Australian average.

A new industry involving an energy source may cause some anxiety about environmental health and the potential for harm due to accidents. Moreover, given the current concerns that air emissions from other industry may be having a detrimental impact on health, it is natural that questions are asked about the cumulative impact of air emissions from the LNG Facility.

The Project has undertaken detailed air shed analysis and reviewed both individual plant emissions and cumulative emissions (see Volume 5 Chapter 12). The nature of the gas supplied to the LNG Facility, which typically contains 98 per cent methane, 1 per cent nitrogen and 1 per cent carbon dioxide, means that emissions from the Facility will be very limited, and low relative to Australian and international emissions standards. Modelling shows that the addition of limited nitrogen dioxide emissions from the Facility will have a negligible cumulative impact on existing levels of nitrogen dioxide and air quality overall.

90 Lazarus, R. S. and Folkman, S. (1984) Stress, appraisal and coping. New York: Springer P 13

Qualitative Preliminary Hazard Identification/Environmental Hazards Identification studies (HAZID/ENVID) have been conducted to identify the nature and scale of the various hazards that may be generated by the Project. A series of quantitative risk assessments were also undertaken to determine and quantify the potential risks arising from hazards associated with construction accidents and operations, including the risks of pipeline rupture or loss of containment, associated explosions and fires, release of liquid gaseous or particulate pollutants, marine collisions, spills of materials during ship loading, potential for breaching of LNG ship hulls, hazard zones following accidental or deliberate spillage of LNG, and the implications of natural events such as cyclones, bushfires or local flooding (refer to *Volume 5, Chapter 18*).

Mitigation

The Project will be transparent about air emissions standards and monitoring procedures, ensuring that the community has access to monitoring data and understands the activities. The Project plans to communicate clearly information on safety standards and activities and respond quickly to questions as they arise.

Potential Impacts on Project Management Determinants of Health

Construction Worker Behaviour

During peak construction, up to 1,500 workers will be employed on the Facility. It is likely that there will be a FIFO workforce of more than 400 and potentially up to 800 people. *Section 6.3.1* outlines the labour requirements in more detail, including the prioritisation and assumptions around the recruitment of local labour.

Construction workers will come in to contact with the local community in the following ways:

- A construction worker's role involves activities offsite, such as transporting equipment.
- Locally based workers will return home each night.
- A workers' camp is proposed to be constructed on Curtis Island to house all non-local labour. The camp will accommodate workers engaged in 10-days-on, four-days-off shift. At the end of the shift period, workers will be returned by boat and then bus to the city centre or airport. There will be a brief period during shift change when workers may interact with local people.
- Some FIFO workers are likely to base themselves temporarily in the Gladstone area during their time off, while others will return home, or perhaps go to Brisbane or the wider region.

Issues associated with workers' camps include the imbalance in population make-up, large clusters of single men at times leading to unacceptable behaviour, and community concern for the safety of women (heightened by two recent murders of young women in Gladstone City).

The location of the camp on Curtis Island significantly mitigates the potential impacts of the construction workforce. The camp will be self-contained and secure at night, and will not impact on the residential area at South End. Workers staying at the camp will be obliged to remain there during the evening and will not be permitted to spend the evening in South End or Gladstone.

The potential impacts arising from the presence of construction workers are mostly associated with the behaviour of men on recreational leave and include:

- There may be some incidents of construction workers obtaining and consuming illegal substances and/or excessive amounts of alcohol. Experience from previous construction projects shows that this can have a negative impact on the local community through increasing the incidents of crime and/or violence and real or perceived threats. These impacts are particularly felt by women and would be concentrated in public places such as hotels and clubs.
- Relationships between men on leave (whether single or in a relationship) and local residents can lead to family breakdown issues and tensions with local communities.
- Cultural differences between construction workers and local residents, particularly if workers disregard local cultural norms can lead to tensions with local community.
- The arrival of new workers associated with construction projects may be associated with an increase in sexually transmitted diseases (STDs) in the local resident population.
- Adolescent and young men witnessing poor role modelling from construction workers on leave can lead to changes in their behaviour and tensions in the community.

Traffic Safety

An assessment of the impacts of all land-based transport associated with the LNG Facility construction and operations has been undertaken. The key focus was on the transit of personnel and heavy equipment through Gladstone and the potential impacts on existing traffic and transport. The study considers the potential impacts on roads, pavements, rail, aviation and public transport. The findings are summarised in *Volume 5, Chapter 14*. Mitigation measures focus on minimising traffic generation and potential traffic and transport impacts on existing transport networks, as well as minimising disruption to existing users. The assessment found that some upgrades of impacted intersections are required and proposes potential contributions to pavement maintenance (which vary according to the detailed design of the Project).

The assessment concludes that there will be a negligible impact on public transport, including buses, taxis and the rail network, given the use of car pooling and shuttle buses. This is particularly important given that vulnerable groups in the community are more likely to be using public transport, rather than private transport.

Nevertheless, there will be an increase in traffic which will result in increased nuisance, particularly of noise, emissions and vibrations and general disturbance. Dust impacts will be negligible as surfaced roads will be used. The duration of this impact will be short as it is limited to the construction period.

Volume 5, Chapter 14 discusses the full traffic study, specifies the heavy vehicle routes currently envisaged, and considers the coincidence of heavy vehicle routes with sensitive receptors such as schools and hospitals. During detailed engineering design, the routes will be optimised to minimise potential impacts on sensitive community receptors. This will include the development of a detailed logistics plan by the EPC (engineer, procure, construct) contractor, in consultation with relevant Gladstone authorities, which will take into account routes, speeds, times of travel, key roads in terms of local services and measures to limit impacts on the roads.

6.3.5.2 Operations

The impacts on community health and safety during operations are not expected to be significant and are summarised below.

During consultation, concerns were expressed that if there was a shipping or Facility incident that demanded a response from the emergency services, local people may have reduced access to those services. The Project's health and safety plan outlines the health and safety infrastructure being provided by the Project, reducing reliance on public services in the extremely unlikely event of an incident. In the event of a major incident, public access would be reduced, however, it is considered of very low likelihood and the duration would be short and therefore not significant.

Once operational, the Facility will supply up to three ships per week. There are no expected impacts on community wellbeing from the LNG ship crews (refer to *Section 6.4.1.8*).

Community safety issues associated with potential conflicts between recreational boating and LNG shipping are outlined in *Section 6.3.7.1*. In addition to the technical mitigation measures such as the moving safety zone around each ship (refer to *Volume 5, Chapter 15* for full details), the Project will implement an ongoing communication and education program to minimise the risks to recreational sailing.

Other health and safety issues associated with operations, such as the quantitative risk assessment and management of emissions to the environment are dealt with elsewhere in the EIS as previously discussed.

6.3.5.3 Mitigation

Mitigation is broadly divided into two areas: management of the camps and the management of community relations in connection with the camps.

Camp Management

The workers' camps will be closed camps. Recreational facilities will be provided within the camp. Non-employees will not be allowed into the camps.

Workers will be trained on camp rules and code of conduct, and failure to adhere to these procedures will lead to disciplinary measures. They will also be required to comply with BG Group's business principles which address safety, environmental management and social performance standards. The procedures will include:

- limits on hours of movement outside the camp
- no access to camps by unauthorised personnel and use of security passes for workers
- zero tolerance of illegal activities, including use of illegal drugs
- strict policy with respect to alcohol
- no hunting or fishing
- zero tolerance of bribery or requesting gifts from communities
- no use of company vehicles for non-work purposes
- disciplinary measures for infringement of the Camp Rules and Code of Conduct
- training in community liaison activities, specifically who to contact in the event a member of the community makes an approach regarding the Project
- community relations orientation, including expectations of behaviour in and around Gladstone and not going to South End
- awareness-raising of health considerations, including STDs.

Disciplinary procedures will be standardised for all contractors and subcontractors so that subcontractors are required to ensure similar standards of behaviour within their own workforce.

There will be a zero tolerance of alcohol consumption during working hours. Limited amounts of alcohol will be available to workers in the camp. The Project will have a program for drug and alcohol abuse prevention and random testing.

There will be a personal health program associated with occupational health responsibilities that will include access to advice on communicable diseases, including STDs.

Traffic Safety

Mitigation of this risk will focus on two areas: Project driving standards and health and safety awareness in the community.

If the Project accommodates any of its staff at the Calliope Road workers' village, it could contribute to increased traffic through the village of Yarwun. As a small, quiet village, with a school of more than 50 children, traffic management planning and driver behaviour training will be required for any workers or drivers associated with the Project.

Traffic safety is a high priority for the Project. Measures to ensure a high standard of Project driving include:

- The Project health and safety management plans will include commitments to ensure that no employee is obliged to undertake a long journey when too tired to do so safely.
- Defensive driver training will be offered to ensure a high standard of Project driving.

- Contractors and subcontractors will be held to the same Health, Safety, Security and Environment (HSSE) standards and their compliance will be audited.
- There will be a well-publicised community grievance procedure such that any member of the public observing poor driving by a Project employee can report the incident to management.

The Project will undertake a comprehensive road awareness education initiative around Gladstone. This initiative will be designed in consultation with the relevant authorities, but is likely to be focused on the most sensitive receptors, such as schools and hospitals, as well as the most at-risk groups, such as schoolchildren and cyclists.

Worker Health and Safety

The Project has adopted BG Group's HSSE standards and policies. BG Group's Statement of Principle relative to HSSE is that

> "Outstanding business performance requires outstanding HSSE performance. This means the protection of the health and safety of our people and of those affected by our business, the protection of our physical assets and reputation and the protection of the environment".

QGC recognises and acknowledges the importance of achieving world-class performance with respect to protection of HSSE on all projects. The Project's strategy for HSSE performance is based on a philosophy that all incidences are preventable and a commitment to:

- achieve zero incidents though pursuing the goal of no harm to people or the environment
- provide leadership in promoting best practice and the use of valuable lessons learned
- manage HSSE matters as any other critical business activity
- use an integrated management program to make HSSE a responsibility of all employees
- promote a culture in which Project employees share this commitment.

QGC is committed to achieving zero incidents on every project and eliminating all potential adverse impacts on the health and safety of project stakeholders and on the environment, wherever practicably achievable.

Details of the HSSE Management System are in *Volume 5, Section 18.*

QGC will develop and implement a system of health management to ensure that:

- all health hazards arising from the design or fabrication, construction and commissioning of the Facility are identified, assessed and managed to reduce the risks of persons developing occupational related illness
- appropriate means are provided and implemented to treat and to assist the return to work of those disabled by disease or injury
- all personnel employed on the Facility are aware of the health hazards and control measures available to them and fit to carry out their assigned tasks.

A health risk management program will be implemented. This is based on a health risk assessment, from which a health surveillance program will be developed and a health risk control plan will be implemented.

During construction, a single set of Project-specific procedures that include those for managing occupational health hazards will be developed for execution by each and all the works contractors. The Project-specific procedures selected will complement the health risk management program. The single set of procedures, to be applied by all contractors and sub-contractors, assures a uniform application of Project HSSE policies, interpretations and compliance.

Existing experience with FIFO workers based in Gladstone provides clear evidence that this arrangement stresses families and places demands on family health and support services. Human services providers in Gladstone report significant issues associated with FIFO worker families including relationship breakdown, social isolation, domestic violence, mental health, financial counselling, substance abuse, and children's issues associated with absentee partners/parents.

Employment of FIFO workers will therefore be minimised through local training, recruitment and support strategies. If a substantial FIFO workforce is required, the Project will commit to provide support to workers to assist in work-life balance and healthy family functioning.

6.3.6 Properties and Affected Landowners

6.3.6.1 Construction

The LNG Facility on Curtis Island will be more than 5 km from Gladstone suburbs, and as such construction impacts on Gladstone properties will be avoided. Onshore development will occur on sites at Auckland Point, Friend Point and Wiggins Island. However, these sites are within the GSDA and will not impact on private property.

The Queensland Government extended the GSDA to include part of Curtis Island in July 2008. This required the acquisition of a grazing lease which conflicted with the Environmental Management Precinct provided as part of the GSDA extension. The Government has reached agreement with the lessee, and no social uses are affected. The conditions of the Environmental Management Precinct are being developed in consultation with a Government and Community Reference Group consulting on the future protection and use of the precinct.

Within the Gladstone LGA, the Pipeline will cross the Bruce Highway about 8 km south of Mount Larcom. It will traverse a rough arc north-east through the GSDA (where no social uses will be affected), to one of several alternative crossing points between Friend Point and Laird Point.

Most properties traversed by the Pipeline are subject to industrial or mineral leases, and access is being negotiated by the Project. Future constraints on surrounding land within the property boundary are minimal and subject to access agreements, which include compensation for any constraints on land use.

At its nearest point, the Pipeline would be about 4 km south-east of Mount Larcom, and about 10 km north of Yarwun. As such no impacts on the townships are expected except for temporary traffic access restrictions to allow the pipe crossing works under the highway and on the Gladstone–Targinnie Road between Mount Larcom and Yarwun. It is unlikely either community will experience impacts as a result of the Pipeline construction, with the exception of pipe delivery trucks on main roads. This is discussed in *Volume 5, Chapter 14*. The Pipeline in this area will be built at the rate of a few kilometres per day, and as such any noise impacts could only be heard for three days or less.

The noise assessment also indicates that construction noise may be audible at the property on Tide Island, and that this property may also experience brief periods of noise (below existing noise levels) due to passing barges and ferries. This is further discussed in *Volume 5, Chapter 13.*

The potential need for a construction camp in Gladstone LGA for Pipeline workers will need to be monitored in light of housing availability at the time the Gladstone section of the Pipeline and The Narrows connection is constructed.

6.3.6.2 Operations

The potential for LNG Facility noise to impact on owners of properties on the Gladstone Harbour islands has been assessed in *Volume 5, Chapter 13.* The assessment indicates that under infrequent adverse weather conditions, a small and insignificant exceedence may be experienced at Tide Island. Predicted operational noise levels are assessed as below the relevant criteria for all other locations under all weather conditions.

Access agreements with property owners affected by the Pipeline easement have addressed the potential for other uses to be affected.

The Facility would be partially visible from some areas in Gladstone. This is discussed in detail in *Volume 5, Chapter 16.*

6.3.7 Lifestyle and Community Values

This section discusses lifestyle and community values, including environmental and economic values, and social amenity. This section is informed by:

- the community attitudes survey and focus groups conducted in Gladstone
- community and stakeholder engagement meetings
- local and regional planning values and vision statements.

The Project's potential impacts on indigenous and non-indigenous heritage, and environment and mitigation strategies to address potential impacts are discussed in *Volume 8, Chapter 9*.

6.3.7.1 Construction – Project Impacts

Indigenous Community Values

Traditional Owners have a relationship and responsibility to country and the environment. Where established under Native Title, Traditional Owners also have rights associated with the land and its use.

Changes to the natural environment and to cultural heritage sites may impact on indigenous spiritual or cultural values. The potential effects of the Project on land and Traditional Owners' views on Project impacts have been comprehensively addressed by the Project's Native Title and cultural heritage strategies, and are discussed in *Volume 8, Chapters 7 and 9.*

The Project is committed to working with the appropriate Aboriginal people throughout the study area to avoid or manage impacts on cultural heritage. The outline for cultural heritage protection and management is provided in this volume at *Volume 8, Chapter 9*.

The indigenous community includes Traditional Owners, Aboriginal people of long residential standing, and more recent community members. As a community they experience a higher incidence of negative social factors such as less education, higher unemployment, worse health, lower home ownership and shorter life expectancy. As such, they may experience Project impacts such as housing shortages or service deficits more strongly.

This is discussed in detail for the Project area as a whole in *Volume 8, Chapter 7*.

Community Cohesion

Community organisations noted the need to ensure that new residents would be supported to integrate with the Gladstone community, and to settle long term. This contributes to population stability (and consequently community cohesion), and to Gladstone's skilled workforce. While the Project intends to recruit locally to the fullest extent possible, both direct and indirect population growth is likely to occur as a result of the Project. The need to support community development and social capital in Gladstone is addressed in the mitigation section.

The Project intends to invest in several mitigation measures which address community cohesion, including affordable housing, social infrastructure and community development, and this is discussed in the relevant sections.

The number of expatriate workers is likely to be small and largely drawn from English-speaking countries, but may include other cultural backgrounds. This is not expected to impact on community cohesion or harmony. The potential for people from non-English speaking backgrounds to move to the area and contribute to cultural diversity was welcomed, but stakeholders noted the increased demand on local services to meet their specific needs.

Employment Stability and Economic Development

Survey participants were asked to identify potential Project benefits for Gladstone's community during construction. Benefits identified related to the potential for economic growth in Gladstone, with 89 per cent of residents expecting that the Project would contribute to economic growth. The potential for employment stability through permanent jobs was identified, with up to 1,500 construction positions and 800 operational positions available. The benefit of training opportunities offered through the Project was also identified by 80 per cent of participants. Analysis of the Project's economic benefits is detailed in *Volume 8, Chapter 10.*

With economic growth, population stability, and stable incomes comes increasing community vitality, and this was recognised as potential benefit by 56 per cent of survey participants. A small proportion (42 per cent) also expected the Project would make a positive contribution to community services and facilities through social investment.

Marine Recreation

Recreation access through Gladstone Harbour is integral to the Gladstone lifestyle, as described in *Section 6.2.5.3*. Consultation participants were concerned to ensure that access to the harbour for sailing, boating and fishing was protected. The community networks generated by these activities are integral to Gladstone's community cohesion. The Scout Group (which has provided scout canoe trips two to three times per year up through The Narrows, for approximately 12 years) is also concerned that it would lose access to The Narrows.

Impacts on recreational access to Gladstone Harbour during construction relate primarily to barge traffic, which at peak will be approximately 140 vessels per month, and workforce commuter ferries, with up to five ferries traversing from Auckland Point to the Facility site each morning and evening. This impact is likely to extend throughout the construction period. Impacts will be confined to the normally expected constraints of such craft as currently operate in the harbour, however, it may be experienced as an incremental increase in industrial traffic.

A recreational ferry service currently operates between Gladstone Harbour and South End, where there is a permanent resident population. Consultation suggests the commuter ferries for construction workers are unlikely to have a substantial impact on the ferry service for Curtis Island residents, but could result in a slight lengthening of trip duration (D. Toy, Owner, Curtis Endeavour, *pers. comm*., 20/04/2009).

The construction contractor will need to undertake consultation with local groups including Volunteer Marine Rescue, Gladstone Sportfishing Club and Gladstone Sailing Club to identify events and activities and where possible schedule construction water traffic accordingly. This is further discussed in *Section 6.3.7.3.*

Construction would also see restrictions on access to the waters and intertidal zone directly adjacent to the Facility site. This area is not highly valued for fishing and, assuming other areas such as Grahams Creek and The Narrows will not be restricted by Facility construction, this impact is considered insignificant. It is expected that fishing and other recreational access to these areas will be preserved during construction, with the exception of the need to maintain the usual passing distance between recreational craft and dredging and delivery craft.

Dredging is required to construct the Materials Offloading Facility adjacent to the site. One dredge will be required for this purpose, for a period of up to three months. Of itself, this will not induce significant constraints on marine-based recreation. However, disturbance to harbour use may occur as a result of dredging by GPC, and this is discussed in *Section 6.3.7.2 and in Volume 6.*

Consultation suggests that while the loss of any recreational fishing locations in the Gladstone harbour would be a frustration, the existence of alternative locations suggests it is unlikely to have a substantial (Owner, Compleat Angler, *pers. comm*., 31//03/2009).

The construction of the Pipeline crossing across The Narrows may also impact on the amenity and use of this area during the construction period, which could extend for some months. A more detailed assessment of these potential impacts will be conducted when the construction methodology and crossing location are determined, with mitigation provisions as discussed in *Section 6.4.7.4* to be applied and extended if necessary to protect other marine uses in the area.

Curtis Island Amenity and Lifestyle

South End community is located on the south-east headland of Curtis Island, and enjoys a relaxed, natural and self-sufficient lifestyle. In consultation, island residents expressed concern that South End's residential, recreational and environmental values would be impaired by the Facility precinct, including during the pre-construction period. In response, the Project limited its traffic through South End during the EIS process.

The LNG Facility site is approximately 9 km to South End's west, and multiple ridge lines separate South End and the Facility site. As such, there are no detractions from amenity due to noise, light, air quality, traffic or site-based activities which will affect South End's lifestyle or values.

Residents worried that, during construction, workers would roam the island without respect for environmental values or the peaceful and safe lifestyle. The Project has committed to ensuring that workers are not able to access any other areas of the island apart from the construction site. This will be managed through both employment conditions and security arrangements.

Project planning has also confined construction access directly to the site, to avoid marine and road traffic impacts on South End and the Environmental Precinct.

Gladstone Amenity

The Facility will be constructed on the island at a distance of more than 5 km from Gladstone suburbs, and as such construction impacts on Gladstone residents such as noise, vibration and conflicts with residential and community land use will be avoided.

Assessment of the Project's construction noise impacts on Gladstone has indicated that construction of the Facility should be inaudible under most conditions during the day and under all conditions at night.

Use of a site at Auckland Point for laydown delivery, commuter transit and potentially pre-fabrication is the only onshore requirement for the LNG Facility. Heavy vehicles will be required (carrying cement, waste, fuel, water, consumables and equipment) to and from the Auckland Point site, which is within an industrial area. The increase in traffic to and from Auckland Point attributable to the Project is discussed In *Volume 5, Chapter 14.*

The workforce will be transported to and from the construction site on ferries, to and from Auckland Point. Departure and arrival times will be staggered; however, there will be a massing of the workforce at Auckland Point for up to an hour at commuting times. As this is an industrial area, social impact will not result. The potential noise impacts of traffic related to the Project and its Auckland Point activities are assessed in *Volume 5, Chapter 13.*

Workers will be transported to Auckland Point either in private vehicles or by commuter bus from assembly points around Gladstone. Traditionally companies use shopping centres and other public car parks in Gladstone as bus pick-up points, however, the cumulative impacts of more than one large construction project doing this is likely to displace other residents and shoppers. The Project will consult with car park owners (including sports clubs and community facilities) to assess current supply and demand, and develop a parking and commuting strategy which minimises impacts on other residents.

If the bridge from Friend Point to the island is constructed, workers will then use this as the route to work when it becomes available (this is expected to occur late in the LNG Facility's second year of construction). Construction for the bridge and road is expected to be inaudible to the nearest sensitive receptors (refer to *Volume 5, Chapter 13*). The potential impacts of traffic using the access bridge and road are discussed in *Volume 5, Chapter 14*.

6.3.7.2 Cumulative Impacts on Community Values

The Terms of Reference require assessment of cumulative impacts with respect to the ''Central Queensland Strategy for Sustainability – 2004 and Beyond'' Target 3.9, which addresses social sustainability. The targets are:

- maintain (improve) the population structure of rural towns within 15 years, particularly areas of decentralised growth
- reduce net outflow of young people from rural communities within 15 years
- development and implementation of initiatives that attract and maintain young people
- within 10 years, increase by 20 per cent the levels of indigenous and youth employment.

Performance indicators for Target 3.9 include: maintenance of facilities and services; net outflow of youth; employment levels of youth and indigenous people; and levels of volunteer activity.

The Project will contribute to achieving these targets in the following ways:

- jobs and training opportunities for local 15 to 19-year-olds, thereby retaining more young people in Gladstone and reducing youth unemployment
- Project jobs will attract workers aged 19 to 29, thereby reducing net outflow of young people
- QGC specific training and employment programs targeting indigenous people to reduce indigenous unemployment
- QGC social investment will increase the capacity of local community networks, services and facilities
- A preference for Project area residents for QGC and BG graduate and other recruitment programs.

Specific impacts relating to the cumulative impacts of the Project during its construction with other projects in the Gladstone region are addressed below.

Project Overload and Anxiety about Cumulative Impacts

The challenges of managing cumulative impacts are well known to the Gladstone community, following years of growth, both incremental and by leaps. The community attitudes survey revealed that Gladstone residents have strongly positive and optimistic feelings about Gladstone, but there is a degree of uncertainty and anxiety about Gladstone's direction. This was also expressed in consultation meetings.

With respect to Curtis Island itself, residents in consultation meetings expressed a concern that a LNG facility would harm the island's environmental values. With respect to the CATI survey, 36 per cent of residents in Gladstone were worried about industrial development on Curtis Island. The survey also found that approximately 35 per cent of Gladstone residents identified themselves as environmentalists, and concern for environmental values has been expressed.

Gladstone residents have varying opinions on the balance between industries' social benefits and impacts. Gladstone's industries offer economic development and a measure of income security for workers and businesses. However, Gladstone itself is highly valued for its combination of a good lifestyle, beaches, boating and fishing, and strong community feeling.

Given the number of new projects proposed for the area, and a less-than-adequate record of coordination by all parties, residents are concerned that more industry and the increasing population will put strain on environmental values, housing affordability and social infrastructure. Changes due to the economic slowdown have intensified anxiety, with some encouraging further industry development as soon as possible, and others fearing that development will be ''rammed through'' without regard for local values.

The Project is committed to social performance standards which include both mitigating social impacts of the Project to the fullest extent practicable, and investing in communities hosting the Project. This will include investment in social infrastructure and community development in Gladstone.

As noted in the Queensland Government's Sustainable Resource Communities policy, multiple concurrent proposals for new and expanded development may result in significant cumulative and regional impacts presenting in resource communities.[91] It will be essential for the Project to maintain communication and consultation with Gladstone communities, the Queensland Government, GRC and other industry proponents to ensure a coordinated approach to protecting community values.

Equity

Community members were concerned, on the basis of previous experience, that the cumulative impacts of several projects would place stress on social infrastructure and housing (as has been discussed in previous sections).

91 Queensland Government (2008) Sustainable Resource Communities Social Impact Assessment Policy

Stress on social infrastructure and housing stock impacts most severely on low-income families, who cannot compete with industry housing tenants for affordable properties, and have a higher dependence on social support services. This in turn affects equity as disadvantaged people experience these impacts more severely and community cohesion as social networks are strained.

The Project's social performance will be critical in ensuring that Project benefits are shared among all residents, to reduce inequity between Project workers with stable incomes and businesses, and others who may experience the impacts of growth. The Project will review the findings of the current Strategic Social Infrastructure Study when it is available to enhance the targeting of QGC social investment.

Community Values and Dredging

The GPC is preparing an Environmental Impact Statement for a strategic dredging program required to facilitate the port's expansion under its Strategic Plan. The assessment will include the potential impacts of dredging of the channel to the new Curtis Island Port Precinct and swing basin adjacent to the LNG Facility site. Dredging of the channel and swing basin is likely to require three or four barges and accompanying vessels for a period of several months.

Potential impacts on social values as a result of dredging for Project shipping access and other port expansions include:

- disturbance to recreational fishing and boating in the harbour from particular dredging locations if they coincide with fishing spots such as between Tide Island and Curtis Island
- constraints on boat passage in the immediate vicinity of dredges, floating pipelines and spoil disposal operations
- audible noise in the harbour (refer to *Volume 5, Chapter 13*)
- potential impact on the harbour's scenic character due to the dredge vessels and equipment, spoil disposal and potentially suspended sediments
- need for accommodation for dredging crew as discussed in *Section 6.3.3*
- additional workforce demands on recreational venues and public places
- anxiety about environmental effects on dugong, fish stocks, turtles, mangroves, seagrass, and other flora and fauna
- anger and concern about changes to marine habitats and potential effect on sea life in respect to dredging and dredged material deposition.

Mitigation measures are outlined in *Volume 6*, and include consultation, respect for community boating activities, and participative monitoring of effects on marine life.

Regulation and monitoring for the environmental effects of dredging will be undertaken by the GPC.

Bridge

The construction of a bridge between Friend Point and Curtis Island remains an option being considered by the Queensland Government with other parties.

The prospect of a bridge to Curtis Island has produced a diversity of opinion in consultation. While some Gladstone residents and some island residents would welcome a bridge to the island, most Curtis Island residents are concerned that the bridge would provide damaging public access to the island. Planning for the bridge needs to take account of residents' views.

Upstream of the proposed bridge and into Grahams Creek is used as safe moorings for many vessels during severe weather. The bridge concept design study[92] adopts a design which would allow vessels with masts approximately 20 m high to pass beneath at high tide.

Effect of LNG Precinct on Environmental Values

The CATI survey identified that approximately 35 per cent of Gladstone residents identified themselves as environmentalists[93]; however, the high value placed on the population health of marine and terrestrial residents extends much more broadly. Terrestrial and marine life and habitats are considered in detail in the EIS. For social purposes, it should be recognised that:

- Environmental values are strongly held, and form part of Gladstone's identity and way of life.
- Local and regional groups are anxious about Project impacts on the health of marine and island terrestrial fauna and flora, relating primarily to dredging, shipping and construction.
- There is concern about the effects of dredging craft on access to waters around Curtis Island and in the Gladstone Harbour.

More broadly, concerns for the potential effects of dredging by the GPC on the Great Barrier Reef Marine Park and World Heritage area will need to be addressed to preserve the values attaching to the areas, and this will be addressed in the GPC's EIS for its expansion program.

6.3.7.3 Operation

LNG Facility

Permanent employment offered by the Project will provide an ongoing positive benefit to local employment security. Given they would be long-term employees and residents of Gladstone, the Plant's operational staff would not have any effect on amenity, harmony, cohesion or other values discussed in the preceding sections.

The community survey conducted for the Project identified residents'

92 Connell Wagner (December 2008), Curtis Island Road/Bridge Concept Design prepared for the Queensland Department of Co-ordinator General

93 UMR (2008) Community Attitudes Research

perceptions of the Project's potential impacts after operation. Participants saw the Project's potential impacts as generally positive, with regard to permanent jobs and economic diversity. Stakeholders were concerned to ensure that local businesses, trainees and employees benefit from the Project and the economic development it would support.

Consultation identified concerns for boating and fishing access in regard to the Facility and LNG shipping (discussed below), air quality (discussed in detail in *Volume 5, Chapter 12*) and the local environment.

Shipping – Gladstone Area

Social and cultural impacts pertaining to construction of the swing basin and shipping channel for the Project are discussed in *Annex 8.3*.

The Project would require an estimated 120 ships per year after Train 2 is commissioned, and an estimated of 180 ships per year after Train 3 is commissioned. At an average maximum of three ships per week, and given the harbour's port functions, this is not considered a significant impact. People travelling across the harbour by boat will be subject to safety and water traffic regulations as is currently experienced with other shipping.

If temporary restrictions on access to The Narrows or Grahams Creek occur to allow Project ships to berth, South End residents may experience this as a loss given their long association with the place, and other fisher folk would also experience this as a loss to their use and enjoyment of local waters.

There have been very few marine incidents involving LNG and none of them has involved a fire or explosion. In more than 40,000 LNG voyages over the past 40 years, there have been no incidents that involved the rupture of an LNG ship's cargo tanks or any significant spill from a ship's piping during transfer operations.

However, as they are very large ships at up to 180,000 m^3 capacity, the passage and berthing of LNG ships requires comprehensive safety measures to ensure the safety of other marine users. This includes the provision of tractor tugs with fire-fighting capability for Gladstone Harbour, and for emergency response use for other craft.

Safety planning is being conducted in consultation with the Gladstone Harbour Master and Maritime Services Queensland, with provisions likely to include a half hour separation for LNG tankers at the beginning of transit through the harbour, potentially increasing throughout the transit. A final determination regarding these requirements will be forthcoming from the Harbour Master.

The moving safety zone when ships are under steam is likely to prevent other crafts' movements across the shipping channel for up to half-an-hour, while the safety zone for ships at berth would be in place for approximately 24 hours. Such safety zones are likely to be experienced as a constraint on other users.

The Project will need to consult with sailing and boating stakeholders to plan, where practicable, to avoid key recreational boating activities such as Saturday morning sailing, for ships' movements. It will also be necessary to develop a training program for local boating organisations and a communication and community education program for the boating public, to ensure they are aware of the Project's shipping activity, safety zones and avenues for consultation. The Project will also contribute to local sailing and boating organisations to ensure any constraints due to shipping movements are offset and do not impact on the vitality of Gladstone's boating scene.

Some residents may also feel the Facility or precinct may be a threat to their safety. The Project's assessment of hazard and risk was conducted in consultation with all relevant State, Commonwealth and international authorities, and predicts an extremely low risk of threat to safety This is addressed in *Volume 5, Chapter 18*. Some small diminishment of feelings of security may still result.

Predicted worst-case noise levels from ships moving in-harbour (based on noise levels for ships under full power) indicated that noise levels will be inaudible in the context of the port's other activities. The exception in the worst-case scenario was Tide Island, however, at lower speeds noise levels from ships are expected to be below existing average noise levels. Further detail is provided in *Volume 5, Chapter 13*.

Shipping – Torres Strait Islands

Torres Strait is a major shipping channel, and Project ships may transit Torres Strait. The frequency of use is estimated at 40 per cent of the Project's cargoes. This will constitute up to 50 ships annually when Train 2 is operational, and up to 75 ships annually with Train 3. While this is not expected to cause any social impacts on Torres Strait Island communities, QGC has initiated consultation with Torres Strait Island community representatives and will subsequently provide an account of their input.

6.3.7.4 Mitigation

Marine recreation

A Marine Transport Management Plan will be developed to ensure the recreational values and safety of Gladstone Harbour is protected. This will include:

- consultation with boating, sailing and fishing representatives to identify key activity periods on a weekly, seasonal and annual basis
- credible assurance to the fishing and boating community that LNG vessels in the established channel and their moving safety zones will have minimal impact on recreational boating and fishing in the harbour and general area
- protocols and practices which respect regular weekly events such as ''learn to sail'' classes and family events
- safety practices which specifically address both organised and casual social marine trips
- avoidance of barge and ferry movements during major events such as yacht races and regattas
- training and contract management practices for barge and ferry staff regarding the safety of recreational craft

- safe harbour usage of The Narrow
- an education campaign describing the Project's boating traffic, protocols and safety management practices
- regular liaison with community representatives to monitor the effectiveness of the management plan and review as required
- social investment in community fishing and boating events

Management of impacts notwithstanding, some constraints on community use of the harbour are likely to be experienced. This should be recognised by the Project and redressed through investment in community boating and sailing events which strengthen marine community networks and skills development.

Environmental Values and Education

The Project proposes the following investments in Gladstone science students, to be further developed in consultation with the Boyne Island Environmental Education Centre and Gladstone area mathematics, science and engineering teachers:

- guest lectures by QGC environmental experts
- access to a QGC employee to support development of a science and learning project at the Gladstone Schools Challenge
- short internships to science students to work with Project staff
- sponsorship of science field trips and camps

Community Consultation Management Plan

The Project will develop a detailed community relations plan. This will include responsibilities falling on the EPC contractor, subcontractors and QGC. Responsibilities will be built into contracts and enforced. Further details of the community relations activities are given in *Volume 8, Chapter 8* and *Volume 12*.

The Project will coordinate with the Queensland Police Service and other agencies to ensure activities have the minimal impact on the local population. Community liaison personnel will work alongside the construction activities and will ensure the social mitigation measures outlined in this EIS are implemented.

Nevertheless, when considering social investment projects, the Project will take into account priority needs of the community as a whole as well as those services where the Project may have an impact.

In the event a community member wishes to make a complaint about the Project, a formal procedure will record and address their concern. Details of the procedure, including contact details, will be distributed at communities' meetings and via leaflets and posters. There will be a free telephone hotline for contacting the Project.

6.4 SUMMARY OF IMPACTS AND SIGNIFICANCE

This section summarises the Project's potential impacts and describes the significance of the impacts identified. The Project's mitigation and management strategies are further discussed in *Chapter 8*.

Significance is assessed using the criteria in *Table 8.6.40* in relation to indicators of social conditions outlined in *Table 8.6.42* summarises impacts, indicators potentially affected, references mitigation strategies required, and notes the potential for residual impacts.

Table 8.6.40 Significance Assessment Criteria

Assessment Criteria	Neutral (neither positive or negative)	Minor Impact (positive or negative)	Significant Impact (positive or negative)
The degree of change likely to arise due to the Project	Insignificant/No change	Some low-level change, but not likely to be of importance to individual or community wellbeing.	Change affecting existing social conditions or equity
The number and nature of people likely to be affected	None	A small number of people (e.g. immediate neighbours). Limited effects only	A large number of people (e.g. local community, regional impact) Likely effect on disadvantaged people
Whether the impact will be direct or indirect	No impact	Indirect impact	Direct impact
The duration of the impact	N/a	During Project planning or construction only	Permanent, or pertaining to operations
The level of expressed or anticipated community concern	None	Low level of reaction from the people affected	High level of reaction from people affected (may include local community or wider communities)
The potential for cumulative impacts	Insignificant/None	Little likelihood of leading to an increase in the overall affects on the area	High likelihood of leading to a substantial accumulation of effects over time

Table 8.6.41 Indicators used to evaluate and monitor change

Indicator	Measures	Status[94] Gladstone
Population stability	• same address five years	43%
Indigenous population size	• % of indigenous people	3.5%

94 Latest available comparable data – 2006 census if not otherwise noted

Indicator	Measures	Status[94] Gladstone
Economic resources	• SEIFA Economic Resources Score	1,009
Employment rates	• Unemployment rate	4.1%[95]
Employment equity	• Indigenous employment rate	55.9%
Cultural diversity	• % of overseas-born people	9.6%
Community cohesion	• Feel part of the community (survey)	86%
Health status	• Self-reported good health	91%
Residential amenity	• Self-reported through Project monitoring survey	Very good
Workforce skills levels	• % of workforce with certificate qualifications	23%
Recreational boating access	• Self-reported through Project monitoring survey	N/A
Business and commercial services viability	• Number of businesses	4,023
Housing availability and affordability	• Rental vacancy rate • Average weekly rental • Rental housing stress	• 3.2%[96] • Average $320 per week 3-bedroom • 53% of households
Community safety	• Reported crimes against the person • Traffic safety on Project routes	• 478 reported crimes against the person 2007–08 • N/a
Social infrastructure access	• Results of monitoring to be conducted consequent to Gladstone Social Infrastructure study	• Sufficient facility numbers, but upgrades required • Some additional facility requirements to 2026 • Services under stress • Networks strong but stretched by population growth

95 Sept 2008

96 September 2008 - OESR

Table 8.6.42 Summary of Impacts and Significance

Potential Impact	Likely Significance: Major Positive	Minor Positive	Neutral or None	Minor Negative	Major negative	Indicators	Mitigation/Enhancement	Residual Impact Likely
Labour force[97]								
Peak employment jobs of 1,500, an average of 1,200 direct jobs for two years, and more than 300 indirect jobs	X					• Employment rates (+) • Population stability (+) • Income levels (+)	• Local recruitment and training strategy paramount (S. 6.3.1.9)	No
Project training strategies will build local workforce capacity.		X				• Workforce skills levels (+)	• Project employment program (all in S. 6.3.1.9) • Training and development strategies to skill unemployed people • Labour availability analysis • Institutional and community partnerships	No
Local businesses are likely to lose staff to the Project, causing labour shortages.				X		• Business and service access (-) • Business viability (-)	• Business communication program • Local supply arrangements to increase local business confidence	No
Increase indigenous and youth employment levels		X				• Indigenous employment rate (+) • Youth	• Local recruitment and training strategy • See Chapter 7 Indigenous Social Impacts	No

97 Additional analysis of labour force impacts is presented in *Volume 8, Part C*

Potential Impact	Likely Significance: Major Positive	Minor Positive	Neutral or None	Minor Negative	Major negative	Indicators	Mitigation/Enhancement	Residual Impact Likely
						employment (+)		
Cumulative – several major projects proceeding in Gladstone to impact on labour force availability for other projects and businesses throughout the region					X	• Labour availability (-) • Business size (-)	• The Project will monitor its effects on labour force size and capacity, and work with other LNG proponents regarding cooperative efforts to avoid impacts on local businesses and the Queensland labour pool (*S. 6.3.1.9)*	Possible
Cumulative – The Project's combined workforce (Facility, Gas Field and Pipeline) will peak at more than 4,100 workers for construction, and produce more than 1,000 permanent jobs.	X					• Employment levels (+) • Economic resources (+)	• Queensland and then Australia-oriented recruitment strategy (*S. 6.3.1.9*) • Project employment program in Gladstone • Monitoring of workforce capacity and impacts required	No
Social and cultural profile								
Direct population increase of approximately 170 people, and total direct and indirect population increase of approximately 800 people		X				• Population stability (+) • Social infrastructure access (-)	• Maximising local employment (S. 6.3.1.9) • Housing strategy and social infrastructure investment detailed in S. 6.3.3.10 and S 6.3.4.4. • Social investment to build social infrastructure capacity	No
Increased number of younger people as a proportion of existing and new residents due to Project jobs and economic vitality		X				• Population stability (+) • Community cohesion	• S. 6.3.1.9 • Strategies for maximising local employment and workforce capacity	N/A

Potential Impact	Likely Significance: Major Positive	Minor Positive	Neutral or None	Minor Negative	Major negative	Indicators	Mitigation/Enhancement	Residual Impact Likely
Housing and Accommodation								
Potential impact on rental housing availability and affordability due to indirect population increase				X		• Rental vacancy rate (-) • Average weekly rental (-) • Housing stress (-)	• S. 6.3.3.10 • Provision of workers' accommodation camp for all unaccompanied non-local workers • Housing and Accommodation Management Plan • Investment in affordable housing stock	N/A
Cumulative – Demands of multiple projects may cause housing stress sufficient to dislocate low-income households and long-term residents, fracture communities.					X	• As above	• Invitation to other projects, Queensland Government and industries to partner in affordable housing provision	Possible
Social Infrastructure								
Potential to alleviate demand on unemployment and related support services	X					• Health status (+) • Social infrastructure access (+)	• Project employment program • Local recruitment and training strategies (S. 6.3.1.9)	No
Increased number of children requiring education				X		• Social infrastructure access (-)	• Liaison with Education Queensland • Availability of QGC Community Development Fund for school-based community programs	No
Increased demand from indirect population increase on health care services				X		• Social infrastructure access (-)	• Investment in health care programs for workers (S. 6.3.4) • Investment in community development	No

Potential Impact	Likely Significance: Major Positive	Minor Positive	Neutral or None	Minor Negative	Major negative	Indicators	Mitigation/Enhancement	Residual Impact Likely
(especially primary health care services)						• Health status (-)	programs and strategies to increase the capacity of local health services	
Increased demand on health services to support medi-evac arrangements at the Facility, if using local service providers			x			• Social infrastructure access	• Monitor impact of evacuation arrangements on local health service capacity (*S. 6.3.4*)	No
Increased demand on community development, health, youth services, family and other human services associated with the social isolation of newcomers (indirect)				X		• Social infrastructure access (-)	• Strategies to support community service provision, facility upgrading and community development (*S. 6.3.4*)	No
Increased demand for services to support non-English speaking people (workers and their families)				X		• Social infrastructure access (-)	• Invest in the development of local human service provider capacity to support people with culturally diverse needs	No
Community Health and Safety								
Potential for imbalance in single male population (100 to 200 people at any one time) to erode perceptions of safety			X			• Community safety	• Compliance with BG Group Business Principles and application of stringent HSSE compliance • Community development initiatives targeting behaviour awareness and management for workers and local young men and women	No
Construction worker behaviour if not well managed could impact on safety in public places					X	• Health status (-)	• Camp management and worker contracts for behaviour (S. 6.3.5.3)	No

Potential Impact	Likely Significance: Major Positive	Minor Positive	Neutral or None	Minor Negative	Major negative	Indicators	Mitigation/Enhancement	Residual Impact Likely
Potential demand from indirect population increase on health services				X		• Health status (-)	• Addressed above in Social Infrastructure	No
Potential for increased traffic due to Project workforce or heavy vehicles to impact on traffic safety				X		• Community safety	• Traffic safety and education strategy (S. 6.3.5.3)	No
Property owners and land use								
Potential for audible noise at properties near Pipeline and shipping route			X			• Residential amenity	• Consultation with property owner	No
Lifestyle and Community Values								
Increased economic vitality and employment security	X					• Income levels (+) • Population stability (+)	• As for labour force impacts	NA
Cumulative – Effects on equity for low-income households if social infrastructure access or housing affordability are affected by multiple projects					X	• Social infrastructure access (-)	• As for Social Infrastructure section	Possible
Potential impediment to access for fishing and boating folk				X		• Recreational boating access	• Marine Transport Management (S. 6.3.7.4)	NA