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Gladstone Ports Corporation

Report for Western Basin Dredging and Disposal Project EIS

Social Impact Assessment

October 2009



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Acronyms

ABS	Australian Bureau of Statistics
CHMP	Cultural Heritage Management Plan
DIP	Department of Infrastructure and Planning
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
GPC	Gladstone Ports Corporation
GSDA	Gladstone State Development Area
LGA	Local Government Area
LNG	Liquefied Natural Gas
OH&S	Occupational Health & Safety
PIFU	Planning, Information and Forecasting Unit
SD	Statistical Division
SED	State Electoral Division
SIA	Social Impact Assessment



1. Introduction

1.1 Project Background

The Port of Gladstone Western Basin Dredging and Disposal Project (the Project) seeks to accommodate the long term dredging and dredged material disposal that is required to provide safe and efficient access to the existing and proposed Port facilities in the harbour over the foreseeable future.

The development of the Western Basin will incorporate dredging associated with the deepening and widening of existing channels and swing basins, and the creation of new channels, swing basins and berth pockets. Material dredged during the Western Basin development is proposed to be placed into a Reclamation Area to create a land reserve to be used to service the new port facilities. The proposed Western Basin Reclamation is 10 km north of Gladstone City and immediately adjacent to the existing Fisherman's Landing reclamation and proposed 153 ha Fisherman's Landing Northern Expansion Project.

There are currently a number of proponents investigating sites within the Western Basin. Investigations are being undertaken to determine the nature of the material to be dredged and the navigation and berthing requirements of the likely proponents.

Dredging of the Western Basin will occur in stages and the rate of development will be controlled by the demands of industry locating in the Gladstone region and requiring access to port facilities.

In accordance with Queensland and Commonwealth environmental approvals processes required for the Western Basin Dredging and Disposal Project an Environmental Impact Statement (EIS) is required.

1.2 The Social Impact Assessment

In response to the Terms of Reference for the EIS, a social impact assessment (SIA) has been undertaken. A SIA is defined as *"the process of analysing (predicting, evaluating and reflecting) and managing the intended and unintended consequences on the human environment of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions so as to bring about a more sustainable and equitable biophysical and human environment"* (Vanclay 2003).

This SIA has been prepared following the International Principles for Social Impact Assessment (IAIA 2003). In accordance with these principles, this SIA report seeks to provide a true analysis of the likely social consequences of the proposed Western Basin development and outline the monitoring and management processes to minimise identified adverse impacts and enhance the opportunities.

Section 2 of the SIA describes the existing social values of the community, including a demographic profile, an overview of housing and accommodation issues, a socio-economic profile, a review of community values and aspirations and an inventory of existing community facilities. The profile of the community serves as a baseline against which social impacts and social change can be monitored, but also as an indication of which impacts can be expected and how the community would respond to them. The potential impacts associated with the project are identified in Section 3. A significance rating has been assigned to all identified impacts, and mitigation or enhancement strategies are proposed in Section 3.



1.3 Terms of References

The SIA has been developed in response to Section 4.1 of the draft Terms of Reference (ToR), issued by the Department of Infrastructure and Planning. Table 1 shows which section of the SIA responds to the requirements of the ToR.

Table 1 Terms of Reference and Corresponding Section in SIA

Terms of Reference	Section in SIA
<p>4.1.1 Social and cultural area</p> <p>The SIA should define the project's social and cultural area of influence taking into account:</p> <ul style="list-style-type: none"> the potential for social and cultural impacts to occur at the local, district, regional and state level the location of other relevant proposals or projects within the local area, district, or region the location and types of physical and social infrastructure, settlement and land use patterns the social values of the local area, district, and region that might be affected by the project (e.g. including integrity of social conditions, visual amenity and liveability, social harmony and wellbeing, and sense of community) Indigenous social and cultural characteristics such as native title rights and interests and cultural heritage. 	<p>The extent of the site area, local, regional and state study areas are defined in Section 1.5.</p> <p>The social and cultural values of the local area are described in Section 2.</p>
<p>4.1.2 Community engagement</p> <p>Consistent with national and international good practice and industry commitment to the concept of a 'social licence to operate', the proponent should engage, at the earliest practical stage, with likely affected parties to discuss and explain the project and to identify and respond to issues and concerns regarding social impacts. Consequently, this section should detail the community engagement processes the proponent conducted as open and transparent dialogue with stakeholders with an interest in the project's planning and design stages and future operations including affected local authorities and relevant state authorities. Engagement processes will involve consideration of social and cultural factors, customs and values, including relevant consideration of linkages between environmental, economic and social impact issues.</p>	<p>See Stakeholder and Community Consultation Report</p>
<p>4.1.3 Potential impacts and mitigation measures</p> <p>This section defines and describes the objectives and practical measures for protecting or enhancing social values, describes how nominated quantitative standards and indicators may be achieved for social impact management; and how the achievement of the objectives will be monitored, audited and managed.</p>	<p>Section 3 of the SIA contains the identification and assessment of social impacts.</p> <p>Section 4 of the SIA contains the proposed Social Impact Management Plan.</p>

Terms of Reference	Section in SIA
The assessment of impacts should describe the likely response of affected communities and identify possible beneficial and adverse impacts (both immediate and cumulative). The impacts of the project on local and regional residents, community services and recreational activities are to be analysed and discussed. The nature and extent of the community consultation program are to be described and a summary of the results incorporated into the EIS.	<p>Identification of impacts on local and regional residents, services and recreational activities and likely community responses is provided in Section 3.</p> <p>Cumulative impacts are described in Section 3.4.</p> <p>The community consultation program is described in the Consultation Report.</p>
The social impact assessment should include sufficient data to enable affected local authorities and state authorities to make informed decisions about how the project may affect their business and plan for the continuing provision of public services in the region.	Refer in particular to Sections 3.3.2 and 3.3.3.
The EIS should address the following matters:	
<ul style="list-style-type: none"> the number of personnel to be employed, the skills base of the required workforce and the likely sources (i.e. local, regional or other) for the workforce during the construction of the project. Include an assessment of impacts on the local labour market. This information is to be presented according to occupational groupings of the workforce. In relation to the source of the workforce, information is required as to whether the proponent and/or contractors are likely to employ locally or through other means and whether there will be initiatives for local employment opportunities. 	Refer to Economic and Material Wellbeing 3.3.2
<ul style="list-style-type: none"> an assessment of impacts on local residents, current land uses and existing lifestyles and enterprises 	Refer to, in particular to Section 3.
<ul style="list-style-type: none"> the impacts of the construction workforce and associated contractors on housing demand, community services and community cohesion. The capability of the existing housing stock, including rental accommodation, to meet any additional demands created by the project is to be discussed. 	<p>See the following sections of the SIA:</p> <ul style="list-style-type: none"> Economic and Material Wellbeing 3.3.2 Quality of the Living Environment 3.3.3 Family and Community Impacts 3.3.5
<ul style="list-style-type: none"> the cumulative impacts of the project and other major projects planned or occurring simultaneously in the region that influence the capacity of the existing housing and temporary accommodation markets to meet the need of projected numbers of both the construction and operational workforce 	See the Section 3.4
<ul style="list-style-type: none"> the consequential impact and mitigation measures of increased demand for, and uptake of affordable accommodation, particularly rental accommodation, in the region including the reduction in available affordable housing in the local government areas and the potential displacement of existing residents who may no longer be able to afford accommodation 	Mitigation measures are described in Section 4



Terms of Reference	Section in SIA
<ul style="list-style-type: none"> ▸ a discussion on the potential environmental harm on the amenity of adjacent areas used for recreation, industry, aesthetics or scientific purposes. Describe the implications of the project for future developments in the local area including constraints on surrounding land uses. 	<p>See the Quality of the Living Environment 3.3.3</p> <p>Refer to the visual assessment (Section 5 of the EIS)</p>
<ul style="list-style-type: none"> ▸ the assessment of impacts should take account of relevant demographic, social, cultural and economic profiles. 	<p>Section 2 Local Area Profile contains a profile of the relevant study areas</p>

1.4 Methodology

This SIA has been compiled using data collected via desktop research and consultation with stakeholders. Key sources include:

- ABS census community profile for the Gladstone State Electoral Division, Fitzroy Statistical Division and Queensland;
- Direct consultation with key stakeholders;
- Reports and information from Gladstone Regional Council and the former Calliope, Gladstone and Miriam Vale shires;
- Data from state government departments;
- Various published studies relevant to the site of concern and the Gladstone community;
- Information provided by the GPC project team;
- Information provided by GHD technical specialists;
- Relevant case studies and academic literature; and
- The Fisherman's Landing Northern Expansion Social Impact Assessment developed by GHD for GPC (used as a reference document).

The methodology used to predict, analyse and manage potential impacts follows four steps, summarised in Figure 1.



Figure 1 Key Steps of the SIA process

1.4.1 Scoping

Impact scoping

An impact scoping process was undertaken to identify likely social impacts. The impacts identified relate to the potential change in current circumstances potentially caused by the project (i.e. what will change).

Stakeholder identification

Initial project scoping involved the identification of relevant stakeholders. Stakeholders are groups and individuals that have an interest in or have the ability to impact or be impacted by the project. Stakeholders were identified to help predict possible social impacts and to provide input into the SIA processes.

The stakeholder list was derived from desk-based research and from consultation and engagement activities.

SIA Consultations

The SIA consultation process was integrated with the broader community consultation undertaken for the EIS. Consultation meetings with representatives of relevant community organisations and site user groups were conducted to inform the identification of social impacts. Representatives of stakeholder organisations were interviewed because of their knowledge of the area of concern and their ability to provide valuable insights into the status of the Gladstone community.

Identifying the study areas

Three study areas were defined for the purpose of the local area profile: a local study area, a regional study area and a state study area. For the identification and description of impacts, a site area was identified, comprising the areas of the Gladstone Harbour directly affected by the dredging and reclamation activities, including their immediate surroundings.

1.4.2 Developing the Local Area Profile

The development of the existing local area profile (baseline) is a key stage in the SIA process. A profile of the community was developed including the history of the local study area, a demographic analysis, a description of the socio-economic profile of the area, a review of housing and accommodation and an



identification of community facilities and services. This baseline assists in identifying impacts and serves as a benchmark against which social change can be monitored.

Desk-based research, including a review of publicly available reports and information, was combined with direct consultation, forming a comprehensive picture of the existing social environment for the project.

1.4.3 Impact Identification and Significance

Potential impacts were identified based on desktop research and direct stakeholder consultations and guided by the initial scoping process. Information provided by the GPC project team and GHD technical specialists about construction activities and the potential impacts of these activities was also taken into consideration during this process.

Impacts were categorised following a framework suggested by Vanclay (2002) which identifies seven impact categories: Health and social wellbeing; Quality of the living environment; Economic and material wellbeing; Cultural impacts; Family and community impacts; Institutional, legal, political and equity impacts and Gender relations impacts.

A systematic process was followed to evaluate the significance of the identified potential impacts. The process for assessing the significance of potential social impacts is described in Appendix A. This process employs a matrix as the main tool for identifying the significance of potential social impacts. The matrix identifies the significance of potential social impacts, and analyses them in terms of the following characteristics:

- Groups of stakeholders impacted;
- The likelihood of the impact occurring;
- The impact's consequence (should it occur);
- Status of the impact (whether it is positive or negative);
- The duration of the impact;
- Spatial extent of the impact (which of the study areas will primarily be impacted);
- Mitigatory potential (the potential for the project proponent to mitigate a negative impact); and
- Acceptability to the community.

1.4.4 Social Impact Management Plan

The analysis of potential social impacts informed the recommendations for the Social Impact Management Plan (SIMP), which identifies mitigation and monitoring measures to help facilitate the:

- Maximisation of potential positive social impacts;
- Avoidance of significant adverse impacts in the first place;
- Minimisation of significant adverse impacts, where they cannot be avoided; and
- Consideration of community offsets/compensation for significant impacts that cannot be reduced to an acceptable level.

These strategies and actions are recommended for GPC to incorporate into detailed construction planning and ongoing management of the project.



1.5 Project Study Areas

1.5.1 Site area

The site area is the area of Gladstone Harbour where dredging and reclamation will occur, and its immediate environment (Figure 2). Most of the direct biophysical change processes and associated impacts will occur in this area.



1:100,000 (at A3)

0 1 2 3 4 5

Kilometres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia
Grid: Map Grid of Australia 1994, Zone 56

N

LEGEND

- Town and Locality
- Contour (50m interval)
- Railway
- Major Road
- Western Basin Reclamation
- Fisherman's Landing Northern Expansion
- Built Up Area
- Existing Channels, Swing Basins and Berths
- Wiggins Island Coal Terminal (Approved)
- Stage 1A - North China Bay LNG Precinct
- Stage 1B - Fisherman's Landing LNG
- Stage 2 - Laird Point LNG
- Stage 3 - Fisherman's Landing
- Stage 4 - Hamilton Point

Port of Gladstone
Western Basin Dredging and Disposal Project

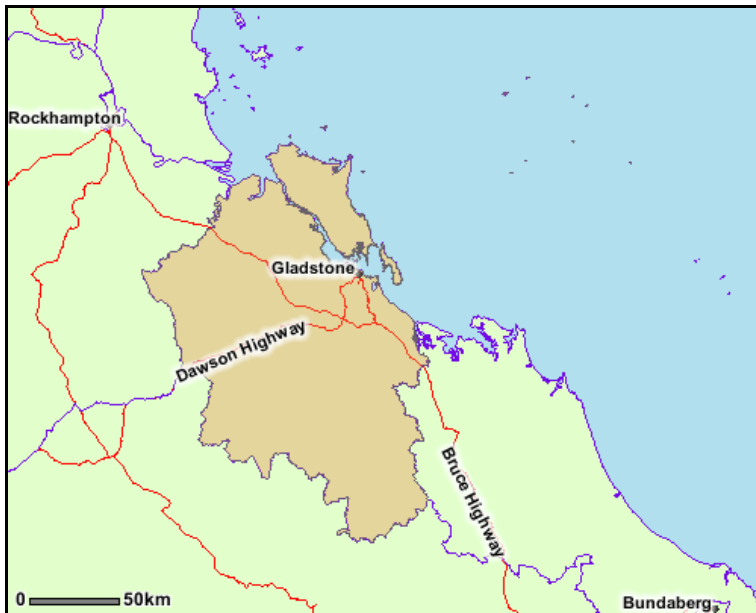
Western Basin Dredging and Disposal Project Site Area

Job Number 42-15386
Revision A
Date 30 Aug 2009

Figure 2

1.5.2 Local study area

The local study area is defined as the Gladstone State Electoral Division (SED 30031). This area covers 6709.7 square kilometres, and is equivalent to the former shires of Gladstone and Calliope (ABS 2007). The Gladstone State Electoral Division is the area which is most likely to experience the majority of the social impacts resulting from the Project.



Source: ABS (2007), Gladstone State Electoral Division, image retrieved from www.abs.gov.au 12 May 2009.

Figure 3 Local Study Area

1.5.3 Regional Study Area

The regional study area is defined as the Fitzroy Statistical Division (SD 330). The statistical division covers an area of 122,966.5 square kilometres, and holds the two major centres of Rockhampton and Gladstone. The regional study area serves as a comparison for the local study area and is an area susceptible to various social impacts.

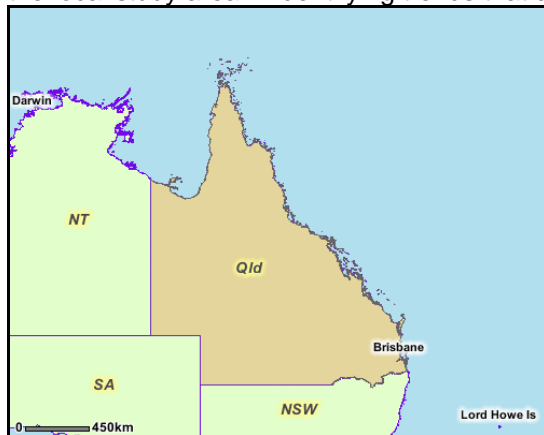


Source: ABS (2007), Fitzroy Statistical Division, image retrieved from www.abs.gov.au 12 May 2009

Figure 4 Regional Study Area

1.5.4 State Study Area

The state study area is the state of Queensland. The state study area mainly serves as a comparison for the local study area in identifying trends that are apparent to the whole of Queensland.



Source: ABS (2007), Queensland, image retrieved from www.abs.gov.au 12 May 2009

Figure 5 State Study Area



2. Local Area Profile

2.1 Introduction

This section provides a profile of the local study area, which acts as a basis on which social change processes and social impacts can be identified and a baseline against which social change can be measured. The local area profile includes information on:

- ▶ Community history;
- ▶ Current Land Use;
- ▶ A demographic profile;
- ▶ A socio-economic profile;
- ▶ A review of housing and accommodation;
- ▶ A description of existing community facilities and services; and
- ▶ A description of the community values and aspirations.

Where relevant, data for the local area profile has been compared with and analysed against data for the regional study area.

The main information sources for the community history include published literature and web-based reference materials. Data from the 2006 census of population and housing provided input for the demographic profile, and parts of the socio-economic and housing sections. Main sources for the services and facilities section were the websites of Gladstone Regional Council and various State government departments.

2.2 Community History

2.2.1 Early History

Prior to European settlement, the Gladstone region was home to the Baiali (or Byellee) and Goreng Goreng Aboriginal tribes. The Goreng Goreng people are an Australian Aboriginal language group, their range was between Baffle Creek to Agnes Waters, extending west as far as Kroombit Tops. More detail on Indigenous history of the region is available in Section 11 Cultural Heritage.

During his circumnavigation of Australia Lieutenant Matthew Flinders became the first recorded European to sight Gladstone harbour in August 1802 (Laver 2008). Flinders named the harbour Port Curtis, after Admiral Roger Curtis, a man who was of assistance to Flinders years earlier at the Cape of Good Hope.

A convict colony was eventually established at Port Curtis under the guidance of Colonel George Barney, who became Lieutenant Governor of the colony of North Australia. However, the settlement lasted barely two months, with a change of government in Britain ordering the withdrawal of Barney and the settlers (ibid.).

Interest in the region remained and in 1853 Francis MacCabe surveyed the site of a new town on the shores of Port Curtis, resulting in an influx of free settlers as land became available throughout the region. The fledgling town's name was later changed in honour of British Statesman, William Gladstone.



Maurice O'Connell was appointed government resident of Gladstone in 1854, and Richard Hetherington was elected as Gladstone's first mayor in 1863 when the town became a municipality (ibid.). Gladstone officially became a city in 1976.

Other towns in the region were also settled. This included the township of Calliope, reputedly named after the ship *Calliope* which brought the Governor of New South Wales, Sir Charles Augustus Fitzroy, to Port Curtis in 1854 (Fitzgerald 1984).

2.2.2 Development History

European development of the Gladstone region was originally pursued by John Oxley who conducted exploration of the harbour and surrounding countryside in November 1823. However, Oxley was dismissive of the region, noting the harbour was difficult to enter, the countryside was too dry, and the timber useless for construction purposes (McDonald 1988).

Early development of the Gladstone region was driven by gold exploration throughout the western regions such as the Boyne Valley. The town of Many Peaks was the centre of the local mining activities and once boasted a population exceeding that of Gladstone at the time (Travel Australia 2008). Between 1853 and 1879, the townships of Calliope and Many Peaks became lively settlements due to gold discoveries. These communities grew even further when gold was commercially mined in the region during the early 1900s (ibid.). Copper was also mined in the Boyne Valley throughout the late 1800s.

Development of Gladstone was slow until 1893, when a meatworks was established at Parsons Point. The meatworks was the town's main industry for about 60 years. Coal mining was undertaken on a limited scale from the 1920s. Significant industrial and community expansion began in the 1960s, following the commencement of large-scale coal mining for export markets, and the construction of major industrial processing facilities (e.g. an alumina refinery). In 1963, Queensland Alumina Limited established its alumina refinery on the site of the old meatworks and Gladstone's port facilities were expanded (N.A., 1983).

This signified the start of an era of industrial development and economic prosperity which facilitated a period of rapid growth. The population of Gladstone increased from 7,200 persons in 1961 to 22,100 persons in 1981 (Australian Geographic 1996:1501) and 45,625 persons in 2006 (ABS 2006).

The city of Gladstone is now at the forefront of the community and industrial development in Australia and represents an area of National and State economic significance. Major industry in Gladstone now includes the world's largest alumina refinery, Australia's largest aluminium smelter, a thriving fishing industry and a growing tourism industry.

The region surrounding Gladstone also became home to a broad range of rural primary industries, and now supports a well established cattle industry, supplemented by dairying, grain, fruit and vegetable growing and timber production (Travel Australia 2008). Various rural centres, such as Calliope, have gradually developed outside of Gladstone city. Beachside towns such as Boyne Island and Tannum Sands have also established within the former Calliope Shire. Development boomed in Boyne-Tannum when the two were linked by a bridge in 1980.



2.2.3 History of the Port of Gladstone

The first major wharf at Gladstone was built in 1885, servicing exports including meat, butter, wool, sugar, horses and cattle. Coal shipments commenced in the early 1920s, ceased in 1931, re-commenced on a larger scale in the 1940s, and grew substantially from 1961 (Gladstone Port Authority 1988). A bulk coal loader came into operation in 1954, with a larger coal loader (the R.G. Tanna Coal Terminal), completed in 1980 and subsequently expanded to an annual capacity of more than 30 million tonnes.

Construction of additional facilities to meet the requirements of industrial processing activities also continued during this period, with capital expenditure by the Gladstone Port Authority alone totalling \$480 million over the 20 years to 1998 (Ibid:3). The current facilities at the Port of Gladstone include 12 berths grouped into six wharf centres: Clinton Wharves, Barney Point Terminal, South Trees Wharves, Boyne Wharf, Auckland Point Wharves and Fisherman's Landing Wharves. The Clinton Wharves accounted for 59 per cent of the total tonnage shipped through the port in 1999-2000 (Bureau of Transport Economics, 2001:16).

The Port of Gladstone now provides essential transport-related services for several major industrial processing facilities located near the facility. The port mainly handles bulk cargoes, with small shipments of containerised and breakbulk cargoes. Coal accounted for 64 per cent of port traffic in 1999-2000, with aluminium and inputs used in its production comprising about 29 per cent of port traffic in the same period (Ibid:8). In tonnage terms, the other major traffics handled at the Port of Gladstone in 1999-2000 included cargoes for the cement industry, petroleum products, woodchip and grain (Ibid:9). Shipments have increased at a compound rate of almost 6 per cent per annum over the period since 1990-91 (Ibid:8). The Port of Gladstone continues to play a key role in facilitating industry development and the expansion of the local economy.

2.2.4 Local Government

The Gladstone region was governed as individual shires/cities including the Calliope Shire, Gladstone City and Miriam Vale Shire. As a result of Local Government Reform undertaken by the Queensland State Government, a new council was formed on the 15th March 2008. The new Gladstone Regional Council (GRC) represents an amalgamation of the former Calliope Shire Council, Gladstone City Council, and Miriam Vale Shire Council. The GRC consists of a publicly elected Mayor and eight Councillors which have an estimated operating budget of \$84 million. The Gladstone Regional Council covers an area of 10,488 square kilometres, containing an estimated resident population of 51,351 (in 2006) and has no internal council boundaries/divisions.

2.3 Current Land Use and Local Area Description

The Port of Gladstone Western Basin Dredging and Disposal Project will incorporate dredging in various areas of the Port of Gladstone. The proposed reclamation site is 10 kilometres north of Gladstone City within the local government area of Gladstone Regional Council (formerly Calliope Shire). The area is regarded as unallocated state land under the administration of the Department of Natural Resources and Water.

The proposed dredging and reclamation site is located in an area that is currently used for various recreational activities. Common recreational activities include jet skiing and boating. Bird watchers access the mainland coast area, particularly around Friend Point, to sight migratory and wader species.



Graham's Creek is a popular recreational location. The creek is used for fishing, crabbing and seasonal prawning. It is also a listed safe harbour offering a protected deep water anchoring location that can be accessed at low tide.

Non-fishing boating activity includes smaller vessels and yachts that use the adjacent channel to access in and out of the Narrows. Boat ramp surveys conducted by CapReef at Auckland VMR (Gladstone) over the survey period of June 2005 to May 2007 indicate that 25% of the boats whose details were obtained did not fish (Platten et al, 2007: 12).

The Project is proposed to be located in close proximity to the Gladstone State Development Area (GSDA), which comprises 21,000 ha of land specifically allocated to large scale industrial development, including infrastructure corridors and essential infrastructure.

Land access to the reclamation site is via Landing Road, which runs off Mount Larcom – Gladstone Road, the major northern access road to Gladstone.

There are various industrial developments in the immediate proximity to the proposed reclamation site. Current business owners/operators include:

- Users of the Bulk Liquid Wharf;
- Cement Australia;
- Rio Tinto Aluminium (formerly known as the Comalco Alumina Refinery) (who have a refinery wharf and plans for storage facilities);
- Orica Australia (who have a bulk liquid ammonia tank on site); and
- Queensland Energy Resources Ltd (QERL) (who have leasehold land directly to the north of the project site and overlapping with the proposed development site as part of the Stuart Oil Shale Project).

Other land uses in close proximity to the proposed reclamation site include State Forestry, based in Targinie State Forest. The local land area formally accommodated various rural land uses including beef cattle grazing and horticulture, however many of the former landholders have since relocated.

The city of Gladstone is the closest major urban centre and the largest urban and main residential area in the Gladstone region. Gladstone is a major port and industrial hub, and major service centre. Tannum Sands, Boyne Island, Calliope and Mount Larcom are the next largest towns in the Gladstone region in terms of population. There are also various rural residential townships and localities spread throughout the Gladstone region. These smaller towns service the greater regional area, which consists predominantly of rural land uses, particularly beef cattle grazing. Other land uses throughout the region include forestry reserves, mining and conservation lands.



2.4 Demographic profile

The demographic profile is based on data from the 2006 Census of Population and Housing. The data has been retrieved from the basic community profiles for each of the study areas. The basic community profiles in the 2006 census are based on place of usual residence.¹

2.4.1 Population structure

Population

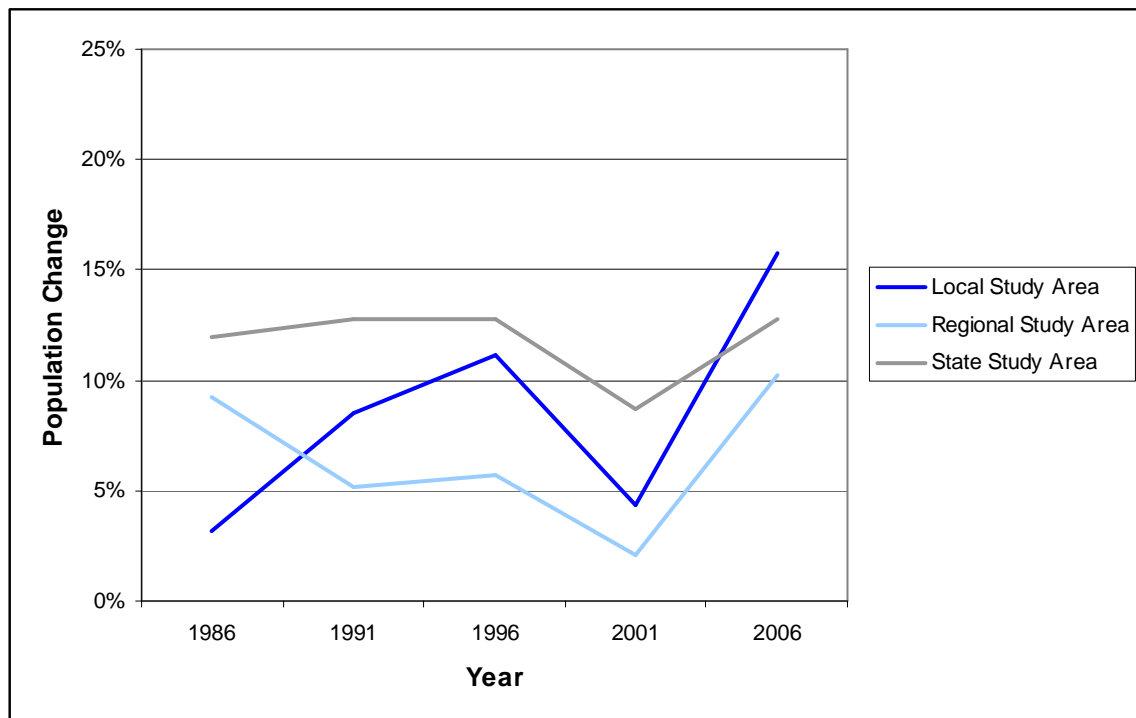
Table 2 depicts the local, regional and state study area populations from 1981 to 2007. Figure 6 shows the population change from the previous period (five year intervals). All study areas experienced a slowing growth in the five year period to 2001, and an increased growth after this period. However, the local study area experienced the strongest population change of the study areas in the period to 2006 (16%). The 2007 populations of the local and regional study areas correspond to 1.2% and 4.9% of the state study area population respectively.

Table 2 Estimated Resident Population (1981- 2007)

Study Area	1981	1986	1991	1996	2001	2006	2007
Local Study Area	32,275	33,290	36,113	40,149	41,885	48,483	50,033
Regional Study Area	146,562	160,120	168,368	178,028	181,747	200,385	204,537
State Study Area	2,345,208	2,624,595	2,960,951	3,338,690	3,628,946	4,090,908	4,182,062

Source: Queensland Future Population 2008 edition, appendix B ERP 1981-2007 pre-reformed LGA's

¹ Place of usual residence refers to the place where a person lived or intended to live for a total of six months or more in 2006. Using the place of usual residence count minimises seasonal population fluctuation.



Source: Queensland Future Population 2008 edition, appendix B ERP 1981-2007 pre-reformed LGA's

Figure 6 Population Change from Previous Period (Five Year Intervals)

Population Projections

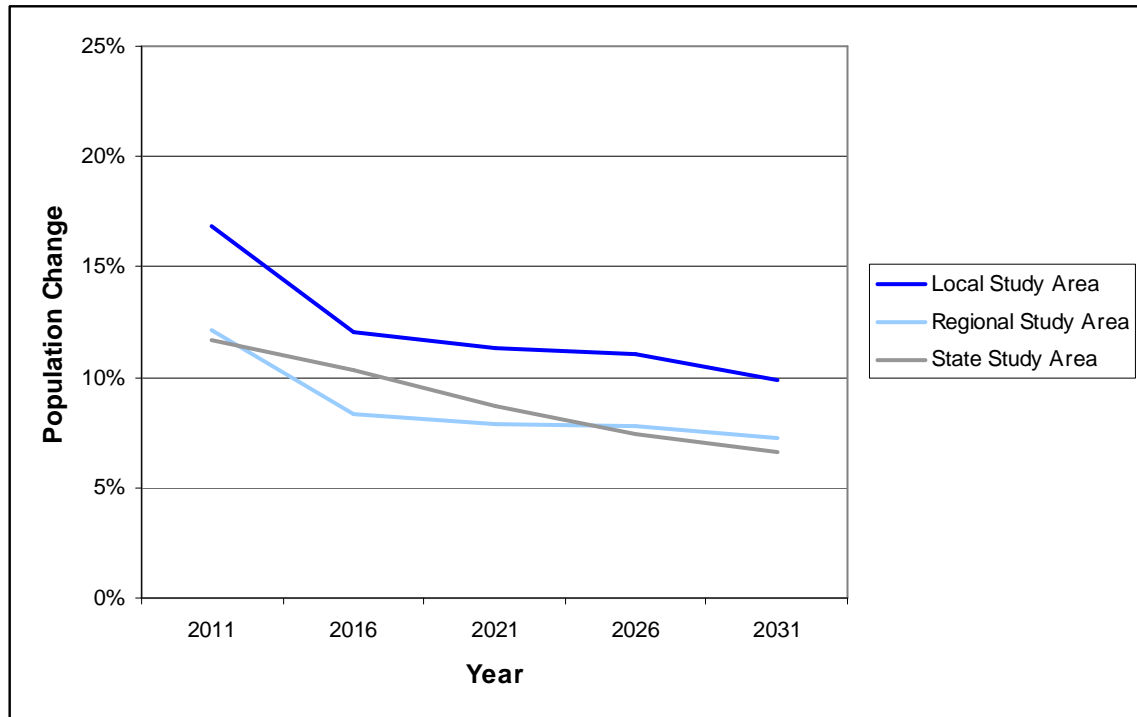
Table 3 and Figure 7 identify the projected population change compared for the local, regional and state study area (medium series). The local study area is projected to grow strongly to 2011 with an expected increase of 17% from 2006. After 2011 population growth is expected to slow down, but still remain between 10% and 12% per five year interval. Population growth is expected to follow a similar although slightly slower pattern in the regional and state study areas. The local study area is expected to have a population of 86,174 people in 2031, a growth of 37,691 persons since 2006.

Table 3 Projected Population (medium series), 2006 - 2031

Study Area	2006	2011	2016	2021	2026	2031
Local Study Area	48,483	56,639	63,449	70,622	78,419	86,174
Regional Study Area	200,385	224,753	243,492	262,703	283,248	303,793
State Study Area	4,090,908	4,567,713	5,040,325	5,478,715	5,884,389	6,273,885

Source: Queensland Future Population 2008 edition, Appendix F Estimated resident population and projected resident population (medium series), Queensland's Statistical Divisions, pre-reformed Local Government Areas

Note: The population figure for 2006 is estimated resident population. As such, it differs from the census data from the same year.

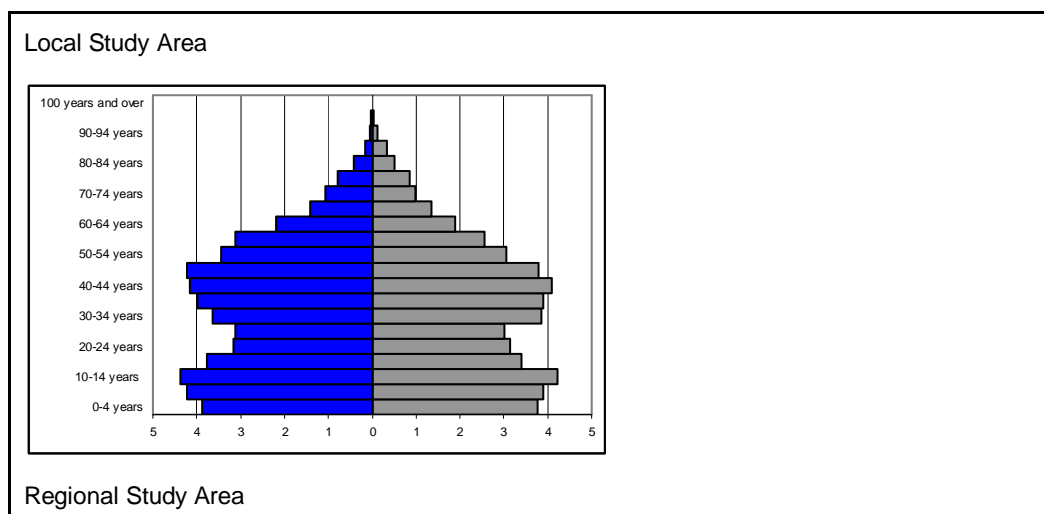


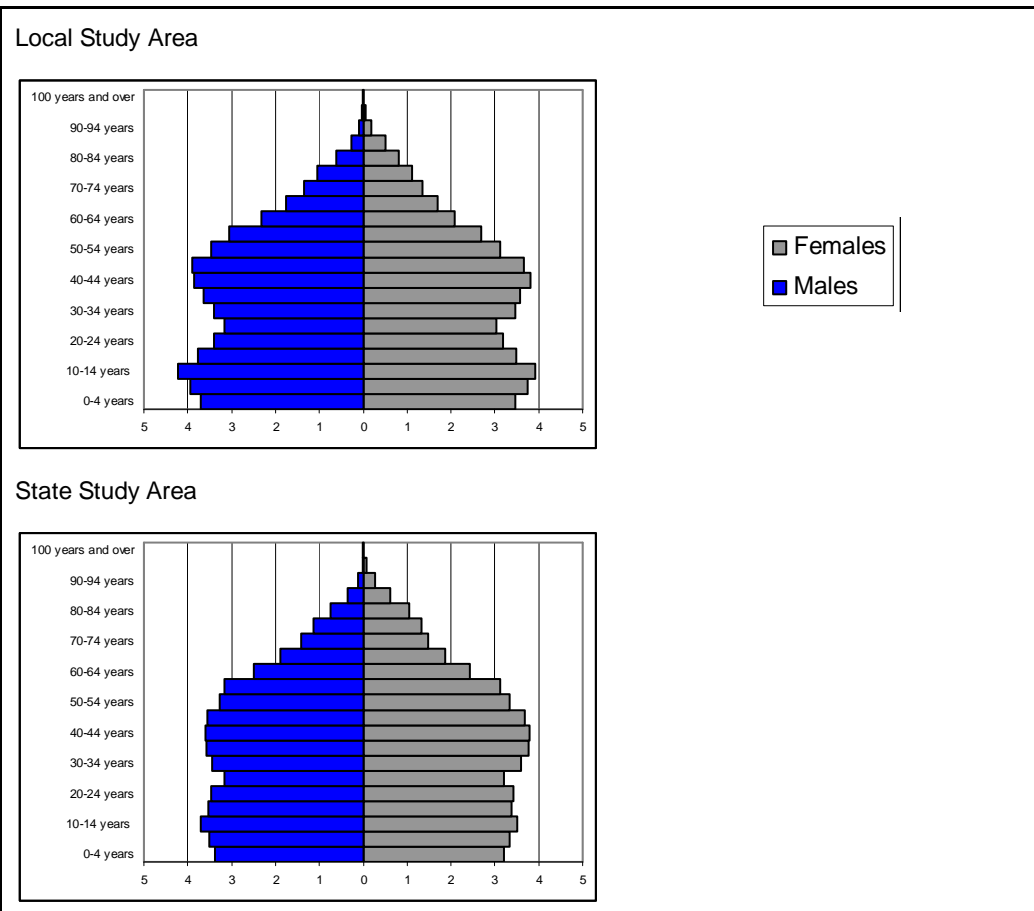
Source: Queensland Future Population 2008 edition, Appendix F Estimated resident population and projected resident population (medium series), Queensland's Statistical Divisions, pre-reformed Local Government Areas

Figure 7 Projected Population Change (medium series), 2011 - 2031

Age/sex pattern

Figure 8 shows population pyramids for the local, regional and state study areas as of 2006. The local and regional study areas have relatively larger proportions of children and adults in their 40's and 50's, and relatively smaller proportions of young adults, compared to the state study area.





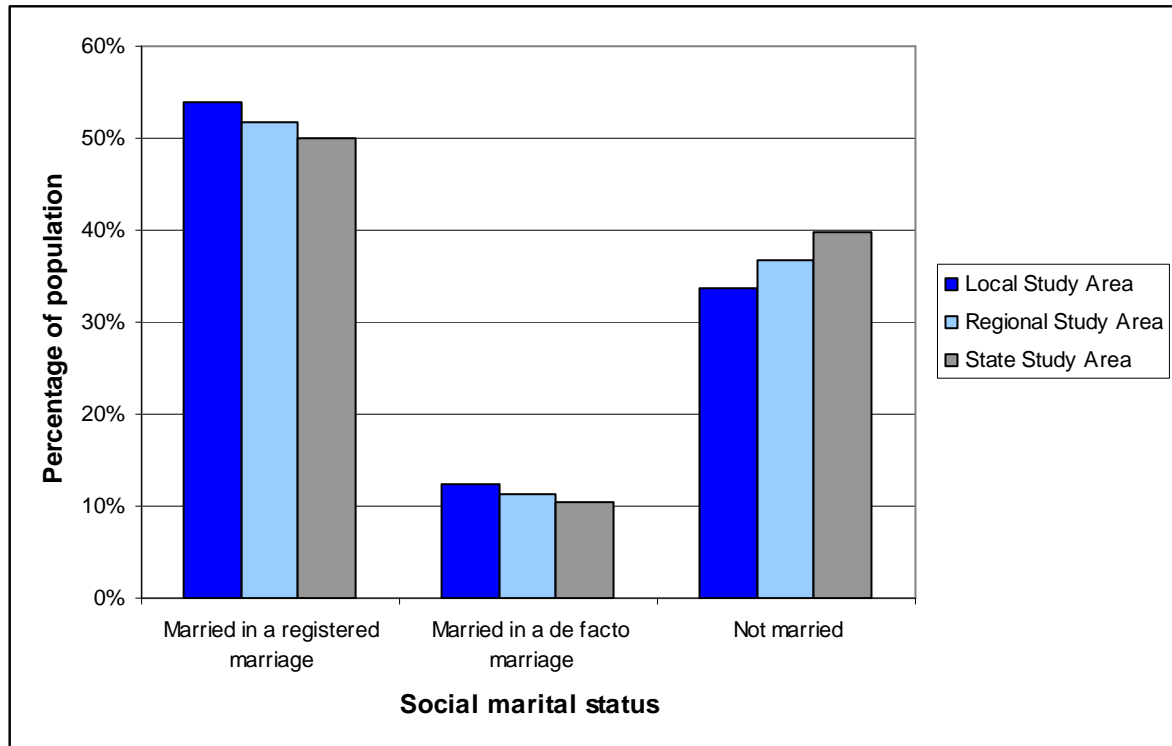
Source: ABS (2007), 2006 Census Community Profile Series, Basic Community Profile, Gladstone SED, Fitzroy SD and Queensland, table B04

Figure 8 Population Pyramids (2006)

2.4.2 Family Structure

Marital Status

Figure 9 shows that the majority of the population throughout the study areas identified as being married, either in a registered marriage (50%-54%) or in a de facto marriage (10%-12%). The local study area exhibits the highest proportions of married people, with 54% being in a registered marriage and 12% in a de facto marriage. The highest proportion of single persons (40%), is found in the state study area.



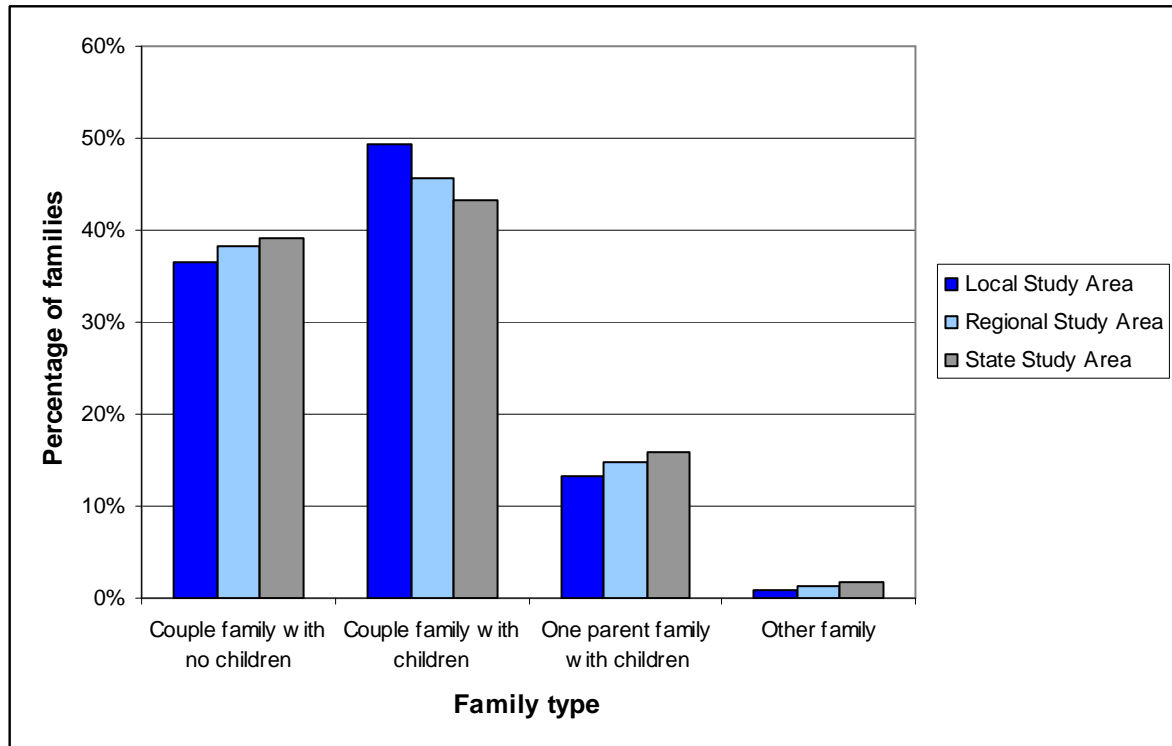
Source: ABS (2007), 2006 Census Community Profile Series, Basic Community Profile, Gladstone SED, Fitzroy SD and Queensland, table B06

Note: Population includes persons aged 15 years and over. The 'Married in a de facto marriage' category includes same sex couples.

Figure 9 Social Marital Status (2006)

Family Composition

As depicted in Figure 10, couple family with children is the most common family category in the local study area (49% of the families), with slightly more of the local study area population identified with this family type compared to the state and regional study areas. While there are slightly fewer couple families with no children and one parent families in the local study area, there is a general similarity to the distribution of all three study area populations into the family type categories.

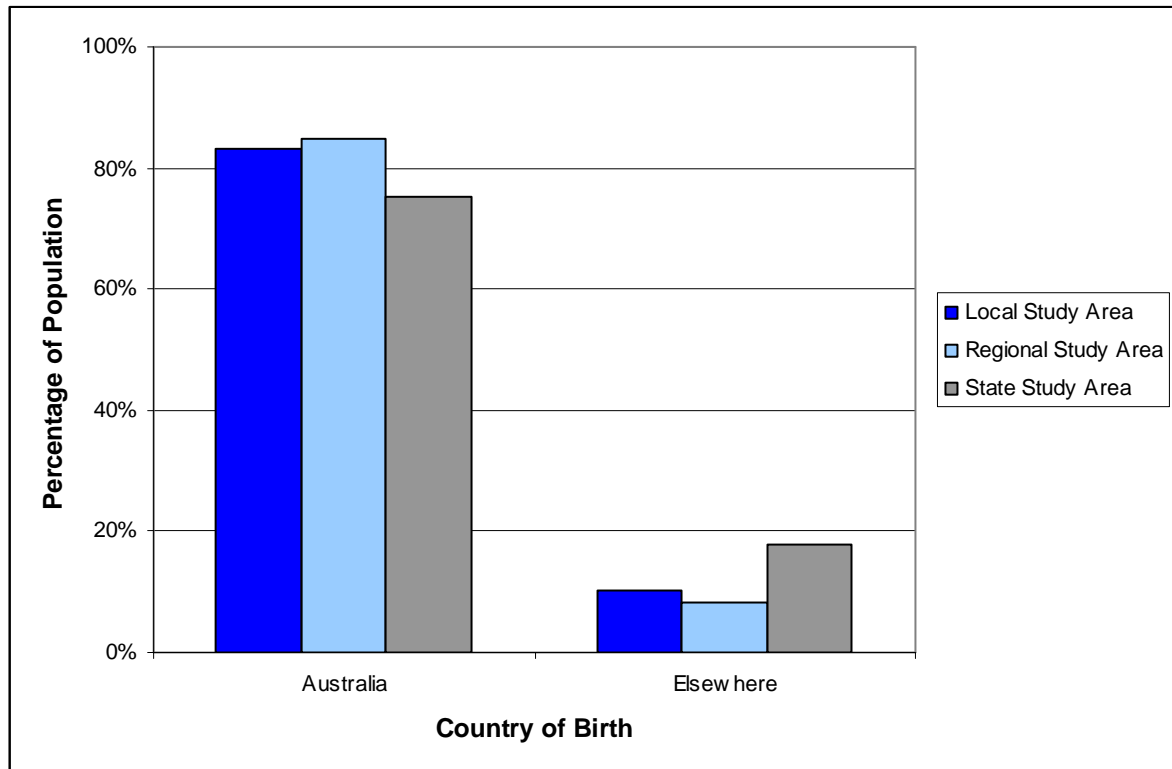


Source: ABS (2007), 2006 Census Community Profile Series, Basic Community Profile, Gladstone SED, Fitzroy SD and Queensland, table B24

Figure 10 Family Composition (2006)

2.4.3 Cultural Diversity

Figure 11 shows the percentage of the population born in Australia and elsewhere in the local, regional and state study areas. There are more people born in Australia in the local and regional study areas (83% and 85% respectively) compared to the state study area (75%).

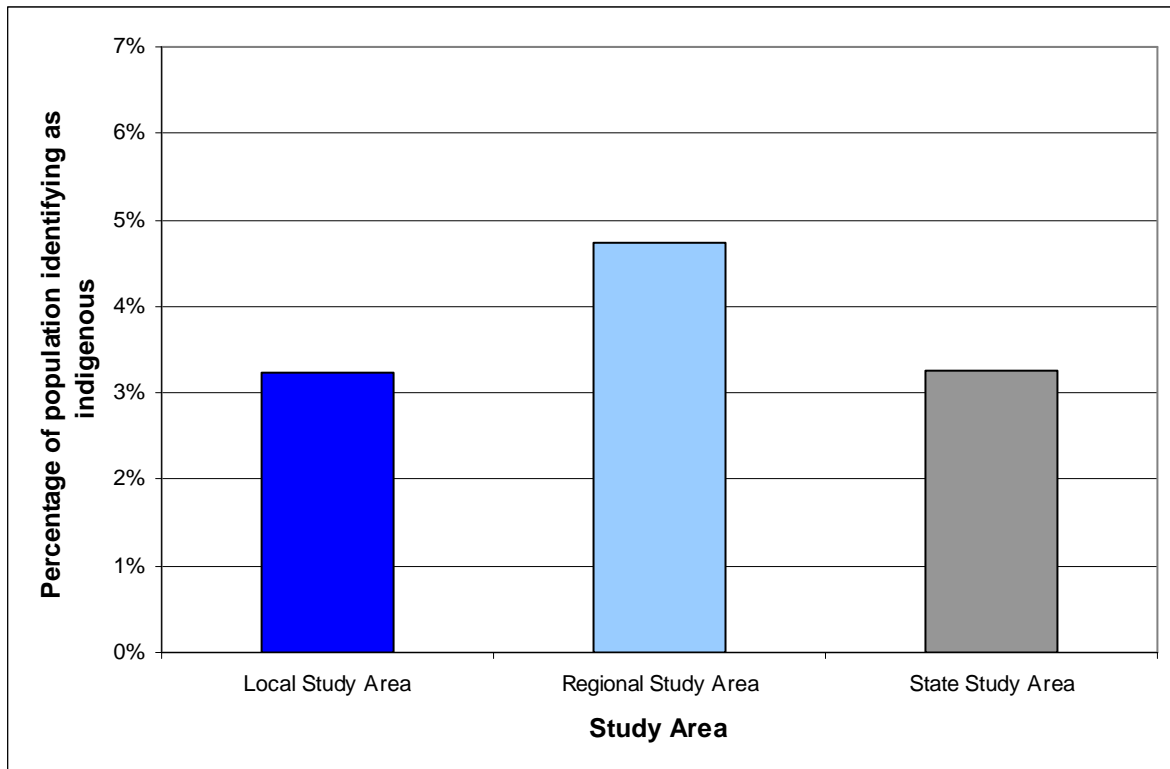


Source: ABS (2007), 2006 Census Community Profile Series, Basic Community Profile, Gladstone SED, Fitzroy SD and Queensland, table B09

Note: in addition to the Australia and Elsewhere categories there is also a not stated category accounting for 6%-7% of the population. Together, these three categories equals 100%

Figure 11 Country of Birth (2006)

Figure 12 shows the percentage of the population identifying as Indigenous in the local, regional and state study areas. There are 1,477 people in the local study area identifying as Indigenous, corresponding to 3.2% of the total population. This is similar to the levels recorded for the state study area, but slightly less than the regional study area, where 4.7% of the population identified as being Indigenous.

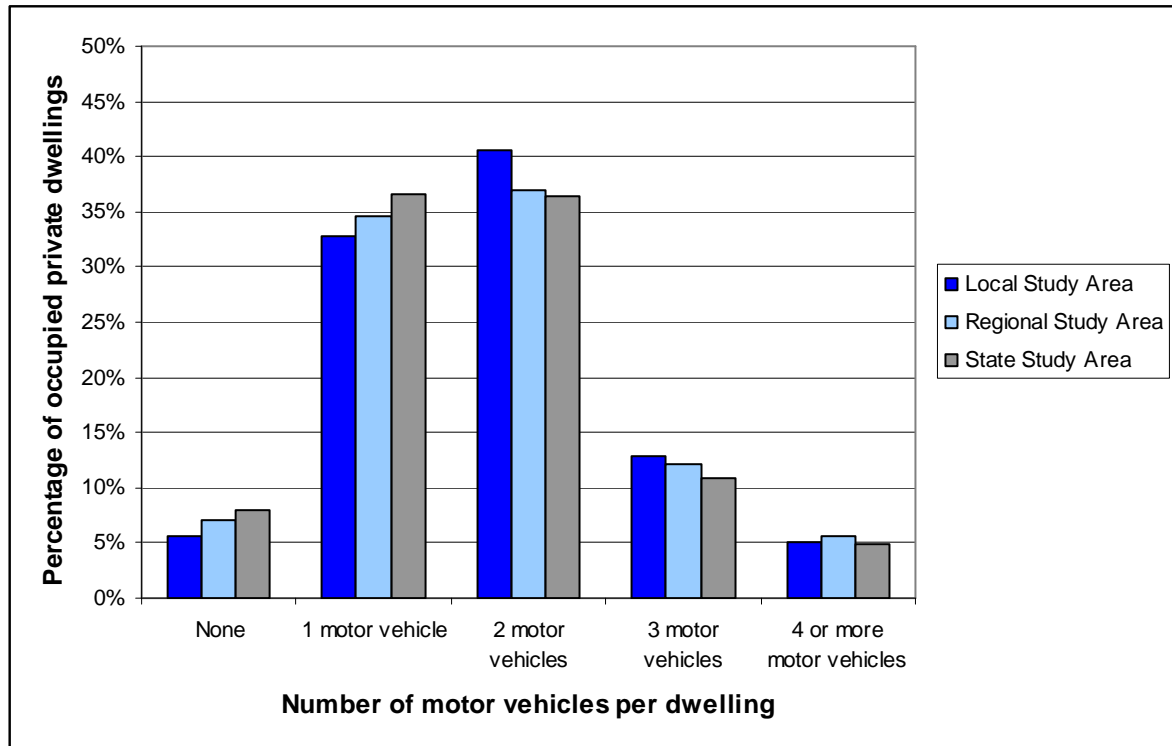


Source: ABS (2007), 2006 Census Community Profile Series, Basic Community Profile, Gladstone SED, Fitzroy SD and Queensland, table B07

Figure 12 Indigenous Status (2006)

2.4.4 Mobility

Figure 13 identifies the number of motor vehicles per dwelling. In general, households in the local study area have more cars than households in the regional and state study areas. This is particularly evident when looking at dwellings with two or three motor vehicles.



Source: ABS (2007), 2006 Census Community Profile Series, Basic Community Profile, Gladstone SED, Fitzroy SD and Queensland, table B29.

Figure 13 Number of Motor Vehicles per Dwelling (2006)

Table 4 shows that most of the local and regional populations used only one method to travel to work in 2006, with the most common method of travel to work being the use of private transport (car, taxi, truck or motorbike/scooter) (between 93% and 89%). The local study area exhibits the largest proportion of people travelling to work using private vehicles, and the lowest proportions using public transport or walking/riding bicycles. The local study area thus appears to be heavily dependent on private motor vehicles for personal transportation.

Table 4 Method of Travel to Work, one Method (2006)

	Local Study Area		Regional Study Area		State Study Area	
	#	%	#	%	#	%
Public Transport	215	1%	1,606	2%	91,302	6%
Car, taxi, truck or motorbike/scooter	16,930	93%	63,467	89%	1,267,150	87%
Bicycle or walking	1,002	5%	5,387	8%	93,561	6%
Other	118	1%	607	1%	11,730	1%
Total	18,265	100%	71,067	100%	1,463,743	100%

Source: ABS (2007), 2006 Census Community Profile Series, Basic Community Profile, Gladstone SED, Fitzroy SD and Queensland, table B45

Note: The total includes employed persons aged 15 years and older who used only one method of travel to work. Public transport includes train, bus, ferry and tram (including light rail).



2.5 Housing and Accommodation

2.5.1 Dwelling Structure, Tenure and Costs

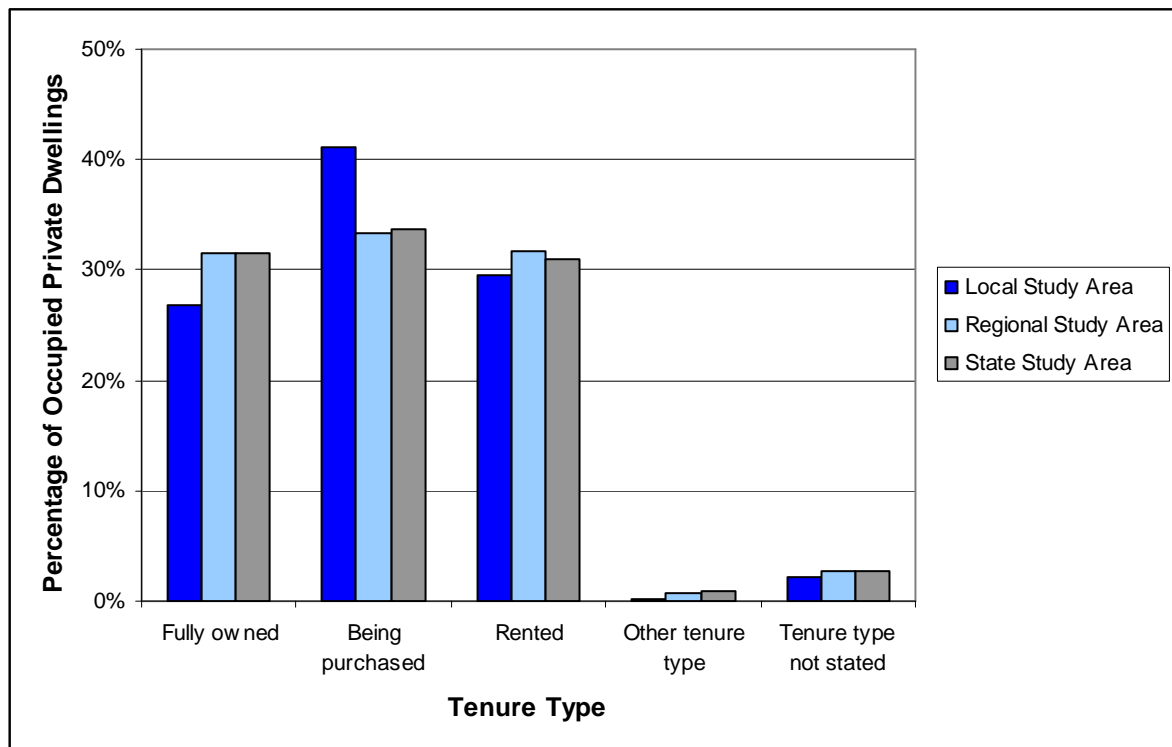
As shown in Table 5, there were 15,510 occupied private dwellings in the local study area at the time of the 2006 census, with 87% being separate houses. The local and regional study areas had lower proportions of townhouses and units compared to the state study area in 2006.

Table 5 Dwelling Structure (2006)

	Local Study Area		Regional Study Area		State Study Area	
	#	%	#	%	#	%
Separate house	13,491	87%	56,778	88%	1,106,874	80%
Semi-detached, row or terrace house, townhouse etc	344	2%	1,670	3%	105,916	8%
Flat, unit or apartment	1,252	8%	4,377	7%	156,298	11%
Other dwelling	415	3%	1,822	3%	21,502	2%
Dwelling structure not stated	8	0%	61	0%	1,042	0%
Total	15,510	100%	64,708	100%	1,391,632	100%

Source: ABS (2007), 2006 Census Community Profile Series, Basic Community Profile, Gladstone SED, Fitzroy SD and Queensland, table B31

Figure 14 shows that a high proportion of dwellings in the local study area are being purchased (41%), with this proportion being higher than for the regional and state study areas (33% and 34% respectively). Correspondingly, there are somewhat lower proportions of dwellings owned outright and being rented in the local study area. This is likely to be a result of recent large in-migration to Gladstone (as seen in section 2.4.1), as residents that have recently relocated are less likely to own their home in full.



Source: ABS (2007), 2006 Census Community Profile Series, Basic Community Profile, Gladstone SED, Fitzroy SD and Queensland, table B32

Figure 14 Tenure Types (2006)

Costs associated with housing in the local study area are lower than in the state study area, but higher than in the regional study area. In 2006, both the median monthly housing repayments and medium rent levels were lower in the local study area compared to Queensland, yet higher compared to the regional study area (refer to Table 6).

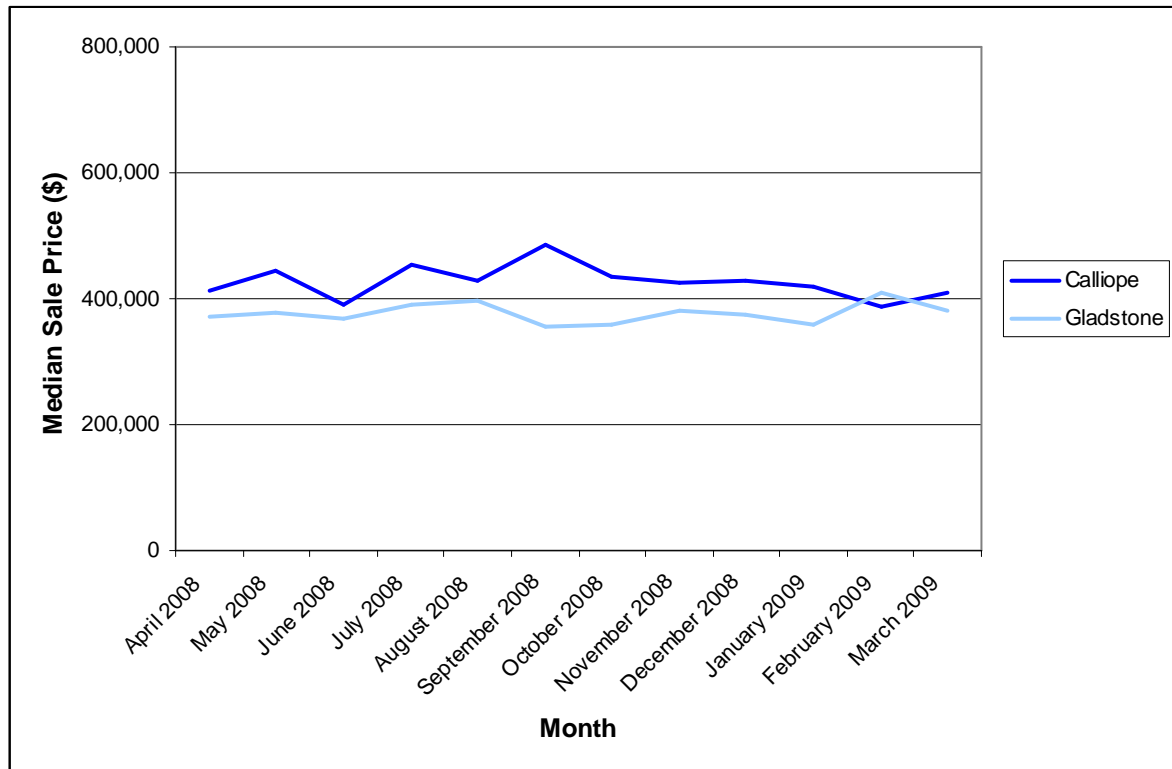
Table 6 Median Housing Loan Repayment and Median Rent (2006)

	Local Study Area	Regional Study Area	State Study Area
Median housing loan repayment (\$/month)	1,207	1,083	1,300
Median rent (\$/week)	175	150	200

Source: ABS (2007), 2006 Census Community Profile Series, Basic Community Profile, Gladstone SED, Fitzroy SD and Queensland, table B02

House sales prices have remained relatively stable over the last year. Figure 15 shows the recent median house sales prices for the Gladstone and Calliope areas.²

² Gladstone SED consists of the former shires of Calliope and Gladstone.



Source: Free suburb profiles for Yarwun and Gladstone, retrieved from Myrpddata, www.myrp.com.au 19 May 2009

Figure 15 Recent Median House Sale Prices in the Calliope and Gladstone Areas

2.5.2 Housing Affordability

Declining housing affordability is a major issue in the Gladstone region. The Gladstone Regional Council community visioning process survey identified housing and accommodation as the most important social and economic issue facing the area (Futureye 2008). A report from the Property Council of Australia in 2007 found that unless a household earns an annual income greater than \$80,000 they cannot reasonably afford to buy a dwelling in Gladstone (Property Council of Australia 2007; Urban Development Institute of Australia 2008).

There is however anecdotal evidence that the pressures on the rental market have eased recently, with reports of more rental properties available on the market (Gladstone Observer 16 July 2009)

2.6 Socio-economic profile

This section provides a socio-economic profile for the local region. General information is provided on local economic activity and ABS Census data is presented and analysed in relation to the local labour force profiles, income levels and education.

2.6.1 Economic Overview

The Gladstone Regional Council (GRC) area has a history of strong economic growth based around industrial development, port facilities and extraction of natural resources (Calliope Shire Council 2004). The area is the most significant heavy industry area in Queensland, and prides itself as one of Australia's



industrial powerhouses. The regional area has extensive mineral deposits, and mining, mineral processing and service industries are important industries both in Gladstone and the regional study area.

There is a broad range of infrastructure in place to support Gladstone's industrial development, with major projects implemented through associations with private entities, GRC and Queensland Government agencies such as Queensland Rail, the Department Main Roads and the Gladstone Ports Corporation. The port of Gladstone is Australia's largest multi-commodity port and it houses the world's fourth largest coal export terminal.

While heavy industry has been, and is likely to remain, a crucial economic driver for Gladstone, the economy has matured and diversified. Emerging industries include service based industries and tourism (Futureye 2008).

2.6.2 Heavy Industry

Major heavy industrial facilities currently located in Gladstone include:

Queensland Alumina Ltd (established 1967)

Queensland Alumina Limited (QAL) is the world's largest alumina refinery. QAL has an annual production of 3.7 million tonnes of alumina, contributing over \$300 million to Australia's annual export earnings.

Boyne Smelters Limited (established 1982)

The Boyne Smelters Limited (BSL) is Australia's largest aluminium smelter.

Cement Australia (company established in 1967)

Cement Australia Gladstone is the largest manufacturer and distributor of cement and one of Australia's major marketers of cementitious materials. Cement Australia operates a limestone mine at East End, south of Mt Larcom and a processing plant 12 km north of Gladstone.

Orica Australia (established 1990)

Orica Australia is one of the largest producers of sodium cyanide in Australia and the third largest in the world.

Queensland Energy Resources Limited

An oil shale project formerly owned by Southern Pacific Petroleum

Rio Tinto Aluminium Yarwun (established 2004)

Rio Tinto Aluminium Yarwun (RTAY) is the world's first greenfield alumina refinery to be constructed since 1985. In 2006 RTAY had a production of 1.2 million tonnes of alumina.

Significant industrial growth is expected to occur within the Gladstone region in the next few years. Proponents in the LNG industry in particular are investigating the suitability of several facilities in Gladstone, with expected capital expenses totalling several billion dollars. Table 7 details projects currently underway, already committed or under study.

Table 7 Large Scale Industry and Infrastructure Projects in Gladstone

Project proponent	Description	Estimated capital expenditure
Projects underway		
Rio Tinto Alcan – Yarwun Alumina Refinery	Stage 2 of Alumina Production Facility at GSDA Yarwun precinct with the inclusion of gas fired cogeneration facility.	\$2.1b
Cement Australia	New cement mill which will duplicate the existing ball mill and milling circuit and be fed by existing feed systems.	\$50.6m
Boyne Smelters	Construction of a new baking furnace (CBF4) and upgrade of crane runway which will include replacement of overhead crane.	\$617m
Projects Committed		
Jemena Limited	Compression and looping for the existing Qld Gas pipeline to provide additional capacity to meet the gas needs of Rio Tinto Aluminium's Yarwun expansion.	\$112m
Origin Energy	Development of its Walloon coal seam gas fields in order to supply Rio Tinto's Aluminium Yarwun refinery.	\$260m
Gladstone Ports Corporation Limited	Wiggins Island Coal Terminal – stage 1 of a new coal terminal to receive thermal and coking coals from mines in the Bowen Basin and Surat Basin.	\$1.3b
Gladstone Pacific Nickel Limited	Stage 1 HPAL laterite nickel ore processing plant using Marlborough nickel/cobalt deposit in CQ and imported ore from offshore deposits (New Caledonia, Solomon islands, Philippines and Indonesia).	Stage 1: USD3.84b (including mine and overseas infrastructure)
Powerlink	Infrastructure upgrades and new large network assets proposal	TBA
Projects under study		
Arrow Energy Ltd and AGL Ltd (joint venture)	440 km high pressure gas transmission pipeline from Moranbah to Gladstone to serve LNG Ltd facility.	\$480m+
Gladstone Ports Corporation Limited	Proposed 153 ha reclamation adjacent to existing Fishermans Landing wharf facilities.	Stage 1: \$92m Stage 2: unknown
Arrow Energy Limited	Boyne River Coal Seam Gas Exploration and Appraisal Project – 60 km south of Gladstone in the Boyne River valley.	\$1.5-\$2m to test productivity of each discovery
Transpacific Industries Group Ltd	Expansion of regional waste management facility.	\$30m+
Surat Basin Rail (SBR) ATEC DVR, Xstrata Coal,	Dawson Valley Railway (DVR) – Proposed as a major new 210 km railway, the project	\$1b



Project proponent	Description	Estimated capital expenditure
Anglo Coal and QR	will connect the western railway system near Wandoan with the Moura railway system, near Banana.	
Queensland Rail	Moura link – Aldoga rail project. Upgrade of the Surat, Moura and Blackwater rail systems to meet future demands. Will include a new rail link, maintenance facility, provisioning facility and expansion of existing rail corridor.	\$22m
Australian inland rail expressway (AIRE)	Establish an inland railway to link Melbourne and Darwin via NSW and QLD.	\$3b Melbourne to Toowoomba.
Gladstone Area Water Board	The Gladstone Area Water Board (GAWB) has commenced technical investigations on its Gladstone-Fitzroy pipeline project. The pipeline will run underground from the Fitzroy River via an easement, through the proposed Stanwell – Gladstone Infrastructure Corridor (SGIC) and Gladstone State Development Area (GSDA), before finally joining GAWB's raw water reticulation system.	Estimated \$320m
Queensland Energy Resources Limited (QER)	Oil shale technology development facility.	TBA
Boulder Steel Limited	Blast furnace based steel plant producing pig iron billets and blooms – 2 stage project.	Estimated \$1.4m stage 1
Santos CLNG (Santos and Petronas)	LNG facility to process coal seam gas – Curtis Island.	\$7.7b (including upstream field development liquefaction plant and associated infrastructure).
Queensland Curtis LNG (QGC- a BG group business)	LNG facility to process coal seam gas – Curtis Island.	Approximately \$8b (development program, including a 380 km pipeline to Gladstone and construction of world scale LNG plant).
Gladstone LNG Pty Ltd (LNG Ltd with Arrow Energy NL)	LNG facility to process coal seam gas – Fishermans Landing.	Stage 1 – approximately USD 500 m
Australian Pacific LNG (Origin and ConocoPhillips)	LNG facility to process coal seam gas – Curtis Island.	\$7.7b (including upstream field development liquefaction plant and associated infrastructure).
Southern Cross LNG (LNG Impel)	LNG facility to process coal seam gas – Curtis Island	TBA
Project Sun LNG (Sojitz Corp)	LNG facility to process coal seam gas – Fishermans Landing.	Stage 1 – approximately \$450m

Source: Gladstone Economic and Industry Development Board (2009), Gladstone Region Project Development Review May 2009, retrieved from www.gladstoneindustry.org.au 19 May 2009.



2.6.3 Tourism

Tourism is an important economic driver in the Gladstone region. In 2006, 356,300 visitors travelled to Gladstone, 86% of these being Australians (Futureye 2008). Major tourist attractions include Heron Island, the historic town of 1770 and easy access to the Great Barrier Reef and Boyne Tannum.

2.6.4 Agriculture, Forestry and Commercial Fishing

Agriculture and Forestry

The Gladstone region has extensive quality agricultural lands and agriculture is still one of the area's main industries. The region surrounding Gladstone now supports a well established cattle industry, supplemented by dairying, grain, fruit and vegetable growing and timber production (Travel Australia 2008). Various rural centres, such as Calliope, have gradually developed outside of Gladstone city. The area which made up the former Calliope Shire has a strong agricultural economy with over 477,000ha of land under agricultural production – mainly beef, dairy cattle, fodder cropping and tropical fruit production. There is also a forestry industry in the region, based on softwood plantations.

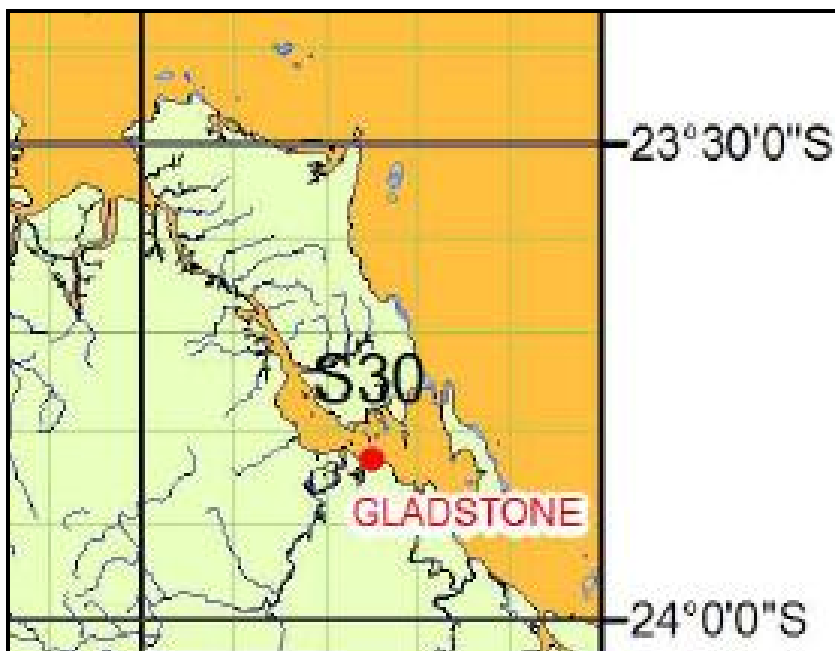
Commercial Fishing

Gladstone houses a significant commercial fishing industry. The commercial fishing fleet operating out of Gladstone Harbour include line fishers, net/crab fishers, trawl fishers and seasonal prawn fishers. Commercial operators utilise various locations in and around Gladstone harbour, Port Curtis and further off shore. Trawlers operate around and south of Gladstone Marina but are not allowed to trawl in various areas within Gladstone Harbour.

The Coastal Habitat Resources Information System (CHRIS)³ is a resource centre for Queensland coastal fish habitat, fisheries resources and environmental datasets (layers) developed by Queensland Primary Industries and Fisheries (QPIF) and other agencies. The CHRIS resource facilitates monitoring of the condition and trend of coastal fisheries habitats for the Commercial Fishers Information System (CFISH).

For reporting purposes, the Australian coastline is divided by a grid system, with large grid squares divided into smaller compartments. Figure 16 shows grid S30, which captures the Gladstone Harbour and broader Gladstone regional area.

³ The Coastal Habitat Resources Information System can be accessed at: <http://chrisweb.dpi.qld.gov.au/CHRIS/>



Source: <http://chrisweb.dpi.qld.gov.au/CHRIS>. Accessed: 04 March 2009.

Figure 16 Commercial Fishing Logbook Data Collection Grid System under the Commercial Fishers Information System (CFISH)

Due to confidentiality agreements, QPIF do not provide data on smaller grid sites if the specific commercial fishing activity (i.e. line netting, pot crabbing or trawling) recorded for these sites involve five (5) or less individual operators. Table 8 provides a summary of annual commercial catches by all commercial fishing activities in the Grid S30 area.

Table 8 Annual Commercial Catches in the S30 Area

Year	Tonnes	Boats	Days	GVP (AUS \$)
1988	97.6	71	1774	\$809,400.00
1989	132.1	76	2050	\$1,079,900.00
1990	127.9	96	2459	\$1,300,000.00
1991	265.5	128	3458	\$2,642,700.00
1992	237	118	3510	\$2,319,700.00
1993	249.4	143	4041	\$3,135,400.00
1994	159.9	108	3541	\$1,425,300.00
1995	190.5	133	3674	\$1,976,500.00
1996	227.2	127	3710	\$1,847,900.00
1997	167.9	125	3757	\$1,404,800.00
1998	210.8	105	3852	\$1,955,000.00

Year	Tonnes	Boats	Days	GVP (AUS \$)
1999	221.2	108	4343	\$2,127,300.00
2000	224.2	114	4175	\$2,019,200.00
2001	227.4	103	3223	\$1,910,600.00
2002	287.5	82	3676	\$2,332,000.00
2003	467.7	95	4842	\$3,857,500.00
2004	527.5	85	4806	\$3,990,800.00
2005	421.6	65	3772	\$2,826,600.00

Source: <http://chrisweb.dpi.qld.gov.au/CHRIS>. Accessed: 04 March 2009. Search results for: Fishery Type = 'All (Listed)', Year = 'All', Month = '99', Species = 'All Species', Selected Sites(s)/Grid(s) = ("S30"), returned 137 records.

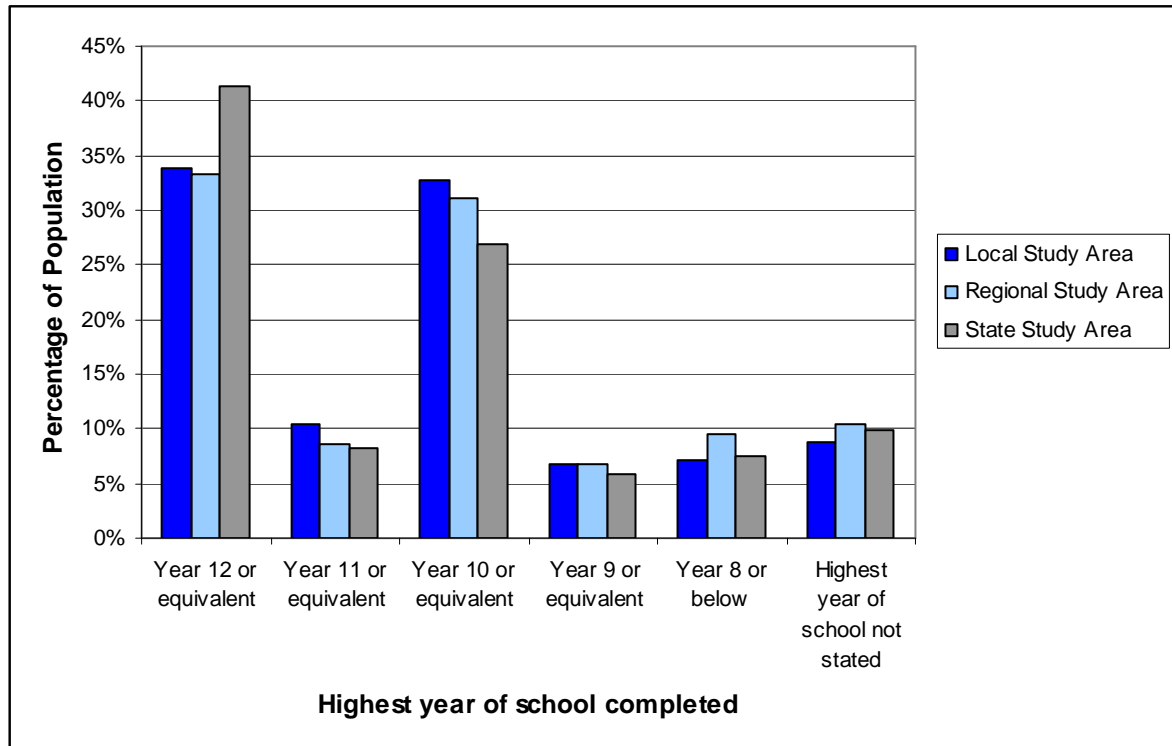
Consultation meetings with local commercial fishers revealed that there are around six (6) commercial fishing operations that use the areas in and around the Port of Gladstone. The commercial activities include:

- ▶ Mud crabbing: conducted along the mainland coast north and south of the existing Fisherman's Landing facility. Commercial crabbers are allowed to put out up to 50 crab pots each. Consultations with commercial operators indicated that there can be up to 150 crab pots placed along the coast north and south of the existing Fisherman's Landing facility at any one time;
- ▶ Fish netting: commercial fishers do net 'shots' at various locations off the mainland coast adjacent to and north of the proposed reclamation site. Specific sites are generally selected based on their ability to intercept coastal tidal flows on particular tide changes. Friend Point is a particularly productive site as it is generally highly turbid and can be fished on various tides due to the sites protection from the main currents; and
- ▶ Trawlers also use the Port of Gladstone. However, they are not allowed to trawl in the Project area and mainly use the port as a thoroughfare to access the ocean, the Narrows and northern Curtis Island.

2.6.5 Socio Economic Profile of the Population

Education Levels

Figure 17 shows the level of the population in the local, regional and state study areas that identify with a particular school attainment. In comparison with Queensland a lower proportion of the population in the local and regional study areas have completed year 12. Relatively higher proportions of the local study area population stated year 11, 10 or 9 as the highest year of school completed.

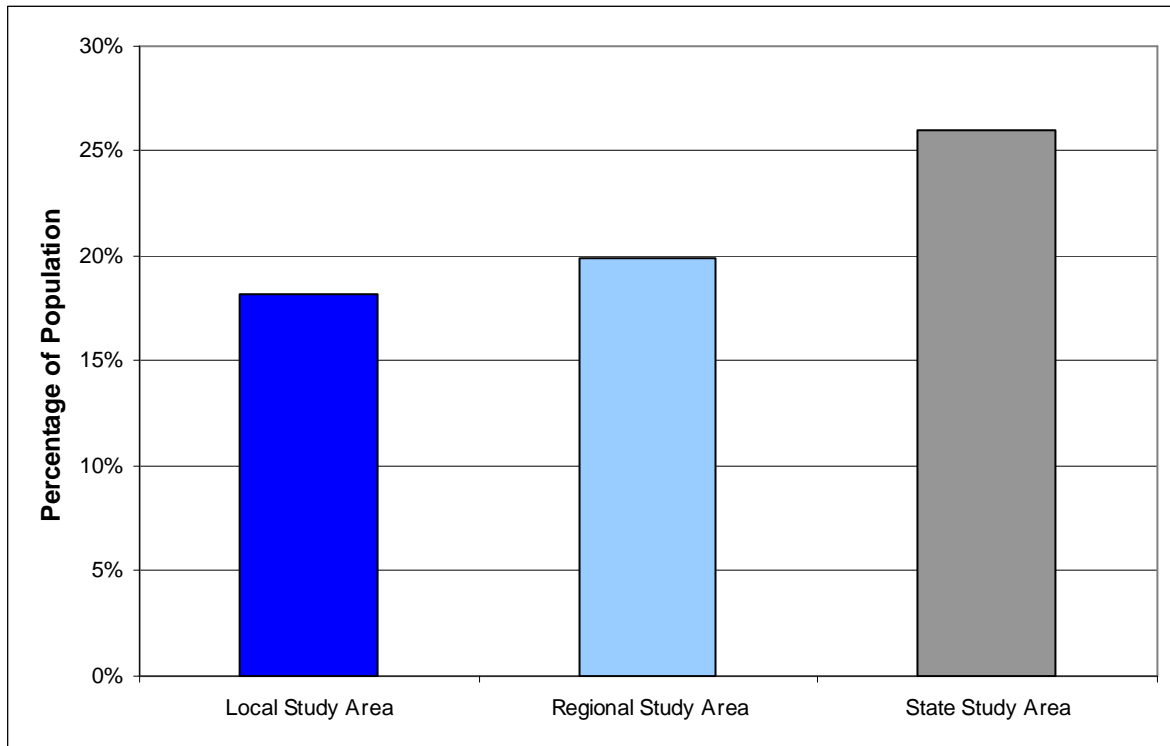


Source: ABS (2007), 2006 Census Community Profile Series, Basic Community Profile, Gladstone SED, Fitzroy SD and Queensland, table B15

Note: Population includes persons aged 15 years and over

Figure 17 Highest Year of School Completed (2006)

As shown in Figure 18, the proportion of the population in the local and regional study areas that have completed at least a bachelor's degree is lower compared to Queensland. In 2006, 18% of the local study area population and 20% of the regional study area population over 15 years had completed a bachelor or higher university degree, while 25% of the Queensland population had done the same.



Source: ABS (2007), 2006 Census Community Profile Series, Basic Community Profile, Gladstone SED, Fitzroy SD and Queensland, table B39

Note: Population includes persons aged 15 years and over

Figure 18 Bachelor's Degree or Higher (2006)

In summary, the levels of education in the local and regional study areas are lower than those of Queensland, both in regards of school and university education.

Labour Force Status

The local, regional and state study areas had similar levels of employment and unemployment at the time of the 2006 census (refer to Table 9). The local study area had a higher proportion of labour force participation and a lower percentage of people not in the labour force compared to the regional and state study areas in 2006.

Table 9 Labour Force Status (2006)

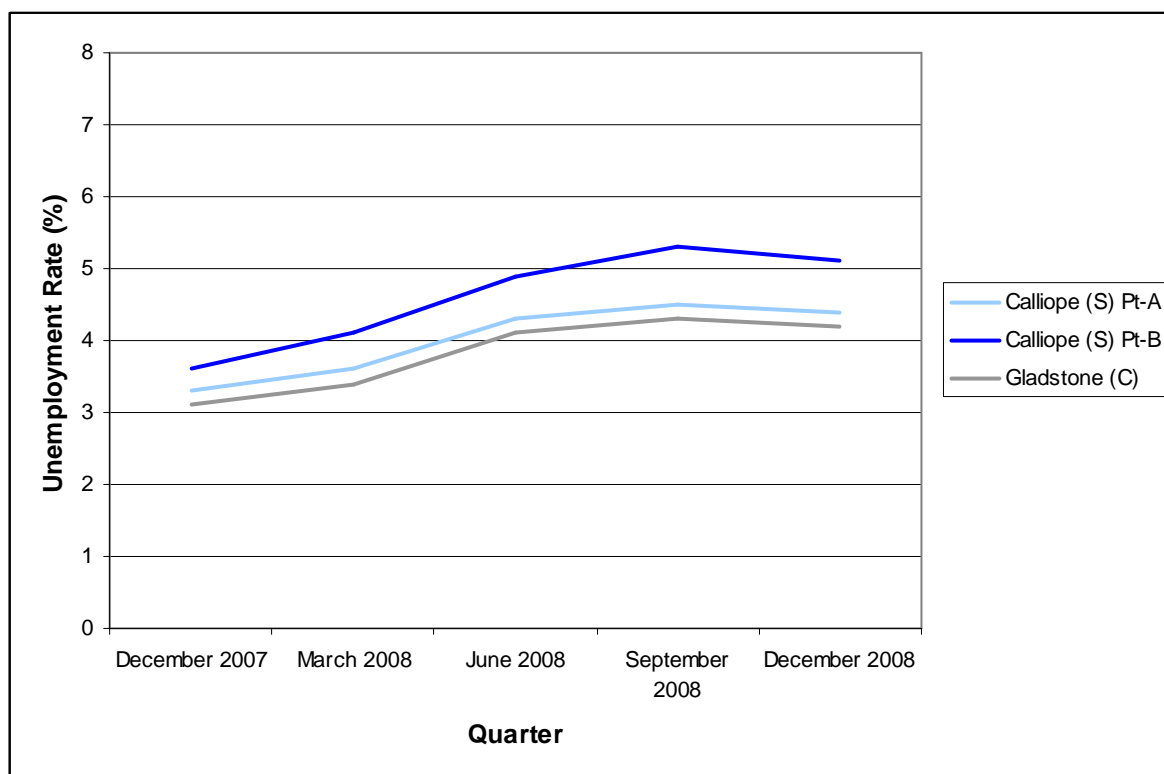
	Local Study Area		Regional Study Area		State Study Area	
	#	%	#	%	#	%
Labour force	23,102	67%	91,753	63%	1,915,947	62%
of which employed	21,940	95%	87,627	96%	1,824,997	95%
of which unemployed	1,162	5%	4,126	4%	90,950	5%
Not in the labour force	9,286	27%	42,861	30%	971,828	31%
Not stated	2,126	6%	10,394	7%	210,220	7%

	Local Study Area		Regional Study Area		State Study Area	
Total	34,514	100%	145,008	100%	3,097,995	100%

Source: ABS (2007), 2006 Census Community Profile Series, Basic Community Profile, Gladstone SED, Fitzroy SD and Queensland, table B41

Note: Population includes persons aged 15 years and over. Employment and unemployment have been calculated as a percentage of the labour force.

More recent labour force data is published by the federal Department of Education, Employment and Workplace Relations in the quarterly publication *Small Area Labour Markets*. The most recent data available is from the December quarter 2008. Figure 19 shows the unemployment rates for the Statistical Local Areas (SLA) in the local study area. There is a trend towards increasing unemployment rates over the last year, although there appears to be a slight decrease between the September and December quarters 2008. In the December quarter 2008 unemployment rates in the local study area ranged between 4.2% and 5.1%.



Source: Department of Education, Employment and Workplace Relations (2009), *Small Area Labour Markets December Quarter 2008*, table 3, retrieved from www.workplace.gov.au 18 May 2009

Figure 19 Unemployment Rate for Statistical Local Area's within Local Study Area

Industry of Employment

Table 10 shows the top ten industries of employment across the three study areas. In general, the study areas exhibit a similar pattern, with mostly the same industries featuring among the top ten. However, the local study area has higher proportions of people employed in manufacturing and construction, with one third of all employed persons working in these industries. The local study area in particular appears



heavily reliant on manufacturing, with the manufacturing industry employing 21% of the employed population in Gladstone in 2006.

Table 10 Top Ten Industries of Employment (2006)

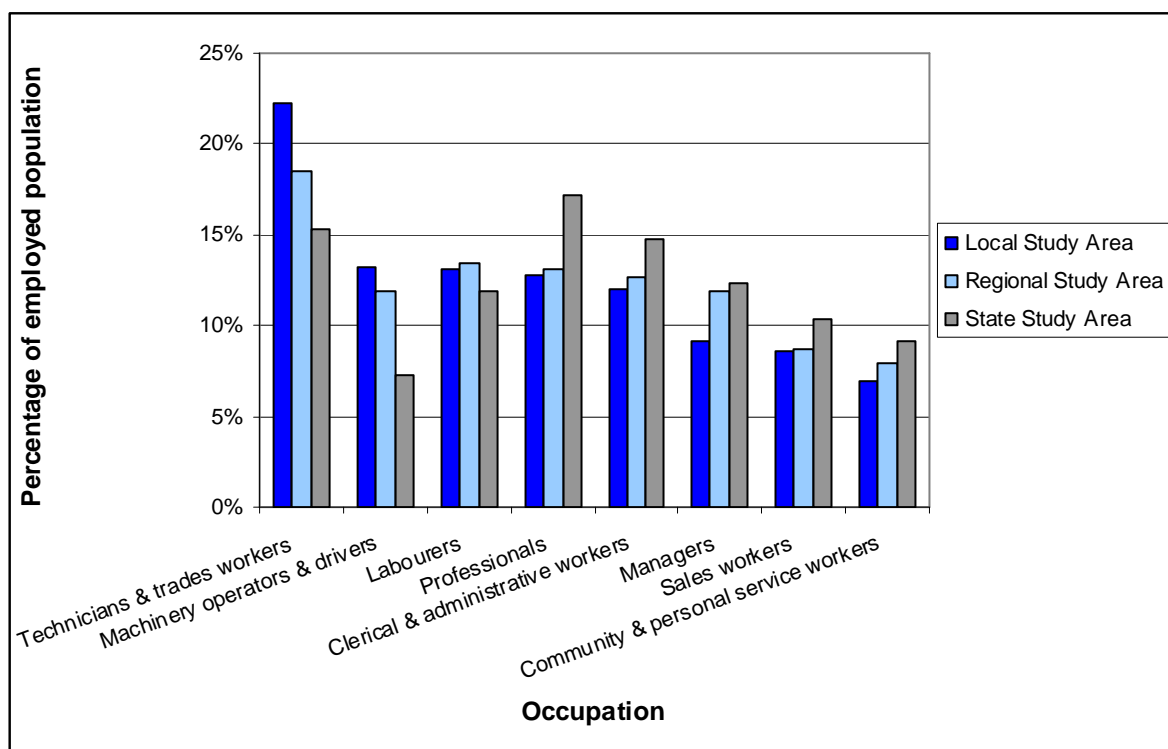
Local Study Area	Regional Study Area	State Study Area
Manufacturing (21%)	Manufacturing (11%)	Retail Trade (12%)
Construction (12%)	Retail Trade (11%)	Health care and Social assistance (10%)
Retail Trade (10%)	Construction (9%)	Manufacturing (10%)
Transport, postal and warehousing (7%)	Health care and Social assistance (9%)	Construction (10%)
Education and Training (7%)	Education and Training (8%)	Education and Training (8%)
Health care and Social assistance (6%)	Mining (7%)	Accommodation and food services (7%)
Accommodation and food services (6%)	Accommodation and food services (7%)	Public administration and safety (7%)
Professional, scientific and technical services (5%)	Transport, postal and warehousing (6%)	Professional, scientific and technical services (6%)
Public administration and safety (4%)	Public administration and safety (6%)	Transport, postal and warehousing (5%)
Other services (3%)	Agriculture, forestry and fishing (5%)	Wholesale trade (4%)

Source: ABS (2007), 2006 Census Community Profile Series, Basic Community Profile, Gladstone SED, Fitzroy SD and Queensland, table B42

Note: The percentages are calculated based on a count of employed persons aged 15 years and over

Occupation

Figure 20 indicates that technicians and trades workers, machinery operators and drivers and labourers were the most common occupations in the local study area in 2006. These occupations combined accounted for almost half of all employed persons (48%).



Source: ABS (2007), 2006 Census Community Profile Series, Basic Community Profile, Gladstone SED, Fitzroy SD and Queensland, table B44

Figure 20 Occupations of Employed Population (2006)

Income levels

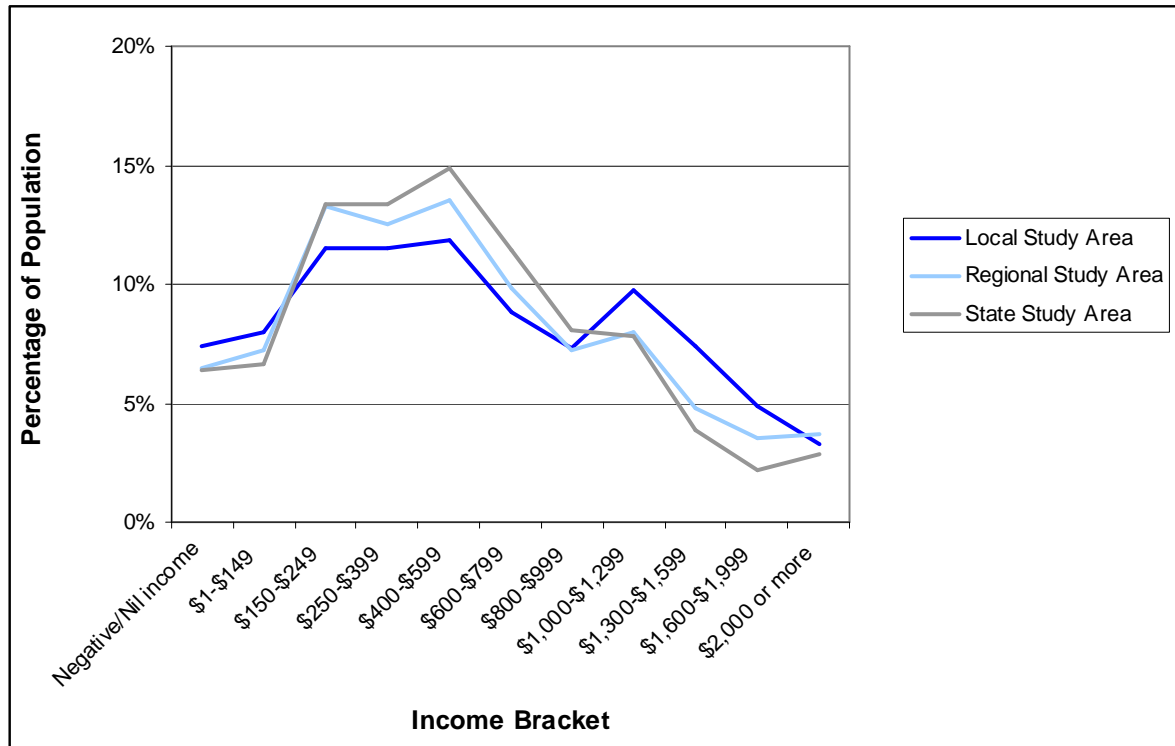
Table 11 identifies median weekly individual, family and household incomes for the three study areas. The local study area exhibits higher median levels of income compared to both the regional and state study areas across all three categories.

Figure 21 and Figure 22 show the weekly income patterns for individuals and for families. There is a clear trend towards lower proportions of persons and families in the lower income brackets, and higher proportions in the higher income brackets in the local study area, compared to the regional and state study areas. The exception to this is the slightly higher proportion of persons identifying with zero or negative income in the local study area. As this pattern is not repeated for the family incomes, this is likely to indicate that there is a slightly higher proportion of families with a single income in the local study area.

Table 11 Median Weekly Incomes (2006)

	Local Study Area	Regional Study Area	State Study Area
Median Individual Income	\$525	\$481	\$476
Median Family Income	\$1,415	\$1,202	\$1,154
Median Household Income	\$1,216	\$1,067	\$1,033

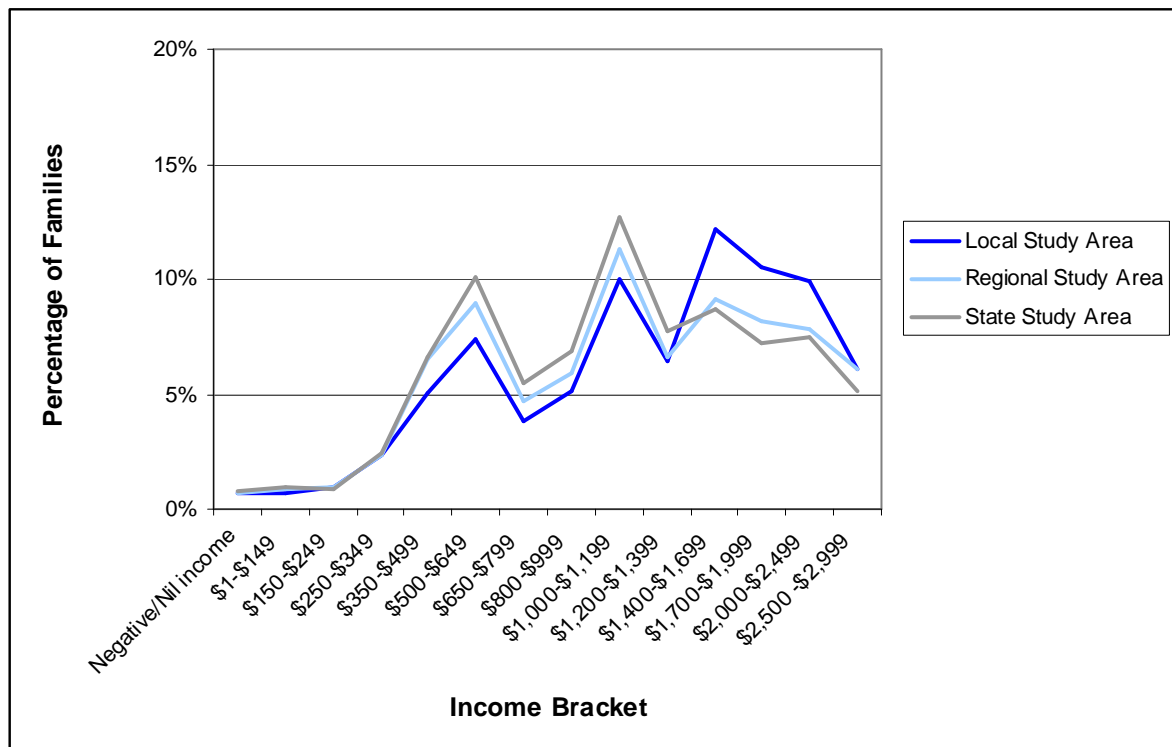
Source: ABS (2007), 2006 Census Community Profile Series, Basic Community Profile, Gladstone SED, Fitzroy SD and Queensland, table B02



Source: ABS (2007), 2006 Census Community Profile Series, Basic Community Profile, Gladstone SED, Fitzroy SD and Queensland, table B16

Note: Population includes persons aged 15 years and over

Figure 21 Gross Weekly Individual Income (2006)



Source: ABS (2007), 2006 Census Community Profile Series, Basic Community Profile, Gladstone SED, Fitzroy SD and Queensland, table B26

Figure 22 Gross Weekly Family Income (2006)

2.7 Community Facilities and Services

The following section outlines a variety of community services and facilities that are currently found throughout the local study area. Gladstone contains a broad range of services and facilities catering for local residents and surrounding communities. Regional community members generally travel to Gladstone or Rockhampton to access vital services, as there is a limited range of community services and facilities throughout the various regional towns and communities. The lack of any real hub of community services and facilities in the Yarwun and Targinnie areas can mainly be attributed to the provision of these services in the Gladstone City area and additional specialist services and retail facilities provided in Rockhampton.

2.7.1 Utilities and Municipal Services

The major utility services operating in the Gladstone region include electricity and water. Lake Awoonga (with a capacity of 777,000 mega litres) is the main water source for the Gladstone region (Travel Australia 2008). The *Gladstone Area Water Board* (GAWB) supplies raw and treated water for industrial purposes to Gladstone and surrounding areas by pipeline from Lake Awoonga. Water supply is managed through *Sunwater*, a Queensland Government Corporation that controls 25 dams state wide. Future water security for the regional and broader Central Queensland population's agriculture, industry and domestic needs is being ensured through major infrastructure developments including the Gladstone-Fitzroy Pipeline.



The major electricity generating facilities in Gladstone is the NRG Gladstone Power Station. The station is one of the biggest in Queensland, with a large proportion of the electricity produced going to industrial use, particularly local refineries. There are various other major power stations located in surrounding regions, such as the Stanwell and Callide power stations.

2.7.2 Education

There are eighteen state primary and/or secondary schools in the Gladstone State Electoral Division (SED) with a combined enrolment of 7,821 students (Queensland Department of Education and Training 2009). The Gladstone SED's seven non-state primary and/or secondary schools have a combined enrolment of over 2,000 students (Queensland Department of Education and Training 2009). In addition, there are a number of other educational institutions, such as special education programs (mainly located within state schools) and technical education centres. Refer to the Queensland Department of Education and Training's *Education Phone Directory* for a full listing of the education centres operating within the Gladstone SED (<http://education.qld.gov.au/directory/phone/index.html>).

Other education facilities associated with primary and secondary education in the regional area include:

- ▶ Gladstone District Life Education Centre;
- ▶ Curtis Library Network;
- ▶ Business and Information Technology Centre (offering trades training for high school students); and
- ▶ Port Curtis Education Centre.

There are also various school based apprenticeships and traineeships that are available in the Gladstone area, allowing students (typically years 11 and 12) the opportunity to do paid work with employees at the same time as undertaking their Senior Certificate and industry skills training. The Business and Information Technology Centre offers recognised certificates which assist students' progress into the workforce or tertiary education.

Further education opportunities are provided through the Central Queensland University (CQU) and Central Queensland Institute of TAFE (CQIT), which have campuses in Gladstone. CQU offers industry specific courses and specialised programs which combine university and industry training. A priority for the university is creating employment opportunities that benefit the local economy. CQIT offers industry and trades skills training including engineering, building and construction, and science; with the opportunity to link into full-time apprenticeships. CQIT and CQU also have major campuses in Rockhampton.

Various University and TAFE courses are aligned with Queensland Government's Training and Employment Strategy (particularly the Queensland Skills Plan and Breaking the Unemployment Cycle Initiative 2006), which was designed to address the identified major deficits in Queensland's labour market. Under these initiatives, the Queensland Government committed \$535 million into the Fitzroy region in 2006/07 to create jobs and enable students to undertake funded training in partnership with CQIT, CQU, schools, private industry and others.

2.7.3 Child Care

Twenty-four child care centres have been located in the 4680 post code area, which includes a large portion of the Gladstone State Electoral Division (SED). Most of the child care centres operate within the city of Gladstone. The combined licensed capacity of the listed child care centres is approximately 1200



children (Queensland Government, Department of Communities 2009). Refer to the Queensland Department of Communities' *Child Care Services Search* for a full listing of local child care centres (<http://www.communities.qld.gov.au/childcare/search>).

Concerns were raised during Gladstone Regional Council's visioning process of the adequacy of the child care provision. It was reported that the demand for child care services is significantly higher than supply, and that "all centres are currently booked years in advance" (Futureye 2008).

2.7.4 Care and Welfare

Age care services are provided through several public and private age care centres, with various facilities in Gladstone City. There is also a day respite care centre located within the Gladstone Hospital grounds. The GRC operates Home and Community Care (HACC) services focused on providing health services to aged frail or disabled residents. Various smaller regional centres also operate their own HACC service initiatives such as the former Calliope Shire Council's HACC Taxi Service, which is used to transport clients within the Shire as well as around Gladstone City (GRC 2008). Various health services of this nature are currently being transitioned to the responsibility of the new regional council.

Service providers such as *Meal on Wheels* and the *Blue Nurses* also operate within Gladstone and throughout other regional centres. However, the *Survey of the Calliope Shire Population 2005* (R and Z Consulting, 2005) identified a lack of infrastructure for the elderly services such as Meals on Wheels and Blue Nurses.

There are over 80 community welfare services within the area. These services cater for a variety of target groups' needs, including:

- ▶ Women's health and support;
- ▶ Youth services;
- ▶ Charitable organisations;
- ▶ Counselling services;
- ▶ Community organisations that give specialist advice and training;
- ▶ Legal aid and government services;
- ▶ Disability care and transportation;
- ▶ Crisis care;
- ▶ Employment services; and
- ▶ Indigenous and immigration services.

2.7.5 Health Services

There is a large variety of health services provided in the Gladstone region. **Table 12** outlines the major health facilities found in Gladstone City. Additional services are also found in Rockhampton, with smaller facilities in some regional centres. Health services found in Rockhampton and the broader Rockhampton Regional Council area include: Rockhampton Base Hospital, Hillcrest Private Hospital, Mater Private Hospital and Mount Morgan Hospital.

Table 12 Major Regional Health Facilities

Hospital	Capacity	Services Provided	Common Admittances
Gladstone Hospital (on Park Street)	57 beds	Emergency, Outpatients, General Medicine and Surgery (including Day Surgery), basic Orthopaedics, Obstetrics and Gynaecology, Medical Imaging, Pharmacy, Pathology, Central Sterilising, day respite care centre and visiting services from specialists.	Vaginal Delivery W/O Catastrophic or Severe CC Dental Extractions and Restorations Other Colonoscopy Chest Pain Oesophagitis, Gastroent & Misc Digestive Systm Disorders Age>9 W/O Cat/Sev CC Other Gastrosocopy for Non-Major Digestive Disease, Sameday Antenatal & Other Obstetric Admission Cellulitis (Age >59 W/O Catastrophic or Severe CC) or Age <60 Caesarean Delivery W/O Catastrophic or Severe CC Abdominal Pain or Mesenteric Adenitis W/O CC
Gladstone Mater Private Hospital (on Rosella Street)	30 inpatient and 10 day beds.	Medical and surgical, Obstetric and oncology, Palliative care, Day surgery, maternity facilities, and facilities for a number of specialist outpatient services.	Not available

¹ Relates to District Public Hospital Episodes of Care for top 10 DRGs (v5.0) 2005/2006

Source: Queensland Health: www.health.qld.gov.au/wwwprofiles. Accessed 16 September 2008.

Gladstone also provides other health services in addition to the major health services and facilities listed above. These include all basic health services such as doctors' surgeries, dentists and chiropractors; and other general and specialist agents. A Community Health Centre is located in Gladstone and the GRC also provides school based and community immunisation services.

In the council's visioning process, concerns were raised about the accessibility of some health services in the Gladstone region (Futureye 2008). It was reported that residents had to travel to Brisbane or Townsville for certain types of treatment, particularly radium treatment. Many other health services were reported to be available regionally, but only in Rockhampton. Mental health services were reported to be particularly deficient (Futureye 2008).

2.7.6 Emergency Services

Various emergency services operate throughout the Gladstone region. Major headquarters and stations are typically based in Gladstone City, with ancillary support stations in smaller regional centres. Table 13 outlines the major emergency services facilities that operate within the Gladstone region.



The Gladstone District Police Headquarters offers a range of specialist services including a criminal investigation branch, traffic branch, intelligence, training, juvenile aid bureau, dog unit, crime management unit and water police. Police stations based in regional centres are supported by the Gladstone and/or Rockhampton stations and provide backup when required.

The Queensland Ambulance Service has numerous stations positioned throughout the Gladstone region. The Gladstone Ambulance Station has one casualty room for pre hospital care. Ambulance stations based in regional centres are supported by the Gladstone and/or Rockhampton stations and provide backup when required.

The Gladstone Fire Station is the largest in the area. Common call-outs include gas fires, house fires and vehicle accidents. The station is also equipped to respond to chemical spills and has vertical rescue and confined space rescue capabilities. The station services a large area and assists other smaller stations with call-outs (URS 2006).

The voluntary State Emergency Services (SES) units provide counter disaster and rescue services. In addition, an Air Sea Rescue Service operates from Gladstone. There is a Local Counter Disaster Plan that was prepared for the Gladstone and Calliope Shires under the *State Counter Disaster Organisation Act 1975*, and a *Local Government Counter Disaster Committee*, which is responsible for the implementation of operations in the case of a disaster in the Gladstone-Calliope area. The committee is made up of representatives from the local council, Emergency Services and the Gladstone Hospital.

Table 13 Emergency Services

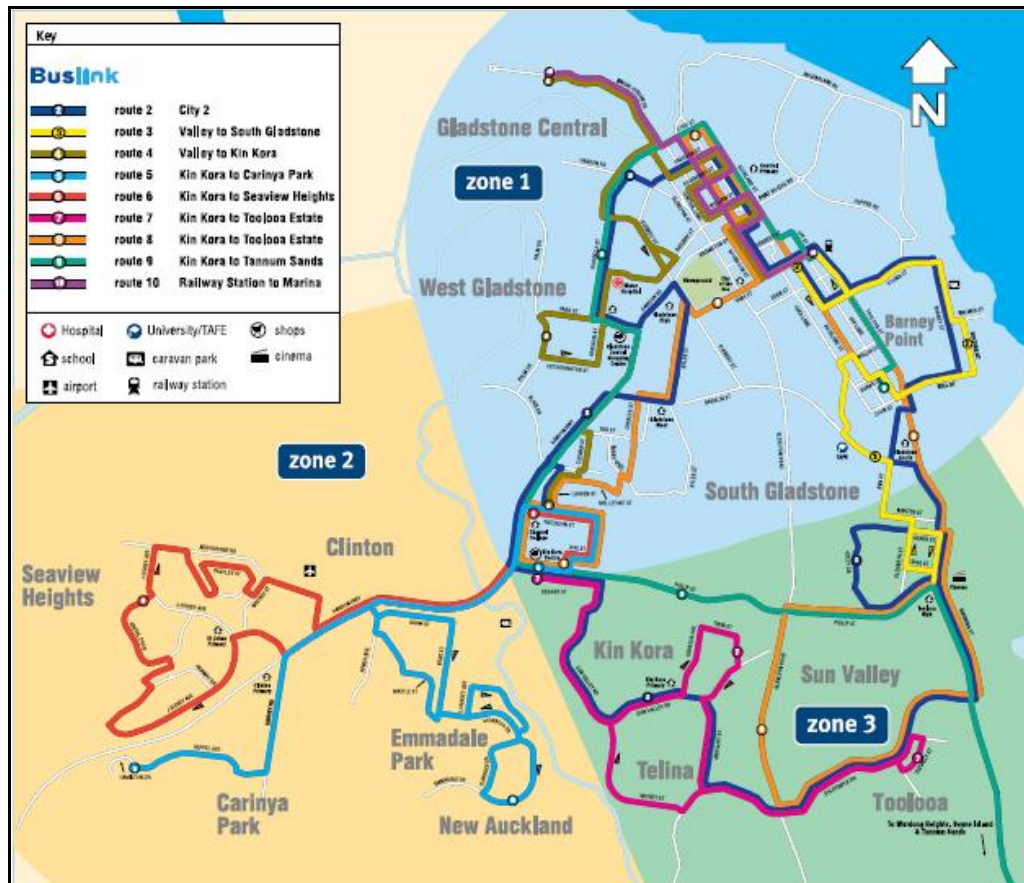
Emergency Service	Station Locations
Queensland Police Service	<ul style="list-style-type: none"> ▸ Gladstone Police Station and Gladstone District Headquarters ▸ Mount Larcom ▸ Tannum Sands ▸ Calliope ▸ Miriam Vale
Queensland Ambulance Service	<ul style="list-style-type: none"> ▸ Gladstone Ambulance Station ▸ Mount Larcom ▸ Calliope ▸ Boyne Island
Queensland Fire and Rescue Service	<ul style="list-style-type: none"> ▸ Gladstone Fire Station ▸ Boyne Island/Tannum Sands Fire Station ▸ Calliope Fire Station
State Emergency Services	SES units operate out of: <ul style="list-style-type: none"> ▸ Gladstone ▸ Mount Larcom ▸ Boyne Island
Volunteer Marine Rescue	There is a VMR squadron operating out of Gladstone

Source: Police Station Locator, www.police.qld.gov.au, Queensland Ambulance Service www.ambulance.qld.gov.au, Queensland Fire and Rescue Service, www.fire.qld.gov.au, State Emergency Service, www.emergency.qld.gov.au/ses/, Volunteer Marine Rescue Gladstone, <http://www.vmraq.org.au/org.asp?oid=310>.

2.7.7 Transport Services

Bus, Air and Rail

There is some locally focused public transport services including Gladstone Buslink (Figure 23), which operates within Gladstone City, and other public transport services provided in some regional centres such as Calliope. Blue and White Taxis offer taxi services based out of Gladstone City.



Source: QConnect, Queensland Transport, www.transport.qld.gov.au

Figure 23 Buslink Services in Gladstone

The *Survey of the Calliope Shire Population 2005* (R and Z Consulting 2005) identified a lack of reasonably priced and convenient public transport, a lack and difficulty of access to events and activities for the elderly and a lack of infrastructure for the elderly including transport. The Gladstone Regional Council's visioning process reported lack of access, particularly public transport as a major issue (Futureye 2008). Public transport was described as very poor or non-existent.

The Gladstone region is also serviced by an extensive railway network which runs along Queensland's east coast and to selected areas inland. Gladstone is a major stop on the North Coast railway line, used by various long-distance passenger trains operated by Queensland Rail. Special train services include the *Tilt Train*, which runs from Brisbane to Rockhampton, the *Sunlander* and the *Spirit of Capricorn*.



Freight trains also pass through the Gladstone region. These services are utilised to transport the region's vast natural resources within Australia, and to port terminal facilities for exportation. Around 65 per cent of the cargo shipped through the Port of Gladstone in 1999- 2000 was moved to the port by rail transport (Bureau of Transport Economics 2001: 16). The facilities with rail access are the R.G. Tanna Coal Terminal, the Barney Point Terminal, the Auckland Point Berths, and Fisherman's Landing No. 4 Berth.

The only regional airport is the *Gladstone Airport*, located about eight minutes from the centre of Gladstone City. There are several flights a day to and from Brisbane and Rockhampton, with airline services provided by QantasLink and Sunstate Airlines. Smaller operators (including helicopters) service offshore islands such as Heron Island. The *Gladstone Airport* is also the base for Gladstone's four rental car providers – *Avis*, *Delta Europcar*, *Thrifty* and *Hertz*.

Road network

Roads play an integral part of access and mobility in the Gladstone region. Gladstone City lies east of the Bruce Highway, with southern access provided by the Dawson Highway and Gladstone-Benaraby Road and northern access from Mt Larcom-Gladstone Road. The large number of people residing in smaller communities and regional centres surrounding Gladstone and relying on access to Gladstone for employment, services and facilities, increases the importance of efficient road systems. The *Housing Action Plan for Gladstone/Calliope* (Lee Consulting Services 2002) states that residents from regional centres are likely to travel greater distances to access employment and the increased traffic on the roads may lead to the need for infrastructure upgrades, to ensure safety and efficiency.

Gladstone experiences traffic congestion due to large vehicles and peak hour traffic movements in areas such as along the Dawson Highway (the main thoroughfare into the city centre connecting residents of the outer suburbs of Clinton and New Auckland). Consequently, much of the region's road development has been focused on Gladstone, with recent developments including the construction of the Port Access Road to reduced heavy vehicle movements in the CBD precinct, the Kirkwood road project and Callemondah overpass. The importance of future road infrastructure improvement and development is reflected in regional and local planning, such as the *Gladstone Growth Management Initiative* (SKM 2002) and the *Mobility Plan for the Calliope Shire* (Calliope Shire Council, n.d). The *Survey of the Calliope Shire Population 2005* (R and Z Consulting 2005) identified a community perception of poor road maintenance in rural areas.

2.7.8 Cultural Facilities

Cultural facilities in Gladstone City and the broader Gladstone region focus on the region's colonial history and arts. Colonial history is captured in several of Gladstone's existing CBD buildings such as the heritage-listed Town Hall, built in 1934. Surrounding areas such as the Boyne Valley, Mount Larcom and Calliope are also home to heritage sites which pay homage to the early settlers. Key desirable outcomes of the *Gladstone Plan 2005* (Gladstone City Council 2005) relating to community development included "the recognition and maintenance of cultural heritage values".

Cultural facilities in Gladstone City and broader Gladstone region include (GAPDL 2008):

- ▶ Gladstone Regional Art Gallery and Museum (holds permanent collections of Australian art, craft and local history, and hosts exhibitions and cultural activities);
- ▶ Various private art galleries, such as Cedar Galleries (an artist's colony just north of Benaraby);



- ▶ Gladstone Maritime Museum (featuring collection of artefacts, memorabilia, and photos)
- ▶ Various libraries including:
 - Gladstone City Council Library;
 - Calliope Town Library;
 - The Boyne Island Library Boyne;
 - The Calliope Shire Council Library service (a mobile library that services Calliope and Mt. Larcom and Boyne Island);
- ▶ Gladstone Visitor Information Centre;
- ▶ The Calliope River Historical Village; and
- ▶ The Boyne Valley Historical Society Cottage.

Regional arts groups are supported in the area through the Regional Arts Development Fund (RADF), which is a funding body that gives support to emerging artists (GRC 2008). Gladstone performing arts groups include:

- ▶ Gladstone Light Opera Society;
- ▶ Gladstone Musical Society;
- ▶ Gladstone Symphony Orchestra Association Inc.; and
- ▶ GUESS Inc. (Gladstone's Unique Entertaining Stagecraft Society).

2.7.9 Commercial Services and Facilities

Commercial services and facilities in Gladstone regional area are largely concentrated in and around Gladstone City. The Gladstone central business district (CBD) is the commercial centre of Gladstone providing the majority of hotel, motels, government services, banks, building societies and retail outlets. There are also various large suburban shopping centres.

Major retail centres in Gladstone include:

- ▶ Centro Gladstone (centred around *Woolworths* and *The Warehouse*);
- ▶ Gladstone City Centre (high order business, administration, professional and banking services);
- ▶ Stockland Gladstone (high order retailing based around three department stores, *Big W*, *Kmart*, *Target Country*, and three major supermarkets, *Coles*, *Franklins*, *Woolworths*);
- ▶ Gladstone Central (including *Night Owl*, *Toyworld* and various franchises); and
- ▶ *IGA Express*.

There are also many single retailers located along commercial street fronts such as Goondoon Street, the main street of town situated in the CBD. Facilities provided in these areas include:

- ▶ 15 restaurants/cafes/eateries;
- ▶ Four major banks (*Commonwealth Bank*, *Westpac*, *National Australia Bank*, and *ANZ*) and numerous other financial institutions; and
- ▶ Various other independent and franchised retail outlets.



Findings from the *Gladstone Retail Study* (Economic Associates Pty Ltd and GHD, 2005) indicate retail leakage to Brisbane and Rockhampton, and dissatisfaction with city centre shops and services. The former Gladstone City Council and current GRC have sought to improve the commercial services provided in Gladstone City. Gladstone CBD Waterfront Redevelopment Project aims to revitalise the CBD and waterfront area and provide commercial opportunities. The *Gladstone Area Promotion and Development Limited* is particularly focused on attracting new restaurants and cafes, accommodation, conference and residential facilities and commercial and retail businesses to the Gladstone area.

The various regional centres found throughout the broader Gladstone region have limited commercial facilities. Centres including Calliope, and Boyne Island/Tannum Sands have facilities such as shopping centres (e.g. Calliope Shopping Village and Boyne Plaza), pubs and banking services. Smaller township and communities, such as Targinie and Mount Larcom (which are typical of small towns in the region) have commercial facilities limited to several takeaway and general supply stores.

2.7.10 Entertainment Facilities and Events

The Gladstone region's entertainment facilities and events are also largely focussed in Gladstone City. Significant entertainment facilities and events in the Gladstone region include (GAPDL 2008):

- ▶ The Brisbane to Gladstone Yacht Race (held annually since 1949);
- ▶ The Gladstone Harbour Festival (one of the region's largest events that coincide with the Brisbane to Gladstone Yacht Race);
- ▶ The Gladstone Multicultural Fair;
- ▶ Gladstone Seafood Festival;
- ▶ The Boyne-Tannum Hook-up; and
- ▶ The Lion's Lake Awoonga Family Fishing Festival;
- ▶ The Ubobo Mountain Challenge;
- ▶ Nagoorin Trail Ride;
- ▶ The Boyne Valley Spring Festival.
- ▶ Gladstone Cinema (seven screen cinema complex); and
- ▶ The Gladstone Entertainment centre (used for live theatre, entertainment, and conferences).

2.7.11 Sport and Recreation

This section outlines the recreational, leisure and sporting facilities and activities that are currently conducted and in operation throughout the Gladstone region. Particular attention is given to recreational fishing near the site for the Western Basin Dredging and Disposal Project.

Gladstone Sport and Recreation Facilities and Activities

Gladstone's *Open Space and Recreation Plan* (ROSS Planning 2005) recognises that there is a good supply of sporting land in Gladstone. The city has numerous and varied sporting and recreation facilities and associated sporting clubs/groups, which utilise the facilities on a seasonal basis. More than 70 different types of sports are played or followed in Gladstone City, including pony clubs, horse and greyhound racing, all codes of football, bowls, golf, water skiing, fishing, tennis, soccer, hockey, netball,



basketball, cricket, martial arts (including Tae Kwon Do, Judo, and Karate) and a variety of other indoors sports.

Major sporting/recreation facilities in Gladstone include:

- ▶ The Police & Citizens Youth Club;
- ▶ Swimming facilities, including:
 - Gladstone Swimming Pool (public swimming pool including toddler pool, 60 Tank Street)
 - Western Suburbs Swimming Club (public swimming pool, 180 Glenlyon Street)
 - Aquatic Centre (including a 50m Olympic swimming pool, 25 heated indoor pool, amenities and canteen).
- ▶ Golf course;
- ▶ Sporting Ovals;
- ▶ Indoor sports centres;
- ▶ Gym and fitness centres;
- ▶ Tennis courts (day and night);
- ▶ Squash courts;
- ▶ Fishing and boating facilities;
- ▶ Ten-pin bowling alley (Benaraby Road);
- ▶ Lawn bowling facility; and
- ▶ Harbour City Indoor Sports Centre (offering Indoor Cricket, Indoor Netball and Indoor Volleyball).

There are also various sporting/recreation facilities within other regional centres found throughout the Gladstone region. For example, sports on offer in the Boyne Island/ Tannum Sands area include; golf, tennis, swimming, lawn bowls, squash, all football codes, soccer, baseball, softball, netball, basketball, touch football, Surf Lifesaving and hockey. Calliope also has various sporting/recreation facilities including a country club, bowls club and golf course. The *Survey of the Calliope Shire Population 2005* identified a need for a swimming pool available to the public.

Gladstone's *Open Space and Recreation Plan* (Ross Planning 2005) recognises that there has been an undersupply of recreational parkland in Gladstone City. Future development planning aims to rectify this undersupply. For instance, the *Gladstone Plan* (Gladstone City Council 2005) aimed to achieve “an integrated City-wide system of multipurpose open space which meets the communities needs for recreation, landscape protection, conservation of valuable features and buffering from industry and transport and service corridors”; “buffers of open space between the urban areas of the City and the major industries and port facilities” and “an attractive natural landscape comprised of regional landscapes and the harbour and islands, the ridgelines and bushland and water courses”. The Gladstone CBD Waterfront Redevelopment Project aims to revitalise the CBD and waterfront area and provide recreational opportunities.

Open space/parkland areas in Gladstone are mainly focused around waterfront and foreshore recreation areas. Gladstone's *Open Space and Recreation Plan* (2005) outlines local open space and recreation initiatives. Open space/parkland facilities in Gladstone include (GAPDL 2008):

- Spinnaker Park (providing landscaped parklands a small netted swimming area, shelters, and barbecues, and walking paths);
- Barney Point Beach (offering landscaped parklands
- Auckland Point and Round Hill lookouts (offers views of the Gladstone harbour and wharf)
- Gladstone Marina (major area of water front green space);
- Tondoon botanical gardens (83 hectares featuring native gardens and fauna); and
- Barney Point parkland (provides barbecues, shelters and walking areas);
- Lake Callemondah (provides several walking paths and bird watching opportunities); and
- Various walkways and cycleways.

The areas surrounding Gladstone City offer a range of recreational opportunities. However, the *Survey of the Calliope Shire Population 2005* (R and Z Consulting 2005) identified a lack of play equipment in Benaraby/Wurdong, inadequate parks in Boyne/Tannum Sands, a lack of entertainment and facilities for children and adolescents, and concern over the poor maintenance of public playground areas.

Major recreation/leisure attractions throughout the Gladstone region include (Travel Australia 2008):

- Boyne Island and Tannum Sands, which offer access to beaches, walking and open space areas such as the Millennium Esplanade and the Turtle way walking path;
- Mount Larcom, Gladstone's most prominent natural landmark, which provides opportunities for walking/hiking; and
- Lake Awoonga (25km south of Gladstone), which has a recreation area with barbecues and picnic shelters, toilets, playground, landscaped walking trails, a cafe and caravan park, native wildlife attractions and calm water suitable for sailing, swimming, canoeing and water skiing.

National Parks and conservation areas in the Gladstone region include:

- Curtis Island National Park;
- Curtis Island Conservation Park;
- Wild Cattle Island National Park;
- Rundle Range Resources Reserve; and
- The Great Barrier Reef Marine Park.

Significant recreational opportunities are also offered due to Gladstone's proximity to the southern Great Barrier Reef which has various conservation reserves located in the region's offshore areas. Gladstone is in close proximity to Swain Reefs, and the Capricorn Bunker Groups. These areas include Heron Island, Wilson Island and Lady Elliot Island. Gladstone also offers access to outer Great Barrier Reef islands and their associated reef areas such as North West Island, Lady Musgrave Island and Masthead Island. There are various local operators who offer access to reef resorts, day cruises, organised dive trips and chartered fishing adventures (GAPDL 2008).

Recreational Fishing and Boating

Fishing is a major recreational activity throughout the entire Gladstone region, with Gladstone City having one of the highest rates of boat ownerships of any community in Australia (GAPDL 2008). Mud crabs are harvested from the rivers and estuaries during the summer months and prawns are fished offshore



(Travel Australia 2008). Boat ramps are available at Gladstone Harbour, Boyne Island, Tannum Sands, Calliope River and the Narrows.

Popular fishing spots in close proximity to Gladstone include (Travel Australia 2008 and GAPDL 2008):

- Gladstone harbour (including Q.C.L Wharf, Auckland Point Wharf, Barney Point Wharf, Q.A.L Wharf and Boyne Smelter Wharf);
- Gladstone Power Station; and
- Barney Beach.

Popular fishing spots in the broader Gladstone region include (Travel Australia 2008):

- Calliope River (offering barbecue facilities and 48 hour camping);
- Boyne River;
- Wild Cattle Creek (at the southern end of Tannum Sands Main Beach);
- Gatcombe Head (at the south end of Facing Island and accessible by boat only);
- Farmers Point (at the northern end of Facing Island);
- South End (at the southern end of Curtis Island);
- Various estuaries;
- Various offshore reefs, particularly Swains Reef and the Capricorn and Bunker Groups; and
- Lake Awoonga (offering barramundi fishing assisted by the Gladstone Area Water Board which operates a fish hatchery breeding approximately 300, 000 selected fish species for release each year).

Recreational Fishing in the Western Basin

Fishing is by far the most prominent recreational activity undertaken in the Western Basin of the Gladstone Harbour. Recreational fishing activity predominantly includes line fishing, prawning and mud crabbing (Figure 24). Gladstone Harbour is closed to commercial fishers from Friday 6 pm until Sunday 6 pm, to provide access for recreational fishers.

The coastal areas directly in the area of interest contain extensive mangrove systems and various creek mouths that are common places for recreational mud crabbing, especially on weekends. The area along the coast north of the existing Fisherman's Landing (commonly referred to as "the Pines", due to a distinctive rows of pine trees positioned there) offers road access to crabbing areas and is one of the few easy access points for crabbing in close proximity to Gladstone. According to consultation meetings held with local recreational fishers this road access will generally be frequented by 4-5 vehicles at any one time on the weekends and approximately two vehicles on weekdays. Recreational crabbers are restricted to a maximum of four pots each and potting is the only legal method of crab fishing. The catch is generally seasonal with mud crab captured more frequently in warmer months.

Recreational line fishing is mainly conducted off privately owned boats. Activity and catches are dictated by the seasons, with Barramundi captured more frequently in the warmer months, and Yellowfin Bream, Blue Threadfin, Salmon and Sand Whiting caught more commonly in winter (Platten et al. 2008). Much of the winter fishing activity, particularly for Salmon, occurs at night. Day fishing occurs year round, particularly in areas with turbid waters.



Seasonal recreational prawning occurs between February and March. Prawns are caught with a cast net and catches are typically better during the evening, on high tide and dependent on rain events. “The Pines” area offers road access to prawning areas and is one of the few easy access points for prawning in close proximity to Gladstone.

Fishing effort

Estimated Number of Fishing Trips

Most of the fishing and boating trips to the Western Basin of the Gladstone Harbour depart either the Morgan Street or VMR ramp on Auckland Creek or the Calliope River boat ramp (near the NRG power station). Table 14 shows the estimated number of fishing trips from each ramp from 2005/06 to 2008/09.⁴ In total, it is estimated that 11,000 fishing trips occurred from these three ramps in 2008/09, equivalent to an average of 30 trips per day. The actual number of recreational boat departures is however likely to be larger as non-fishing trips have been excluded from this count. As noted above, about 25% of total trips are not for fishing purposes. It is thus likely that there were more than 14,600 recreational boat departures from the Gladstone boat ramps in 2008/09, corresponding to a daily average of 40 trips.⁵

Table 14 Estimated number of fishing trips from boat ramps in Gladstone

Year	Auckland Creek VMR	Morgan Street	Calliope River	Total
2005/06	3,700	N/A	N/A	3,700
2006/07	4,100	N/A	N/A	4,100
2007/08	4,200	1,800	5,400	11,400
2008/09	4,300	1,800	4,900	11,000

Source: Sawknock (Info Fish), 2009

The boat ramps in Gladstone are thus very well used. On days, particularly weekends, when the weather is ideal for offshore fishing it is estimated that the trailer capacity of Auckland VMR is exceeded by 50%. On these occasions, parking of trailers spills over beyond the parking area into adjacent streets and onto footpaths (Platten et al. 2007).

Analysis of survey results shows that more trips were conducted on weekends and public holidays for the Auckland VMR boat ramp at Gladstone. Just under half as many trips occurred on weekdays compared with weekends in Gladstone (Ibid).

Fishing Trip Destinations

Survey data reveals that virtually all recreational fishing vessels leaving Calliope River boat ramp fished in or near the site area (Sawknock 2009). Vessels leaving Auckland Creek ramps tended to fish in the outer harbour or offshore areas to a larger degree (about 70%). 378 or 24% of the departures from Auckland Creek ramps fished in locations in or near the site area. In total, 750 fishing vessels,

⁴ The estimated number of trips is based on trailer count at the respective ramp. The Auckland VMR count occurred over 390 days between 1/7/2005 and 30/6/2009, the Calliope count took place over 198 days between 1/7/2007 and 30/6/2009 and the Morgan Street ramp count occurred over 23 days between 1/7/2007 and 30/6/2009. Due to the lower number of counting days there is a lower degree of confidence in the estimates for the Morgan Street ramp. The Gladstone Marina ramp has been excluded as its' usage is relatively low and boats departing this ramp are generally heading offshore.

⁵ It should be noted that Info Fish considers these estimates to be “reasonable but not robust”. Any conclusion based on these numbers should be made with caution.



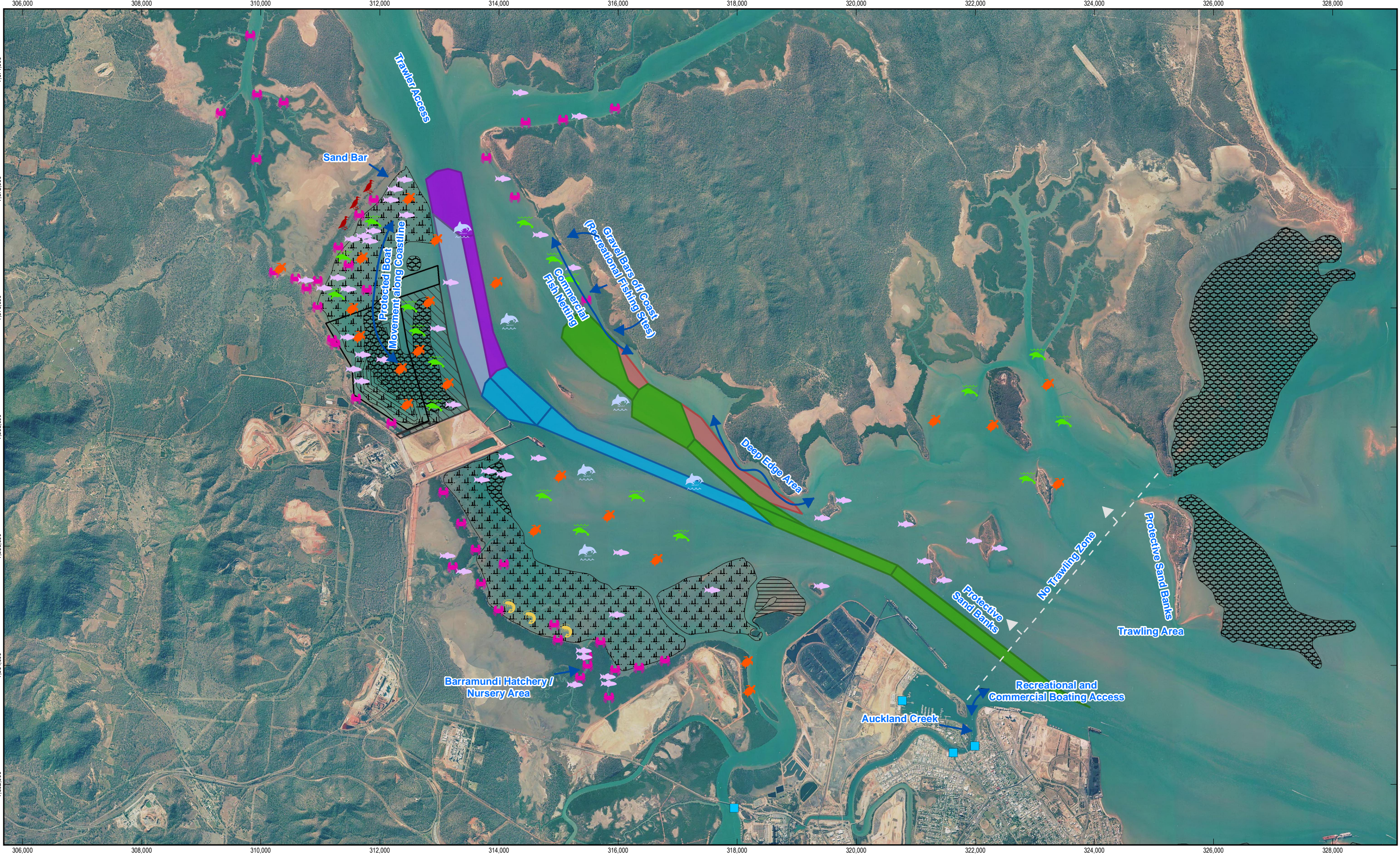
corresponding to 46% of all departures, stated they fished in areas in or near the Project area (Sawknock 2009). The survey data thus indicates that the Project site area is a popular and frequently used area for recreational fishing, with almost half of all fishing trips going to this area.

Table 15 Fishing locations (number of trips)

Ramps	In or near site area ⁶	Elsewhere	Unable to locate	Total trips
Calliope River	372	0	1	373
Auckland Creek Ramps (VMR and Morgan Street)	378	1,115	103	1,596

Source: Compiled from data provided by Sawknock (Info Fish), 2009

⁶ Graham Creek and the Narrows which are located outside of the site area have been included in this category as they are relatively close and as fishers need to travel through the Project site area to reach these destinations.



1:60,000 (at A3)

0 0.5 1 1.5 2

Kilometres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia
Grid: Map Grid of Australia 1994, Zone 56

LEGEND

Boat Ramp Usage	Dolphin	Seagrass - 2002 Survey Continuous cover	Stage 1A - North China Bay LNG
Prawn Nursery	Dugong	Aggregated patches	Stage 1B - Fisherman's LNG
Fish	Mud Crab	Isolated patches	Stage 2 - Laird Point LNG
Turtle	Wader Migratory Bird	Western Basin Reclamation Footprint	Stage 3 - Fisherman's Landing
		Fisherman's Landing Northern Expansion	Stage 4 - Hamilton Point

Port of Gladstone
Western Basin Dredging and Disposal Project

Community Site Usage Map

Job Number 42-15386
Revision A
Date 30 Aug 2009

Figure 24

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2.8 Community Values, Vitality and Lifestyles

Community values, vitality and lifestyle are elusive concepts that are difficult to quantify and measure. Nevertheless, they are important as they indicate how the community feels about its local area, what they value about it, and how they envisage their own future.

For the purpose of this SIA, community values have been identified through direct consultation with community groups and a review of Gladstone Regional Council (including the former shires) plans, reports and surveys.

2.8.1 Gladstone Regional Council Documents

Community Visioning Project 2028

Gladstone Regional Council is currently undertaking a visioning project, with the aim of guiding the regions' development to 2028. As a part of this project a community survey was undertaken (Futureye 2008), indicating the following key points:⁷

- ▶ Two thirds of the respondents believed that the community members care about the environment;
- ▶ More than half of the respondents agreed with the statement that the community tends to have traditional family values;
- ▶ More than half of the respondents believed that Gladstone people embraced multiculturalism;
- ▶ The vast majority of the respondents agreed to, or strongly agreed to the statement "I am optimistic about the future of Gladstone";
- ▶ Although not addressed in the survey, health is indicated as a major community issue;
- ▶ The main feature of living in Gladstone that the respondent's wished to retain was the "community spirit / friendliness / lifestyle";
- ▶ The most important social issues identified by the respondents were "housing and accommodation", "health and health services" and physical infrastructure;
- ▶ In relation to the industrial growth in Gladstone, 72% of the respondents believed that the current rate of growth is appropriate. A significant minority, 20%, believed too much industrial growth occurred; and
- ▶ The key opportunities identified for Gladstone were "more jobs" and "industrial growth".

Key challenges and opportunities to 2028 identified in the report are:⁸

Society

- ▶ Affordability: housing costs, rental costs and inequity of salaries contribute to low affordability for some residents;
- ▶ Recognition of Indigenous heritage;

⁷ The results are reported as they are described in the visioning report. No notes were provided as to survey methods, sample size or response rates. It is thus difficult to verify with which degree of certainty inference to the whole Gladstone community can be made.

⁸ The results below appear as described in the report. The issues have been identified by the visioning committee. The method for selecting the committee and methods applied for identifying these issues are however unknown, limiting the reliability of the representativeness of it.



- The transient population of Gladstone; and
- Insufficient community services: There are issues related to the provision of childcare, access to services, health services, mental health support, sports facilities, youth activities and facilities, youth homelessness, recognition of spiritual values, police service, aged care and education.

Economy

- Need to foster partnerships between industry, government and community organisations;
- Need for appropriate training facilities;
- Need to upgrade infrastructure including upgrade to the Gladstone Airport, safer roads and improve disability access; and
- Address the cost of living.

Environment

- Protection of remnant vegetation;
- Initiatives to clean up and protect local environment;
- Water reliability;
- Air and water quality;
- Monitoring of environmental impacts; and
- Climate change.

Governance

- Develop connection between all (former) local governments in the area; and
- Government funding is directed to Rockhampton rather than Gladstone.

Draft Corporate Plan 2009-2013

Gladstone Regional Council is preparing a corporate plan for the period 2009-2013 (Gladstone Regional Council 2009). A draft version of the report is currently (July 2009) available on Council's website.

The vision statement of the Gladstone Regional Council is to "... be the region of choice with strong leadership and delivering quality infrastructure and services". Key identified values relating to the community include:

- Valuing community input into local decision making;
- Sustainable, environmentally managed growth;
- Quality of life for our community; and
- A community rich in cultural diversity, civic pride and regional identity.

Community outcomes identified in the draft plan are:

- A strong overarching regional identity which also recognises and supports local community identity;
- A vibrant community with strong support networks;
- A range of quality community facilities and services that serve the varied lifestyle choices of the region's residents;

- ▶ Healthy and safe communities where residents are protected through public health, safety and counter disaster programs; and
- ▶ Provide appropriate green open spaces that support a diverse range of recreational, community and conservation activities.

Council Surveys

The former Gladstone City Council (GCC) and Calliope Shire Council (CSC) have undertaken surveys which address important aspects of community values. The key findings of these surveys are detailed below:

- ▶ *Benchmark Community Satisfaction Survey* (Market Facts 2005):
 - The survey was conducted as part of consultations for the GCC *Corporate Plan 2005 to 2010*. It incorporated specific questions on the community's visions and priorities for Gladstone City. The overall rating of Council performance was 73.28%. Community expectation and levels of satisfaction with service delivery from Council are summarised in Table 16.

Table 16 Benchmark Community Satisfaction Survey

Satisfaction	Importance		
	Least	Moderate	High
Low	Shopping centres	Road construction	Road maintenance
	Public transport	Parking facilities	Community health
		Footpaths curbing & guttering	Town planning
			Traffic management
Medium	Heritage protection	Environmental protection and conservation	
	Community development	Community services	
		Building control	
		Providing leadership & advocacy	
		Street lighting	
		Community safety	
High	Cultural & entertainment facilities	Libraries and other information access	Sewage
	Development of tourism	Sport & recreation facilities	Water supply
	Pet/animal control	Parks playgrounds & park amenities	Drainage & flood mitigation
		Economic development/ local employment	Waste management

Source: Gladstone City Council, Draft Corporate Plan 2005-2010, 2005: 34.

- ▶ *Survey of the Calliope Shire Population 2005* (R and Z Consulting 2005). The project was designed to provide information on community perceptions regarding local government, demands for local government services and to identify particular areas of concern. Community services and facilities that were identified as most important included water supply, sewage, mosquito control, community sharps management, drainage, domestic water collection and school based vaccination programs.
- ▶ *Gladstone Doing Business Survey* (Gladstone City Council 2004a). The purpose of the survey was to identify local business opinion relating to needs and concerns, perception of business within the area, reasons for relocation, product and service distribution and possible improvements for the Gladstone business sector. Key findings of the survey included:
 - Businesses pride themselves on the provision of a quality product backed by a high standard of service and strong community and customer relationships;
 - Limited competition and a good locally based market share is seen as an advantage is generating strong market positioning;
 - Personal quality of life is seen as important;
 - There are significant gaps in the availability of skilled labour across various fields;
 - Expansions are usually market driven, however, closures, sales and relocations out of the region are more likely to be for personal reasons;
 - Major industry peaks and troughs are perceived to be impacting on small and medium businesses; and
 - The greatest need for business support is for programs and services that will enhance the ability of operators to plan and manage their business strategically.

Previous Council Plans and Policies

Various policies and plans of the former Gladstone City Council (GCC) and Calliope Shire Council (CSC) also address community values and aspirations. The key aspects of these plans relating to community values include:

- ▶ *Gladstone Draft Corporate Plan 2005-2010* (Gladstone City Council 2005b):
 - The vision statement for the plan is “Gladstone will be the City of Choice for Lifestyle and Opportunity”. This recognises that the city draws people to the area for employment opportunity, and aims to offer superior lifestyle options through the provision of facilities and social networks and through maintaining a balance between development and the environment.
- ▶ *Cultural and Quality of Life Policy 2004*:
 - The policy is the result of detailed research and cultural mapping which took into account both the City of Gladstone and the Calliope Shire. It is the vision of the cultural policy to contribute to maintaining the balance between economic and industrial growth and the provision of “human needs”. It is acknowledged that the achievement of the intent of the policy will depend on the ability of local people, business, industry and government to think and act strategically and holistically, to communicate widely, anticipate change, reframe problems, mobilise the community and make informed decisions.
- ▶ *Calliope Corporate Plan 2004-2008* (Calliope Shire Council 2004):
 - Recognises that regional growth will always be intrinsically linked to industrial development, port facilities, the extraction of natural resources and the success of State and Federal Government



initiatives to promote the region for the development of internationally competitive facilities. It acknowledges that the shire must be ready to meet future challenges for development, whilst maintaining quality of life. The mission statement of the former Calliope Shire Council was: “The Council, in partnership with the community, environment and industry, will strive to achieve sustainable development and the provision of quality infrastructure and services to the community.”

2.8.2 Stakeholder Consultation

Consultation was undertaken through one-on-one-meetings with key stakeholders, including recreational and commercial fishers, environmental organisations, indigenous groups, local and state government representatives and business groups. A community open day was also held on 1 July 2009. A summary of consultation activities and stakeholder feedback is available in the Consultation Report.

The values expressed during consultation can be described as:

- *Environmental values:* Community member and environmental organisations in particular value the relatively untouched nature in and around the Western Basin, Graham’s Creek and Curtis Island. Particular concerns included limiting industrial development on Curtis Island and preserving dugong habitat in the harbour.
- *Recreational values:* Many residents of Gladstone are boat owners and value the proximity and access to the sea for recreational fishing and boating activities. There are concerns that proposed developments will limit access to of quality of key recreational areas.
- *Economic values:* Economic and industrial development and related employment opportunities is also likely to be a strong value present in the community.

2.8.3 Summary

While there is a large number of differing values expressed in the documents reviewed above and raised through the Project’s stakeholder consultation activities, there are some reoccurring value themes. In summary, three overarching themes can be identified: economic growth and employment, equitable social outcomes and natural assets and recreation.

Economic Growth and Employment

Much of the local community is employed by large private industrial groups, Queensland Government agencies associated with heavy industry or small/medium businesses providing support and services to industry. The local community appears to place strong value on the industrial development and the benefit it brings to the community in terms of employment and standards of living.

Equitable Social Outcomes

There are recurring concerns about some of the adverse social effects of strong growth. Issues such as provision of social services, housing affordability and income inequality appear to be pertinent to at least parts of the community. The value expressed is essentially one of equity in social outcomes, ensuring that the less well-off also benefit from economic growth and prosperity.



Natural Assets and Recreation

The Project's consultation activities identified that strong community value is placed on the local area's natural assets. This value is also reflected in the promotion of the area as an attractive lifestyle choice and desirable tourist destination.

The popularity of various recreational activities (as outlined previously), particularly fishing, also reflect the community value placed on the area's natural assets. Gladstone has one of the highest proportional boat registration levels in Queensland, with registrations increasing by over 110% between 1985 and 2005 (Platten et al. 2007).

3. Potential Social Impacts

3.1 Introduction

This section identifies the potential social impacts of the Project. This section focuses on the construction period of the project, which involves dredging activities, construction of the revetment (bund) wall and dredged material disposal into the reclamation. While some maintenance dredging will be required, this will be incorporated with GPC's current annual maintenance dredging program and is unlikely to represent a substantial additional social impact.

For each social impact, a significance assessment has been carried out and impacted stakeholders have been identified. Where the likelihood/consequence has been determined to be negligible, no further analysis has been made.

A cumulative impact assessment is also carried out to assess the impacts of the current project in conjunction with other current and future projects of the area.

The social impact identification has been based on a review and analysis of the local area profile, technical data from the project proponent and other sections of this EIS, and input from stakeholder consultations. The process for identifying the significance of each social impact is outlined in the SIA Methodology, with further detail in [Appendix A](#). The results of the assessment process are provided as a summary table in [Appendix B](#).

Impacts are categorised following the framework suggested by Vanclay (2002) which identifies seven impact categories: Health and social wellbeing; Quality of the living environment; Economic and material wellbeing; Cultural impacts; Family and community impacts; Institutional, legal, political and equity impacts; and Gender relations impacts.

3.2 Change Processes and Social Impacts

It should be noted that the identified impacts are *likely* impacts only. The framework suggested by Vanclay (2002) distinguishes between social and biophysical change processes on one hand, and social impacts on the other. A social impact has to be experienced or felt by a stakeholder. Whether a social impact occurs and the magnitude of it consequently thus depends on the stakeholders' responses, behaviours, experiences or feelings related to the change processes caused by the project. As such, they cannot be predicted with absolute certainty. By analysing a wide variety of sources the uncertainty of the predicted impacts is however reduced.

The change processes that have been identified for the Project are:

- ▶ Presence of construction workforce;
- ▶ Presence of construction activities on land and sea; and
- ▶ Biophysical changes, including land reclamation and dredged channels.

Impacts likely to be caused by these change processes are shown in Table 17. The following section details these impacts and assesses their significance.



Table 17 Change Process and Potential Social Impacts

Change Process	Potential Social Impact
Presence of construction workforce	Employment Business opportunities Property values and marketability Increased demand for housing Increased demand for services Reduced community cohesion
Presence of construction activities	Reduced road safety Reduced marine safety Noise, dust and vibration Reduced viability of commercial fishing Loss of natural and recreational areas Reduced access to culturally important areas and landscapes
Biophysical changes	Reduced viability of commercial fishing Visual amenity/aesthetic quality Loss of natural and recreational areas Reduced access to culturally important areas and landscapes Impacts on community values and aspirations Formation of opinions and attitudes about the project

3.3 Potential Social Impacts

3.3.1 Health and Social Wellbeing

Reduced road safety

The proposed source of material for the bund walls is a quarry that will be developed by GPC in the GSDA. It is proposed to use conventional road transport to transport the materials from the quarry to site. This will lead to increased road usage by heavy vehicles, and reduced real or perceived road safety. However, as the quarry is located in the GSDA, much of the construction related traffic will only travel a short distance, limiting the distance travelled by heavy vehicles and therefore limiting overall impacts on other road users.

The Project's construction workforce will also add additional traffic to the local road system when commuting to board the dredgers from the existing Fisherman's Landing Northern Expansion. It is expected that about 225 people will be commuting every day (at the peak of the dredging operations) and that Landing Road will be the main access road. The additional traffic caused by the construction workforce will mainly occur during the early morning and early evening as the dredgers will likely operate on 12 hour shifts, changing over at 6 am and 6 pm. For further detail on the Project related traffic movements refer to Chapter 5 (Traffic and Transport).



Stakeholders impacted by the reduced road safety include road users (including the Project's construction workforce) and workers in nearby businesses and industries. Reduced road safety will only occur if quarry materials are transported on-road to the Reclamation Area. Other stakeholder groups that may also, to a lesser degree, be adversely affected by any reduction in safety include the Gladstone and regional community, recreational fishers and visitors to the area.

The significance of road safety incidents is described below. While the perception of decreased road safety may not be a severe impact, the potential consequences of a real decrease in road safety, such as serious accidents, can be extreme.

Reduced road safety	
Stakeholder	Road users; Workers in nearby businesses; Recreational users
Status of Impact	Negative
Likelihood	Unlikely
Consequence	Extreme
Likelihood/ Consequence Rating	High
Duration	Short
Spatial Extent	Local
Mitigatory Potential	High
Acceptability	Medium

Reduced marine safety

Dredging and dredge disposal activities for the Project will occur in an area that is currently used for various recreational activities such as fishing, boating and jet skiing. The proposed construction works may impact on the safety of these activities, particularly where industrial equipment is used in close proximity to recreational areas.

The main stakeholders likely to be impacted by any reduction in marine safety are recreational fishers and other recreational users of the project site and surrounding area.

The significance of a reduction in the marine safety is described below. While a reduction in marine safety can potentially have extreme consequences, including serious accidents, the likelihood of a marine safety incident would be reduced through the implementation of management measures such as safety buffers around dredgers.

Reduced marine safety	
Stakeholder	Recreational and commercial fishers; Other users of the Western Basin
Status of Impact	Negative
Likelihood	Unlikely



Reduced marine safety	
Consequence	Extreme
Likelihood/ Consequence Rating	High
Duration	Short
Spatial Extent	Site
Mitigatory potential	High
Acceptability	Low

3.3.2 Economic and Material Wellbeing

Employment

The Project is expected to employ relatively few people from the Gladstone area. The dredging works will be carried out by a contractor, and the bund construction may be carried out by the project proponent or a local contractor.

It is estimated that the construction of the bund wall will need a workforce of 50 people during an 18 month construction period. The majority of this workforce (around 80%) is expected to be sourced locally. The workforce required for dredging may vary between 100 and 300 persons during a 24 month period.⁹ Of these, 80% are expected to be sourced regionally and internationally. The balance of dredging will occur as needed and is expected to require a workforce of 70 people contracted regionally or from overseas. Table 18 shows the expected source of the workforce.

At the time of writing the timing of these employment opportunities are difficult to predict. Subject to all necessary environmental approvals being received and economic factors being considered, construction of the Project's reclamation site could commence in 2010. The dredging of the Western Basin will occur in stages and the rate of development will be controlled by the demands of industry locating in the Gladstone region and requiring access to port facilities. The dredging may then continue over several years.

Table 18 Expected Source of Workforce

Source of workforce	Bund construction	Dredging	Total
Locally recruited	40	20-60	60-100
Regionally/Internationally recruited	10	80-240	90-250

Source: GPC 2009

The majority of the workforce will be labourers/clerical staff, tradesmen and plant operators. It is expected that the workforce will already have the required skills. Except for standard company training,

⁹ The higher number reflects the use of two large and two small dredgers simultaneously.



no training or skills development is foreseen. Table 19 identifies the expected number of employees per occupation.

Table 19 Expected Workforce by Occupation

Occupation	Bund Construction	Dredging	Total (max)
Labourers/Clerical	10	20-60	70
Tradesmen	10	30-90	100
Plant operators	10	40-120	130
Truck drivers	15	n/a	15
Management	3	5-15	18
Professionals	2	5-15	17

Source: GPC 2009

In summary, the Project is likely to provide 50 job opportunities during the 18 months bund construction, 40 of which are likely to be sourced locally. During the 24 months dredging operation, between 100 and 300 workers will be required, of which 20%, or 20-60 are likely to be sourced via the local labour market.

As the local labour force consisted of more than 23,000 persons in the 2006 census, the labour market impacts for the wider Gladstone community are likely to be minor. For the employed workers and their families, the economic impacts are however positive and significant. Section 13 Economy provides more information on the workforce related economic impacts of the Project.

The significance of the likely employment impacts are shown in the following table.

Employment	
Stakeholder	Gladstone and regional communities
Status of Impact	Positive
Likelihood	Certain
Consequence	Minor
Likelihood/ Consequence Rating	Medium
Duration	Short
Spatial Extent	Regional
Mitigatory potential	N/A
Acceptability	High

Increased Local Business Opportunities

In addition to the employment related impacts, the project has the potential to generate local business opportunities. Local services likely to be required for the project include accommodation, catering,



entertainment, fuels and oils, vehicle hire, minor engineering and fabrication works and plant maintenance and hire. As yet, it is not possible to quantify the expected local spend generated by the Project. Section 13 Economy provides more detailed assessment of these potential impacts.

The significance of the potential business impacts are shown in the following table.

Increased local business opportunity		
Stakeholder	Local businesses	Gladstone community
Status of Impact	Positive	Positive
Likelihood	Very likely	Very likely
Consequence	Moderate	Minor
Likelihood/ Consequence Rating	High	Medium
Duration	Short	Short
Spatial Extent	Local	Local
Mitigatory potential	N/A	N/A
Acceptability	High	High

Impacts on Commercial Fishing

The dredging and reclamation site is used for various types of commercial fishing. The commercial fishing in the area is likely to be affected in various ways by the Western Basin dredging and reclamation project. Access to fishing sites will be affected by dredging and reclamation construction activities. All dredging activities will be undertaken within an exclusion zone¹⁰. The reclamation will also permanently remove sites which are currently being used for commercial fishing and crabbing. In addition, the dredging and reclamation site is likely to cause changing hydrodynamics, impacting important fish habitats, including spawning and juvenile development areas. The significance of the potential impacts on commercial fishers is shown in the following table. The marine ecological impacts are discussed in Chapter 9 of the EIS.

¹⁰ At the time of writing the exact size of the likely exclusion areas to be adopted around dredgers was not known. However, small boats would generally be required to maintain a minimum distance of 50m from a cutter suction dredge or associated floating equipment, and a safe distance of 1.6 times the beam of a trailer hopper suction dredge which is approximately 50m (assuming a large TSHD).



Reduced viability of commercial fishing	
Stakeholder	Commercial fishers
Status of Impact	Negative
Likelihood	Very likely
Consequence	Moderate
Likelihood/ Consequence Rating	High
Duration	Long
Spatial Extent	Local
Mitigatory potential	Low
Acceptability	Low

Increased Demand for Housing

It is likely that the wider Gladstone community will experience a small increase in demand for housing, primarily rental housing, during the dredging stage of the Project (i.e. a 24 month period). As noted above, approximately ten workers are likely to be sourced from outside the local area during the bund construction stage of the Project. Even if all of these seek to access accommodation from the Gladstone rental market, the effects on the market are not expected to be noticeable.

During the dredging stage of the project a larger regionally and internationally recruited workforce will however be required. Between 80 and 240 persons from outside of Gladstone are likely to be working on the Project at any time during the 24 month dredging stage. Some of these may however be accommodated on their vessels.¹¹ Due to the short-term nature of the Project, few workers are likely to be accompanied by families or partners.

Assuming that all of the regionally and internationally sourced workforce will seek accommodation on the local rental market, the likely additional demand for temporary rental housing caused by the project will be for 80-240 persons. The number of additional dwellings required will depend on the type of accommodation sought.

How this impact will be experienced depends largely on the situation of the local rental market and the Project timing. Gladstone's typically low rental vacancy rates have more recently risen with a larger number of rental properties available on the market. The current local housing market consists of 15,500 dwellings, of which 4,580 are rental properties (Gladstone Observer 2009).

The relatively small volume of additional housing demand caused by the Project is therefore likely to cause only minor housing impacts. Consequently, rising housing costs and crowding out of affordable housing is not likely to be significantly affected by the Western Basin Dredging and Disposal Project.

¹¹ This depends on which type of dredger is used. Should a Trailer Suction Hopper Dredger be used the crew required to operated this vessel (55 persons) will be lodged on board.



It should be noted that the increased demand for housing can be experienced negatively by someone seeking to access the rental market, in particular people seeking access to affordable housing, while it will be experienced positively for a landlord seeking to let out accommodation.

The significance of an increased demand for housing is identified in the following table.

Increased demand for housing		
Stakeholder	People seeking to access rental accommodation	People seeking to let out rental accommodation
Status of Impact	Negative	Positive
Likelihood	Likely	Likely
Consequence	Minor	Minor
Likelihood/ Consequence Rating	Low	Low
Duration	Short	Short
Spatial Extent	Local	Local
Mitigatory potential	Medium	Medium
Acceptability	Medium	Medium

Property Values and Marketability

As noted above, the number of workers expected to relocate permanently as part of the Project construction period is very small and is not likely to directly impact property values. Increased demand for rental accommodation may in turn affect property values. Consequently, the direct impact caused by the Western Basin Project on the Gladstone housing market, is likely to be negligible.

The significance of the potential impacts on property values and marketability are shown in the following table.

Property values and marketability	
Stakeholder	Current and aspiring property owners
Likelihood	Unlikely
Consequence	Insignificant
Likelihood/ Consequence Rating	Negligible
Status of Impact	n/a
Duration	n/a
Spatial Extent	n/a
Mitigatory potential	n/a
Acceptability	n/a



3.3.3 Quality of the Living Environment

Noise, Dust and Vibration

It is expected that there will be minimal noise and air quality impacts associated with dredging and onshore disposal of dredged material (for further detail refer to Section 10). The placement of rock during construction and the final surface of the Western Basin reclamation may generate some dust plumes. However, the dredging and Reclamation Area is considered to be located sufficiently far away from residential areas

The significance of the potential social impacts from noise, dust and vibration are shown in the following table.

Noise, dust and vibration	
Stakeholder	Gladstone community
Status of Impact	Negative
Likelihood	Unlikely
Consequence	Minor
Likelihood/ Consequence Rating	Low
Duration	Short
Spatial Extent	Site
Mitigatory potential	High
Acceptability	High

Visual Amenity/Aesthetic Quality

Dredging and disposal activities can generate turbid plumes visible from air, land or sea. However, maintenance dredging is a regular feature of the port of Gladstone, which is also naturally turbid due to tidal movements. As such, it is not likely that the Western Basin dredging will cause any major visual concerns for the community.

The construction of the Western Basin Reclamation Area will however significantly alter the visual character of the immediate area, including a high mound (up to 70 metres) directly to the north-west of the existing Fisherman's Landing reclamation. The mound will be landscaped and planted to minimise negative visual impacts.

Due to the distance from residential areas, the wider Gladstone community is not likely to experience any direct changes to their visual amenity caused by the project. The mound will be visible from Gladstone city, but the visual impacts are likely to be minimal. Direct users of the harbour, such as bird watchers, recreational and commercial fishers and workers in the area, are however likely to experience the visual impacts more directly.

The significance of the potential social impacts from visual amenity changes is shown in the following table. Section 14 provides further information on the potential visual impacts associated with the Project.



Visual amenity/visual quality		
Stakeholder	Gladstone community	Commercial and recreational fishers; Other users of the Western Basin
Status of Impact	Negative	Negative
Likelihood	Likely	Certain
Consequence	Insignificant	Minor
Likelihood/ Consequence Rating	Low	Medium
Duration	Long	Long
Spatial Extent	Local	Site
Mitigatory potential	Low	Low
Acceptability	Medium	Medium

Loss of Natural and Recreational Areas

The Western Basin dredging and reclamation will occur in an area that is currently used for recreational fishing, mud-crabbing, boating, bird watching and similar activities. Access to some of these areas will be impeded during construction, and the area where reclamation will occur will be permanently altered for recreational users. Likely exclusion zones around the dredging activities and the reclamation construction area will further reduce access to existing recreational areas.

While some adjacent areas will still be accessible for safe recreational activities, it is likely that the viability of common recreational uses will be adversely affected in these areas. Environmental assessment has identified the potential for the Project's construction to cause deterioration in the quality of the adjacent marine habitat and secondary degradation of coastal fauna (refer to Section 9). If these impacts were to occur, the opportunities for common recreational activities such as fishing, mud crabbing and seasonal prawning would be reduced in adjacent areas.

It is difficult to quantify specific recreational usage of the dredging and reclamation sites. There is however data indicating that the Western Basin of the Gladstone harbour is both a relatively frequented destination for fishing trips and an often used passage for fishing destinations in Graham's Creek and the Narrows (Sawknock 2009).

The site area is used for research and monitoring purposes by researchers at Central Queensland University (CQU), who undertake various studies including the *Port Curtis Integrated Monitoring Program*. The Department of Primary Industry and Fisheries also runs an annual seagrass monitoring program in the area. The project may impact on the viability of these research activities and will alter future research findings.

Consultation with project stakeholders further revealed that a significant component of the Gladstone community place strong value on the relatively untouched environment in the Western Basin of the harbour, including the proposed Reclamation Area. The dredging and reclamation, and the ensuing effects to adjacent marine and coastal areas will thus lead to the loss of areas valuable to the community



for their natural and environmental qualities. This may in turn affect the overall perception of quality of life for some Gladstone residents.

Stakeholders likely to be affected by this impact include recreational fishers, other recreational users, Indigenous groups, environmental groups and visitors to the area. As access to recreational opportunities is also important for future economic benefits, such as tourism, members of the Gladstone and regional communities associated with tourism are also relevant stakeholders in considering this potential impact.

The significance of the potential social impacts from a loss of natural and recreational areas is shown in the following table.

Loss of natural and recreational areas	
Stakeholder	Recreational users of the area; Environmental groups; Indigenous groups; Gladstone community
Status of Impact	Negative
Likelihood	Certain
Consequence	Moderate
Likelihood/ Consequence Rating	High
Duration	Long
Spatial Extent	Site
Mitigatory potential	Low
Acceptability	Low

Increased Demand for Services

The small inflow of workers associated with the Project is not likely to cause any noticeable change in the demand for community services and facilities. Of maximum 240 workers expected to relocate, 5% are likely to be accompanied by families. If this occurs, ten to fifteen families will relocate to Gladstone. While these groups of people are likely to access services such as health, education, child care, sport and recreation, the increased demand is negligible in the context of the wider Gladstone community.

Unaccompanied workers may also access certain services, although the increased demand for services caused by unaccompanied workers is not likely to be significant.

The significance of an increased demand for services is identified in the following table.

Increased demand for services	
Stakeholder	Gladstone Regional Council; Government departments
Likelihood	Possible
Consequence	Insignificant
Likelihood/ Consequence Rating	Negligible



Increased demand for services	
Status of Impact	n/a
Duration	n/a
Spatial Extent	n/a
Mitigatory potential	n/a
Acceptability	n/a

3.3.4 Cultural Impacts

Reduced Access to Culturally Important Areas and Landscapes

The proposed dredging activities and reclamation site would lead to reduced access to culturally important areas. Environmental assessment has identified the potential for the project's construction to cause deterioration in the quality of the adjacent marine habitat and secondary degradation of coastal fauna (refer to Section 9 Nature Conservation).

Indigenous groups are the main stakeholders likely to be impacted by any reduction in access to culturally important areas and landscapes. Consultations with the PCCC (local Indigenous group) identified various sites within the close vicinity of the proposed dredging channels and reclamation site that are important for traditional practices (as depicted in Section 12 Cultural Heritage) and that some families currently use fishing and crabbing to supplement their incomes.

It is possible that some traditional sites may be impacted to such an extent that traditional practices are no longer possible, and a reduction in the availability of fishing and crabbing areas will carry with it economic impacts for some Indigenous groups.

The significance of a reduction in access to culturally important areas and landscapes is described in the following table.

Reduced access to culturally important areas and landscapes	
Stakeholder	Indigenous groups
Status of Impact	Negative
Likelihood	Likely
Consequence	Moderate
Likelihood/ Consequence Rating	Medium
Duration	Long
Spatial Extent	Site
Mitigatory potential	Low
Acceptability	Low



Impacts on Community Values and Aspirations

The direct impact of the Project on the community values and aspirations are not likely to be significant. Values and aspirations may change due to a changing demographic structure of the community. As the current project will not cause any noticeable demographic changes, this is not likely to occur. Values and aspirations may also be impacted by the Project through the generation of economic growth and employment opportunities, thus affecting people's aspirations for the future. However, as the construction related and permanent employment caused by the Project is relatively small, no noticeable impacts to the values and aspirations of the community are expected.

The previous review of community values and aspirations revealed a divergence between preserving and protecting the environmental and recreational values of the Gladstone area, and the importance of industrial development. Some stakeholders, wanting to protect the natural environment, may perceive the Project as reducing local environmental and recreational value. However, other stakeholders may experience the project as aligning with their values, reinforcing aspirations of employment and industrial development.

The significance of potential impacts on community values and aspirations is described in the following table.

Impacts on community values and aspirations		
Stakeholder	Community expressing employment and development values	Community expressing conservation values
Status of Impact	Positive	Negative
Likelihood	Likely	Likely
Consequence	Minor	Moderate
Likelihood/ Consequence Rating	Low	Medium
Duration	Short	Long
Spatial Extent	Local	Local
Mitigatory potential	N/A	Low
Acceptability	High	Low

3.3.5 Family and Community Impacts

Changes in Demographic Structure of the Local Community

As the Project's peak construction workforce is expected to be a maximum of approximately 300 people (with around 80% of these workers imported) and this workforce demand would only be short-term (a total 24 month period), the potential impact on demographic characteristics of local community is expected to be minimal. While the Project may lead to some lower level demographic changes, it is not expected to have a long-term impact on the current demographic structure of the broader Gladstone community or change current projections for the community's population growth. The expected minimal change in the demographic structure of the local community means that community characteristic such as family composition and marital status are also not likely to change substantially or permanently.



The significance of a potential change in demographic structure of local community is described in the following table.

Changes in demographic structure of the local community	
Stakeholder	Gladstone Community
Status of Impact	Neutral
Likelihood	Possible
Consequence	Minor
Likelihood/ Consequence Rating	Low
Duration	Short
Spatial Extent	Local
Mitigatory potential	Low
Acceptability	High

Reduced Community Cohesion

The potential project related impacts on community cohesion are expected to be minimal. Community cohesion can be detrimentally affected by, for instance, relocations of a large portion of the community or the rapid influx of a substantial amount of new residents or temporary workers. As noted above, the workforce is relatively small in the context of the Gladstone population, and few people are expected to permanently relocate to the city as a result of the project.

Furthermore, the Gladstone community has experienced a large influx of new residents over the last few years, as well as a continuous stream of short-term commuting workers. Residents can thus be expected to be used to “newcomers”. Community cohesion is therefore not likely to be affected in any noticeable way by the Project.

The significance of a potential reduction of community cohesion is described in the following table.

Reduced community cohesion	
Stakeholder	Gladstone Community
Status of Impact	Negative
Likelihood	Possible
Consequence	Minor
Likelihood/ Consequence Rating	Low
Duration	Short
Spatial Extent	Local
Mitigatory	Low
Acceptability	High



3.3.6 Institutional, legal, political and equity impacts

Formation of Opinions and Attitudes about the Project

Due to the negative impacts to recreational and commercial fishing in the Western Basin and the loss of environmentally valuable areas, the formation of negative public opinion and attitudes relating to the project is possible. Consultation with stakeholders revealed that negative opinions or concerns about the project already exist, particularly among environmental groups, and recreational and commercial fishers. There may also be some concern among the general public about the environmental impacts of the project.

The significance of the formation of opinions and attitudes about the project is described in the following table.

Formation of opinions and attitudes about the Project	
Stakeholder	Proponent, Gladstone community, Environmental groups, Commercial fishers, Recreational users, Indigenous community
Status of Impact	Negative
Likelihood	Very likely
Consequence	Moderate
Likelihood/ Consequence Rating	High
Duration	Long
Spatial Extent	Regional
Mitigatory	Medium
Acceptability	Low

3.4 Cumulative Social Impacts

Cumulative social impacts are impacts that are caused by a project in conjunction with other past, present and future human actions. To assess these, it is necessary to determine which other projects are likely to cause cumulative impacts. In determining this, the following criteria have been applied:

- Location: projects located in the Gladstone State Development Area (GSDA);
- Scale: projects declared State Significant by the Queensland Government; and
- Timing: projects likely to occur concurrently, or whose impacts are likely to occur concurrently with the Western Basin Dredging and Disposal Project.

Based on these criteria, nine projects (listed in Table 20) were identified as relevant to the assessment of cumulative impacts of the Project. These projects have been analysed to determine whether it is likely that they will cause similar change processes to those of the Project and whether these would occur at the same time and in the same area. As such, the analysis considers the timing, location and likely biophysical changes of the relevant projects. It should be noted however, that the likelihood and timing of



the listed projects was not certain at the time of writing. Table 20 below provides a summary of the projects identified as relevant potential contributors to cumulative social impacts.

Table 20 Change Processes Occurring Concurrently

Project	Construction Activities	Peak construction workforce	Biophysical changes to environment
Gladstone LNG (Santos/Petronas)	Proposed construction start 2010 (operation by 2014)	Estimated 3,080 jobs (February 2012)	Direct impacts on Curtis Island within the GSDA Direct impacts on Gladstone Harbour
Queensland Curtis LNG (BG Group/QGC)	Proposed construction start 2010 (operation late 2013)	Estimated 3,600 jobs (October 2011)	Direct impacts on Curtis Island within the GSDA Direct impacts on Gladstone Harbour
Australia Pacific LNG (Origin/Conoco Phillips)	Proposed construction start unknown (operation by 2014)	Estimated 3,000-5,000 jobs at peak	Direct impacts on Curtis Island within the GSDA Direct impacts on Gladstone Harbour
Gladstone LNG Pty Ltd (GLNG PL/Arrow Energy)	Proposed construction start 2010 (Q1)	Estimated 157 jobs (September 2010)	Direct impacts on Fisherman's Landing Direct impacts on Gladstone Harbour
Gladstone Pacific Nickel Refinery	Stage 1: construction 2008- 2010. Stage 2: construction 2013-2015 (depending on market demand).	Stage 1: Estimated 2,600 (September 2009) Stage 2: Estimated 840 (late 2013)	Direct impacts on the Yarwun precinct of the GSDA
Wiggins Island Coal Terminal (GPC)	Stage 1: construction: 2009 – 2011 Stage 2: construction: 2012 – 2015	Stage 1: Estimated 520 (November 2009) Stage 2: Estimated 450 (early 2015)	Direct impacts on Gladstone Harbour and areas within the GSDA
Sun LNG (Sojitz)	Unknown	Estimated 400 jobs (June 2010)	Unknown
Shell/Arrow	Unknown	Unknown	Unknown
LNG Impel	Unknown	Unknown	Unknown

It is likely that the Project development will instigate or contribute to future developments in the area that may collectively have cumulative and/or significant social impacts. The relevant projects listed above have the potential to cause change processes and social impacts similar to those invoked by the Project.



It will be important for GPC and proponents of operating facilities within the Western Basin to work closely with the Gladstone Community to minimise these impacts where possible.

The potential cumulative impacts caused by the change processes listed above include:

Impacts Related to Construction Activities

Road Safety

Increased traffic volumes and increases in heavy vehicle movements caused by the various projects' construction activities may reduce road safety for drivers and passengers on the local road network particularly along common transport corridors such as Landing Road.

Marine Safety

The cumulative construction works may impact on the safety of recreational and commercial marine activities, particularly where industrial equipment is used in close proximity to recreational and commercial fishing areas.

Impacts Related to Project Workforces

Provision of housing and social services

While the Western Basin Project's component of the cumulative workforce will be minor, the overall cumulative workforces may be significant in relation to the Gladstone community. The concurrent presence of a number of large scale project construction workforces may cause an increased demand for social services, increased demand for housing, increase in house prices and a subsequent crowding out of affordable housing. Should these potential cumulative impacts not be appropriately managed there is a potential for their effect to be significant.

Project employment and business opportunities

The Project has the potential to contribute to cumulative employment and business impacts by enabling further industrial expansion. Local, state and national economies may benefit from the Project and any subsequent project developments.

Impacts Related to Biophysical Changes to the Environment

Loss of Recreational and Natural Areas

The Western Basin Reclamation and relevant related projects will lead to a loss of natural and recreational areas within Gladstone Harbour and land areas on Curtis Island and the surrounding mainland.

In addition, the various projects will involve construction exclusion zones, exclusion zones around constructed berths and facilities and marine exclusion zones around an increased number of industrial ships accessing the Western Basin area. There is a potential for various exclusion zones to be operating simultaneously. This will further reduce access to recreational and natural areas and thus significantly reduce areas available for recreational activities.



Increased Industrial Focus of the Area

As the Project's purpose is to provide for the future development of the port and GSDA, it is inevitable that this will increase the industrial focus of the area.

Any increase in industrial focus may affect the level and nature of public use of the area, particularly for those groups who visit the site and adjacent areas for the purpose of environmental appreciation or recreation. Users already experience prominent industrial developments found in neighbouring areas and therefore may be sensitive to any increase in the industrial focus of the area. Previous industrial developments in the local area have also caused some concern in neighbouring communities such as Targinnie, Mt Larcom and Yarwun.

The broader Project Area is however, already experiencing an increase in the level of industrial activity as a result of ongoing development. There are broad areas zoned for future industrial use as part of the GSDA. It is likely that some industrial growth of the area will continue regardless of the Western Basin project, particularly as initiatives such as the Materials Transport Corridor come online.

Reduced Viability of Commercial Fishing

The viability of commercial fishing in the Western Basin and broader Gladstone Harbour may be affected by cumulative impacts from various projects in addition to the direct impacts caused by the Western Basin dredging and dredge material disposal activities. The Gladstone LNG Project EIS recognises the potential for impacts on commercial fishers caused by the construction of its LNG facility on Curtis Island (Santos Limited 2009).

The most direct cumulative impacts will likely come as a result of exclusion zones around LNG port facilities and marine exclusion zones around an increased number of industrial ships accessing the Western Basin area. There is a potential for various exclusion zones to be operating simultaneously. This will further reduce access to commercial fishing sites and transit routes within the Western Basin.

4. Social Impact Management Plan

This section recommends mitigation and monitoring strategies for the social impacts identified above. It also recommends a framework for the management of cumulative social impacts in collaboration with other project proponents.

The purpose of the mitigation and management measures is to:

- ▶ Maximise potential positive social impacts;
- ▶ Avoid significant adverse impacts in the first place;
- ▶ Minimise significant adverse impacts, where they cannot be avoided; and
- ▶ Consider community offsets/compensation for significant impacts that cannot be reduced to an acceptable level.

In addition, a monitoring strategy is proposed, which will seek to quantify and measure the expected social impacts caused by the project.

Management and mitigation responses to social impacts were identified in response to the terms of reference and rely on the previous identification and assessment of impacts. Input to the monitoring and management responses was sought via consultation with key stakeholders and discussions within the EIS team. These strategies and actions are recommended to be incorporated in detailed construction planning and ongoing management of the Project.

4.1 Mitigation Plan

The most significant negative impacts identified above relate to the loss of recreational and natural areas, the reduced viability of commercial fishing, and the potential health and safety hazards caused by the project. Significant positive impacts include employment and increased local business opportunities related to the construction phase of the project. The mitigation plan will therefore focus on communicating project activities, reducing the risk of accidents and maximising local employment and local spend. Table 21 provides an outline of the proposed mitigation measures for each of the impacts identified in the previous section.

Table 21 Mitigation of Social Impacts

Potential Social Impact	Relevant Stakeholder Group	Recommended mitigation measures/management responses
Health and Social Wellbeing		
Reduced safety on land	Road users	GPC and contractor OH&S procedures.
	Workers in nearby businesses	Implement appropriate signage near project site, quarry and along haul route.
	Recreational users of area	Communicate updates to bund construction activities through GPC communication channels and local media.



Potential Social Impact	Relevant Stakeholder Group	Recommended mitigation measures/management responses
Reduced marine safety	Recreational and commercial fishers Other users of Western Basin	GPC and contractor OH&S procedures. Establishment of appropriate marine exclusion zones, and other measures such as navigational markers. Erect signage with project information at Auckland Creek and Calliope river boat ramps. Communicate update to dredging activities through GPC communication channels and local media, with particular attention to notification of mariners.
Economic Impacts and Material Wellbeing		
Employment	Gladstone community Project workers and their families	Prioritise local employment in recruitment where possible. Include appropriate levels of local recruitment as a condition for engaging contractors, where possible.
Business opportunities	Local businesses Gladstone community	Provide a higher rating for contractors who commit to higher local spend when engaging contractors.
Impact on commercial fishing	Commercial fishers	Commercial fishing offsets are not directly addressed in this EIS. Should monitoring establish a loss of fish catch directly linked to the Project, a coordinated approach involving local commercial fishers, representative bodies (such as the Queensland Seafood Industry Association) and relevant State Government agencies (such as the Queensland Primary Industries and Fisheries section of DEEDI) may be established to review direct and cumulative impacts. GPC will participate in the fore mentioned process and in any future negotiations lead by the Queensland State Government as part of the management of commercial fishing impacts in the Western Basin of the Port.
Property values and marketability	Current and aspiring property owners	No significant impacts expected.
Quality of the Living Environment		
Noise, dust and vibration	Gladstone community	Establishment of appropriate exclusion zones. Noise, dust and vibration mitigations measures to be included as part of the project's EMP.
Visual amenity/aesthetic quality	Gladstone community Recreational users of western basin	Landscaping and planting of Reclamation Area and mound.

Potential Social Impact	Relevant Stakeholder Group	Recommended mitigation measures/management responses
Loss of natural and recreational areas	Recreational users of the area Environmental groups Indigenous groups Gladstone Community	Provide access points for safe recreation areas during the construction and communicate the location of these access points and areas to user groups and potential visitors. This could be through signage at public access points. Signage should also describe the project, project timeline and what the reclamation site will look like after construction. GPC may consider measures that help to offset/minimise impacts on recreational fishers based on the likely loss of recreational fishing sites associated with the Project. This would require a coordinated approach involving local recreational fishers, representative bodies and relevant State Government agencies; and may consider broader cumulative recreational fishing impacts. GPC will participate in any future negotiations lead by the Queensland State Government as part of the management of recreational fishing impacts in the Western Basin of the Port.
Increased demand for housing	Gladstone Community	Impact is expected to be minor.
Increased demand for services	Gladstone Regional Council Government departments	Communicate workforce numbers to GRC and service providers in advance.
Cultural impacts		
Reduced access to culturally important areas and landscapes	Local Indigenous groups	Identify culturally important areas, and work in conjunction with the PCCC and individuals to maintain or develop alternative access where possible. Proponent to continue to develop their relationship with the PCCC and explore opportunities to further build the capacity and role of this group.
Impacts on community values and aspirations	Community expressing employment and development values Community expressing conservation values	Implement an appropriate public information program describing the project and highlighting proposed benefits. Identify areas that can be used for environmental education in collaboration with local environmental groups. (These measures should address environmental values and communicate the purpose and benefits of the project, to help improve the public perception of the project).
Family and community impacts		
Change in demographic structure of the local community	Gladstone Community	Impact is likely to be minor.
Reduced community cohesion	Gladstone Community	Impact is likely to be minor.
Institutional, legal, political and equity impacts		
Formation of opinions and attitudes about the project	GPC	Communicate project updates regularly to general community. Keep Community Working Group updated.

4.1.1 Cumulative Social Impact Management

The projects identified in Table 27 as relevant potential contributors to cumulative social impacts are likely to cause change processes and social impacts similar to those invoked by the Project. Consultations with the Queensland Department of Infrastructure and Planning's Social Impact Assessment Unit revealed a preference for the development and implementation and a cooperative and strategic approach to managing these cumulative social impacts from an early stage. Suggestions centred on the development of an expert group or panel and community consultation.

Under such an approach the expert group would initially be involved in brainstorming potential cumulative impacts. The community or representative stakeholder group¹² would then provide input on the proposed impacts, allowing proponents to access local knowledge and gauge public opinion. The expert group would then identify impacts that require further investigation or information. Key components of this approach include the consideration of other social planning initiatives that may be occurring and the ability for the broader community to see where their input has lead to increased benefit or effective impact management and mitigation.

Monitoring cumulative social impacts should also be a collaborative effort involving all relevant project proponents and community representatives. Details of a cumulative social impacts monitoring framework should be worked out in collaboration with other project proponents, service providers and key stakeholders.

4.2 Social Monitoring Plan

The social monitoring plan recommended below consisting of a framework for monitoring and quantifying change processes and related social impacts directly caused by the Project.

4.2.1 Monitoring Direct Social Change

Due to the large number of projects likely to occur in the same timeframe as the Projects it is difficult to establish causal relationships between a social impact and a single project. The proposed monitoring framework will therefore focus on quantifying the expected social change processes directly caused by the project. Table 22 shows the expected change processes, the proposed monitoring framework, and quantitative standards for each of the elements of the framework.

Table 22 Social Change Process Monitoring Framework

Change Process	Monitoring method	Quantitative standards
Construction activities	OH&S reporting to monitor safety incidents	Number and severity of incidents LTI
	Complaints monitoring	Number of complaints
	Financial reporting	Total spend on local services Local spend as percentage of total spend

¹² Community representation may be made up of key stakeholders, such as commercial and recreational fishers, who are likely to be most impacted by the proposed projects.



Change Process	Monitoring method	Quantitative standards
Construction workforce	Payroll data	<p>Size of workforce per month/quarter</p> <p>Total workforce pay per month/quarter</p> <p>Number and percentage of workforce recruited:</p> <ul style="list-style-type: none"> ▶ locally ▶ regionally ▶ nationally/internationally
	Workforce surveys	<p>Number and percentage of workers:</p> <ul style="list-style-type: none"> ▶ Living in their place of usual residence ▶ Accessing local rental accommodation ▶ Lodged on vessels ▶ Using other accommodation ▶ Commuting short/long distances
Biophysical changes	Environmental monitoring	See Environmental section of EMP



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Appendix A

Methodology for assessing impact significance



Introduction

The following section describes the process that was undertaken for assessing the significance of potential social impacts.

A social impact significance matrix was employed as the main tool for identifying the significance of the potential social impacts. The matrix is a table which lists and describes the various impacts (costs and benefits) that have been identified as possibly resulting from the proposed project. The table does not weight impacts against each other, rather they are simply displayed to paint a picture of the impacts and allow an overall discussion regarding the proposal. The significance matrix also identifies priority areas for mitigation/management actions (Stanley, Clouston, and Binney, 2004).

The completion of the social impact significance matrix involves the following components:

Identification of Impacted Stakeholders

This considers the stakeholders likely to be impacted by the proposed project. The stakeholder groups are not ranked but used for descriptive purposes only. Information used by the SIA Team to make this decision is based on desk based research and consultations activities.

Likelihood / Consequence Rating

This involves an assessment of the likelihood and consequence of each social impact identified during the project scoping process (refer to Table 23). It is important to remember here that the consequence refers to the *consequence on the impacted stakeholder*. Information used by the SIA Team to assess these components is drawn from desk based research and consultations with SIA stakeholders.

Table 23 Assessment of likelihood and consequence of social impact

Likelihood of Social Impact	Consequence of Social Impact				
	Insignificant	Minor	Moderate	Major	Extreme
Certain	Low	Medium	High	Excessive	Excessive
Very Likely	Low	Medium	High	High	Excessive
Likely	Low	Low	Medium	High	Excessive
Possible	Negligible	Low	Medium	High	High
Unlikely	Negligible	Low	Low	Medium	High
Very Unlikely	Negligible	Negligible	Low	Medium	High

Likelihood of social impact

Likelihood considers the confidence the SIA Team has in the chance of the social impact occurring, refer to Table 24.



Table 24 Descriptions of likelihood

Likelihood	Description
Certain	The identified social impact will definitely occur (100%)
Very likely	There is a 75% certainty that the impact will occur.
Likely	The identified social impact is likely to occur (60% certain)
Possible	It is possible for the social impact to occur (40% certain)
Unlikely	The identified social impact is unlikely to occur (25% certain)
Very unlikely	It will be very unlikely for the social impact to occur (5% certain)

Consequence of social impact

Table 25 provides a description as to the consequence of a social impact. The proposed description has tried to remain neutral, allowing a social impact to have a rating scale to feature both positive and negative impacts. As the consequence refers to the consequence on the impacted stakeholder, it is not possible to provide an exhaustive definition for each rating. Rather the proposed description consists of indicative criteria for a number of stakeholder groups.¹³

Table 25 Consequence of the social impact

Rating	Indicative criteria
Extreme	<i>Individuals and families:</i> Death and serious injury, disability, personal bankruptcy, severe stress and mental illness, severance of strong connections to places and communities. Extreme improvement to the circumstances of most families and individuals or major improvement to the circumstances of all families and individuals.
	<i>Businesses:</i> Bankruptcy, close down of business. Extreme improvement to most local businesses or major improvement all local businesses.
	<i>Communities:</i> Tensions leading to widespread violence, rapid geographic change of large proportion of local area, rapid large scale population changes such as relocation of majority of population, destruction of cultural objects of large significance. Extreme positive changes to circumstances of most community members.
	<i>Project proponent:</i> Multiple fatalities caused by project, improvement or damage to the project's reputation at a nation wide level, positive or negative media coverage at the state level by more than one source.
Major	<i>Individuals and families:</i> Injury, serious illness, severe financial hardship, long term unemployment, severance of connections to places and communities, severe stress. Major improvement to the circumstances of most families and individuals or moderate improvement to the circumstances of all families and individuals.
	<i>Businesses:</i> Severe financial hardship, large noticeable impact to business in terms of changing revenue, number of employees. Major improvement to most local businesses or moderate improvement to all local businesses.

¹³ While every reasonable care has been taken to remain neutral, the indicative criteria are still likely to exhibit a bias related to the context in which they have been developed. It is therefore important to remember that they constitute a professional judgement based on the experience of the SIA team. Groups of stakeholders may assign different ranks to the criteria identified.



Rating	Indicative criteria
	<p><i>Communities:</i> Large scale social tensions, rapid geographic and social change to a significant proportion of area or population, rapid change to way of life or, profanisation of important cultural objects. Major positive changes to circumstances of the majority of community members.</p> <p><i>Project Proponent:</i> Single fatality or permanent major disability of a member of the public or construction workforce, improvement or damage to the project's reputation at the local level, positive or negative media coverage at the state level by one source or local level by more than one source. Proliferous calls from dissatisfied or supportive stakeholders.</p>
Moderate	<p><i>Individuals and families:</i> Recoverable but long term illness, severe nuisances and disruptions, short term financial hardship, short term unemployment, disruption to family life or stress. Moderate improvement to the circumstances of most families and individuals or minor improvement to the circumstances of all families and individuals.</p> <p><i>Businesses:</i> Short term financial hardship, noticeable impacts to business in terms of changing revenue, number of employees. Moderate improvements to most local businesses or minor improvements to all local businesses.</p> <p><i>Communities:</i> Localised or occasional social tension, geographic change to part of the area, social change to small proportion of community such as relocation of a minority of community, loss of some important areas/buildings such as parks and meeting places. Moderate positive changes to the circumstances of most community members.</p> <p><i>Project proponent:</i> Recoverable accidents, improvement or damage to the project's reputation, positive or negative media coverage at the local level by more than one source, several calls from dissatisfied or supportive stakeholders.</p>
Minor	<p><i>Individuals and families:</i> Short term recoverable illness, manageable nuisances and disruptions, changing employment situations (but not deteriorating), easily manageable stress. Minor improvement to the circumstances of most families and individuals or insignificant improvement to the circumstances of all families and individuals.</p> <p><i>Businesses:</i> Changing but not deteriorating business conditions, practical challenges with minor financial implications. Minor improvement to most local businesses.</p> <p><i>Communities:</i> Social tension between individual members of community, social or geographic change to small part of community. Minor positive changes to the circumstances of most community members.</p> <p><i>Project proponent:</i> Incident leading to medical treatment, improvement or damage to the project's reputation within industry, positive or negative media coverage at the local level, calls from a few dissatisfied or supportive stakeholders.</p>
Insignificant	<p><i>Individuals and families:</i> Minor nuisance or disruptions, no accidents or illness.</p> <p><i>Businesses:</i> Practical challenges, no financial implications. Insignificant improvement to local businesses.</p> <p><i>Communities:</i> Harmoniously managed social changes, localised (very small proportion of community) change to geographic or social set up.</p> <p><i>Project proponent:</i> On site first aid incident, improvement or damage to the project's reputation, no media coverage, no calls from dissatisfied or supportive stakeholders.</p>

If the likelihood/consequence rating identifies the impact to be negligible, further assessment is not undertaken. Where the likelihood/consequence rating result is 'low' to 'excessive' (as opposed to being 'negligible') a further assessment is carried out incorporating status, frequency, duration, spatial extent, mitigatory potential and acceptability of the impact.



Status of Impact

The status of the impact considers whether the impact is positive, negative or neutral. The same impact can have a different status on different stakeholders. Information used by the SIA Team to make this decision is based on desk based research and consultations with SIA stakeholders.

Duration

The duration of the impact refers to how long the social impact will potentially occur for (the timeframe of impact), refer to Table 26. The duration of the impact is a key criteria in determining whether a social impact is significant or not (Stanley, Clouston, and Binney, 2004).

Information used by the SIA Team to make this decision is based on desk based research and consultations with SIA stakeholders.

Table 26 Duration of social impact

Rating	Proposed Description
Long	Permanent effects or lasting beyond project construction
Short	Effects lasting only during project construction phase

Spatial Extent

This considers the geographical scale of the proposed impact. The social impacts of the project may be felt at the local, regional, or state/national level, refer to Table 27. The scale and site of the development are key criteria in determining whether a social impact is significant or not. Information used by the SIA Team to make this decision is based on desk based research and consultations with SIA stakeholders.

Table 27 Extent or Spatial Scale of the social impact

Rating	Proposed Description
State/National	Impact occurring at state or national level
Regional	Impact occurring mainly in the regional study area
Local	Impact occurring mainly in the local study area
Site	Impact occurring within the site area

Mitigatory potential

The potential to mitigate the negative impacts and enhance the positive impacts is determined for each social impact, refer to Table 28. Information used by the SIA Team to make this decision is based on desk based research and consultations with SIA stakeholders.

This step allows for the identification of residual impacts, i.e. impacts that persist after mitigation measures are taken into account. This test is the critical measure of whether or not the proposed project is likely to cause significant social impacts.



The listing of mitigatory potential in the social impact significance matrix informed the consideration of potential mitigation and management measure to allow for the avoidance or minimisation of potential negative impacts and maximisation of any identified positive impacts. This process helps to identify priority impacts for the project's Environmental Management Plan (EMP).

Table 28 Mitigatory potential of the social impact

Rating	Description
Low	<p>Limited mechanism for the Project Team to mitigate the negative social impact. Mitigatory measures could involve 100% responsibility of another entity or group of entities (e.g. local, State or Commonwealth Government).</p> <p>Little or no mechanism for the Project Team to enhance positive social impact, could involve 100% responsibility of another entity or group of entities e.g. local, State or Commonwealth Government).</p>
Medium	<p>Potential for the Project Team to mitigate negative social impact. However, the implementation of mitigation measures may still not prevent some negative effects. Mitigatory measures could be the responsibility of both the Project Team and other entities or group of entities (e.g. local, State or Commonwealth Government) to implement the mitigation strategy.</p> <p>Potential to enhance positive impacts. However, the implementation of enhancement measures may not lead to fulfilling the potential of the positive impact. It will be the responsibility of both the Project Team and other entities or group of entities (e.g. local, State or Commonwealth Government) to implement the enhancement strategy.</p>
High	<p>High potential for the Project Team to mitigate negative social impact to the level of insignificant effects could include 100% responsibility of the Project Team to mitigate negative social impact. No involvement from another entity or group of entities e.g. local, State or Commonwealth Government) required.</p> <p>High potential for the Project Team to enhance positive social impact. No involvement from another entity or group of entities e.g. local, State or Commonwealth Government) is required.</p>

Acceptability

Establishing the acceptability of a potential social impact is as important as determining its significance. A social impact identified as being non-significant by a specialist may be unacceptable to a particular stakeholder or stakeholder group. On the other hand, a significant impact may be acceptable if, for example, adequate management of the impact is put in place.

The level of acceptability depends on the stakeholders, particularly those directly impacted. This section of the Process is critical in the SIA consultation, so stakeholders can inform the specialist of their views on the acceptability of the social impact. Information used by the SIA Team to make this decision is based on desk based research and consultations with SIA stakeholders.

Ratings that can be used for acceptability are provided in



Table 29.



Table 29 Acceptability of the social impact

Rating	Proposed Description
Low	SIA stakeholders have indicated their lack of willingness to accept the social impact and/or indicated their intent to apply political pressure to any level of government to remove such impacts.
Medium	SIA stakeholders have indicated their willingness to accept the social impact if there is appropriate mitigation/enhancement strategies in place and supported by the Project Team.
High	SIA stakeholders have indicated their willingness to accept and/or promote the social impact or did not identify the impact as a concern.



Appendix B

Impact Significance Matrix



Table 30 below summarises the impacts identified in Section 3. It shows the impacts and affected stakeholders and assigns a significance rating to each impact. Where the likelihood/consequence has been determined to be negligible, no further analysis has been made.

The impacts have been identified and significance assessed based on analysis of a variety of sources, including a review and analysis of the local area profile, technical information from other EIS disciplines and the project proponent, consultation with stakeholders and a review of academic literature.

Impacts have been assessed following the methodology and criteria outlined in Appendix A. It is acknowledged that assigning significance to an impact includes determining how stakeholders will respond to certain change. As such, it is not an exact or certain science, but rather an informed estimate based on reliable sources.

Table 30 Summary of identified potential social impacts

Impact	Stakeholder	Likelihood	Consequence	Likelihood/ Consequence Rating	Status of Impact	Duration	Spatial Extent	Mitigatory Potential	Acceptability
Health and social wellbeing									
Reduced road safety	Road users, Workers in nearby businesses, Recreational users	Unlikely	Extreme	High	Negative	Short	Local	High	Medium
Reduced marine safety	Recreational and commercial fishers, Other users of Western Basin	Unlikely	Extreme	High	Negative	Short	Site	High	Low
Economic and material wellbeing									
Employment	Gladstone and regional communities	Certain	Minor	Medium	Positive	Short	Regional	N/a	High



Impact	Stakeholder	Likelihood	Consequence	Likelihood/ Consequence Rating	Status of Impact	Duration	Spatial Extent	Mitigatory Potential	Acceptability
Business opportunities	Local businesses	Very likely	Moderate	High	Positive	Short	Local	N/a	High
	Gladstone community	Very likely	Minor	Medium	Positive	Short	Local	N/a	High
Impacts on commercial fishing	Commercial fishers	Very likely	Moderate	High	Negative	Long	Local	Low	Low
Increased demand for housing	People seeking to access rental accommodation	Likely	Minor	Low	Negative	Short	Local	Medium	Medium
	People seeking to let out rental accommodation	Likely	Minor	Low	Positive	Short	Local	Medium	Medium
Property values and marketability	Current and aspiring property owners	Unlikely	Insignificant	Negligible	N/a	N/a	N/a	N/a	N/a
Quality of the living environment									
Noise, dust and vibration	Gladstone Community	Unlikely	Minor	Low	Negative	Short	Site	High	High
Visual amenity/aesthetic quality	Gladstone community	Likely	Insignificant	Low	Negative	Long	Local	Low	Medium
	Commercial and recreational fishers	Certain	Minor	Medium	Negative	Long	Site	Low	Medium
	Other users of the Western Basin								



Impact	Stakeholder	Likelihood	Consequence	Likelihood/ Consequence Rating	Status of Impact	Duration	Spatial Extent	Mitigatory Potential	Acceptability
Loss of natural and recreational areas	Recreational users; Environmental groups; Indigenous groups; Gladstone Community	Certain	Moderate	High	Negative	Long	Site	Low	Low
Increased demand for services	Gladstone Regional Council; Government departments	Possible	Insignificant	Negligible	N/a	N/a	N/a	N/a	N/a
Cultural impacts									
Reduced access to culturally important areas and landscapes	Indigenous community	Likely	Moderate	Medium	Negative	Long	Site	Low	Low
Impacts on community values and aspirations	Community expressing employment and development values	Likely	Minor	Low	Positive	Short	Local	N/a	High
	Community expressing conservation values	Likely	Moderate	Medium	Negative	Long	Local	Low	Low



Impact	Stakeholder	Likelihood	Consequence	Likelihood/ Consequence Rating	Status of Impact	Duration	Spatial Extent	Mitigatory Potential	Acceptability
Family and community impacts									
Changes to demographic structure of local community	Gladstone community	Possible	Minor	Low	Neutral	Short	Local	N/a	High
Reduced community cohesion	Gladstone community	Possible	Minor	Low	Negative	Short	Local	Low	High
Institutional, legal, political and equity impacts									
Formation of opinions and attitudes about the project	Proponent, Gladstone community, Environmental groups, Commercial fishers, Recreational users, Indigenous community	Very Likely	Moderate	High	Negative	Long	Regional	Medium	Low



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