5 SOCIAL IMPACT ASSESSMENT FOR PIPELINE – BANANA REGION COMMUNITIES

This chapter describes an assessment of social impacts conducted for the Pipeline Component of the Queensland Curtis LNG (QCLNG) Project as required under Terms of Reference (TOR) set down for this Environmental Impact Statement (EIS).

5.1 SCOPE OF PROJECT ACTIVITIES

The Pipeline Component of the QCLNG Project includes the Export Pipeline, Collection Header and Lateral Pipeline. The Export Pipeline will extend 380 km north-east from the Gas Field near Miles to Gladstone, traversing through Western Downs, Banana, North Burnett and Gladstone Local Government Areas (LGAs). The 150-km gas Lateral Pipeline will extend south-east from the Fairview Gas Field (west of Taroom) to the export pipeline, approximately 110 km from Miles. The Collection Header, a 200 km pipeline connecting gas production in the gas field is addressed in *Chapter 4*.

The Pipeline routes avoid all major townships and will be situated mainly in areas where the land has been cleared and used for agricultural purposes. Localities that will be in close vicinity to the Pipeline Component network include:

- Taroom, Banana Shire
- Cracow, Banana Shire
- Biloela, Banana Shire
- Mount Alma, Gladstone.

Elements of the Project activities which have particular relevance to the social environment are outlined below.

5.1.1 Construction activities

Construction of the Export Pipeline is expected to commence in Q1 2011 and be completed within 18 months.

The expected construction sequence for the Export Pipeline will be as follows:

- delivery of pipe from wharf or domestic supplier to construction site

  Haulage of construction material is expected to commence in December 2010 and end in May 2012. Extended semi-trailers will be used to transport construction material and will operate 24 hours, seven days a week, except in areas where transport restrictions may apply. Materials will be hauled predominantly from Gladstone using the Dawson Highway (46A and 46B), Burnett Highway (41D), and Leichhardt Highway.

- construction of the Right-of-Way (RoW) and laydown areas

  Construction of the Export Pipeline will involve the clearing of a construction RoW typically 40 m wide along the length of the Export Pipeline but up to 100 m wide in places (due to terrain).

Additional clearing and work areas will be required at major watercourse crossings, construction camps and in areas of complicated construction such as the crossing of The Narrows in Gladstone Harbour.

Laydown areas will be required during the construction period to cater for pipe delivery and storage. These laydown areas may occur every 5 km to 10 km along the Export Pipeline corridor and occupy an area of around 50 m x 50 m.

- trenching, pipe stringing and placement of the pipe in the trench

  The Export Pipeline will typically be laid and backfilled at any one location within a period of up to 15 days. A wheel trencher, rocksaw or excavator will be used to dig the trench in which the pipe will be placed. In areas of hard rock, small-scale blasting may be required.

- burial of the pipe in the ground

  Once trenching is complete the pipeline can be laid at a rate of between 500 m and 3 km per day with crew work areas being separated by several days. Three work crews (collectively referred to as a "spread") are likely to be used to construct the Export Pipeline.

- establishment of above-ground ancillary facilities, including mainline valves, scraper stations, compressor stations, marker posts, cathodic protection systems and metering facilities
- rehabilitation of the land
- testing and commissioning of the pipelines.

Construction workforce

A total of 500 workers will be required during the construction, approximately 10 per cent of whom will be non-manual staff, and the remaining, skilled manual workers. The personnel will work on a roster of nominally 21 days on, seven days off.

Construction camps

Due to the predominantly rural and remote nature of the proposed Pipeline Component network, three temporary workers' camps will be constructed at various points. Each camp will be located to keep distance from work of up to 70 km.

Specific locations for camps are yet to be identified and will be subject to the relevant planning approvals and by-laws.

5.1.2 Operational phase

Operational activities for the Pipeline Component will include regular monitoring to ensure no interference from third parties, cathodic protection mechanisms are functioning correctly, and revegetation, erosion protection and weed management are successfully implemented in accordance with

environmental authority conditions. Pipelines will be regularly surveyed by aerial and/or ground inspections.

It is anticipated that an operational workforce of up to 20 people will be employed for direct management and monitoring of the Pipeline Component network. Employees will be housed locally in Gladstone and other towns within the Project area.

5.2 EXISTING SOCIAL ENVIRONMENT IN THE PIPELINE REGION – BANANA SHIRE COMMUNITIES

For the purpose of this assessment the Pipeline Component region includes communities within Banana Shire LGA.[1]

Banana Shire is located in Central Queensland, approximately 120 km west of Gladstone. It is sparsely populated, with around 16,000 residents spread across 28,577 km^2. The location of Banana Shire and major towns within the region is presented in *Figure 8.5.1*. Biloela is the main population and administration centre, with other important urban centres being Moura, Theodore and Taroom.[2] Other smaller centres include Banana, Baralaba, Dululu, Goovigen, Jambin, Thangool, Wowan and Cracow.

The shire is relatively well serviced, with 11 schools providing community hubs in towns across the region, four public hospitals, a TAFE college and a comprehensive range of sporting, educational and community facilities. Residents have over 470 sporting and recreational groups to choose from as well as a variety of outdoor options including national parks, gorges, rivers, and heritage and tourist parks. These areas provide a range of recreational opportunities such as fishing and boating in the Callide Dam and Dawson River. Lake Callide is an important part of the Bass to Barra Trail, a popular freshwater fishing trail which passes through the Gladstone, Bundaberg, Fraser Coast and South Burnett regions.[3]

As noted in the preamble to the Coordinator-General's Regional Growth Management Framework:

> *"Central Queensland region is recognised for its liveability. Its combination of natural resources, areas of high conservation value, and the region's economic potential and liveability presents Central Queensland with infrastructure and economic opportunity unparalleled in Australia"*

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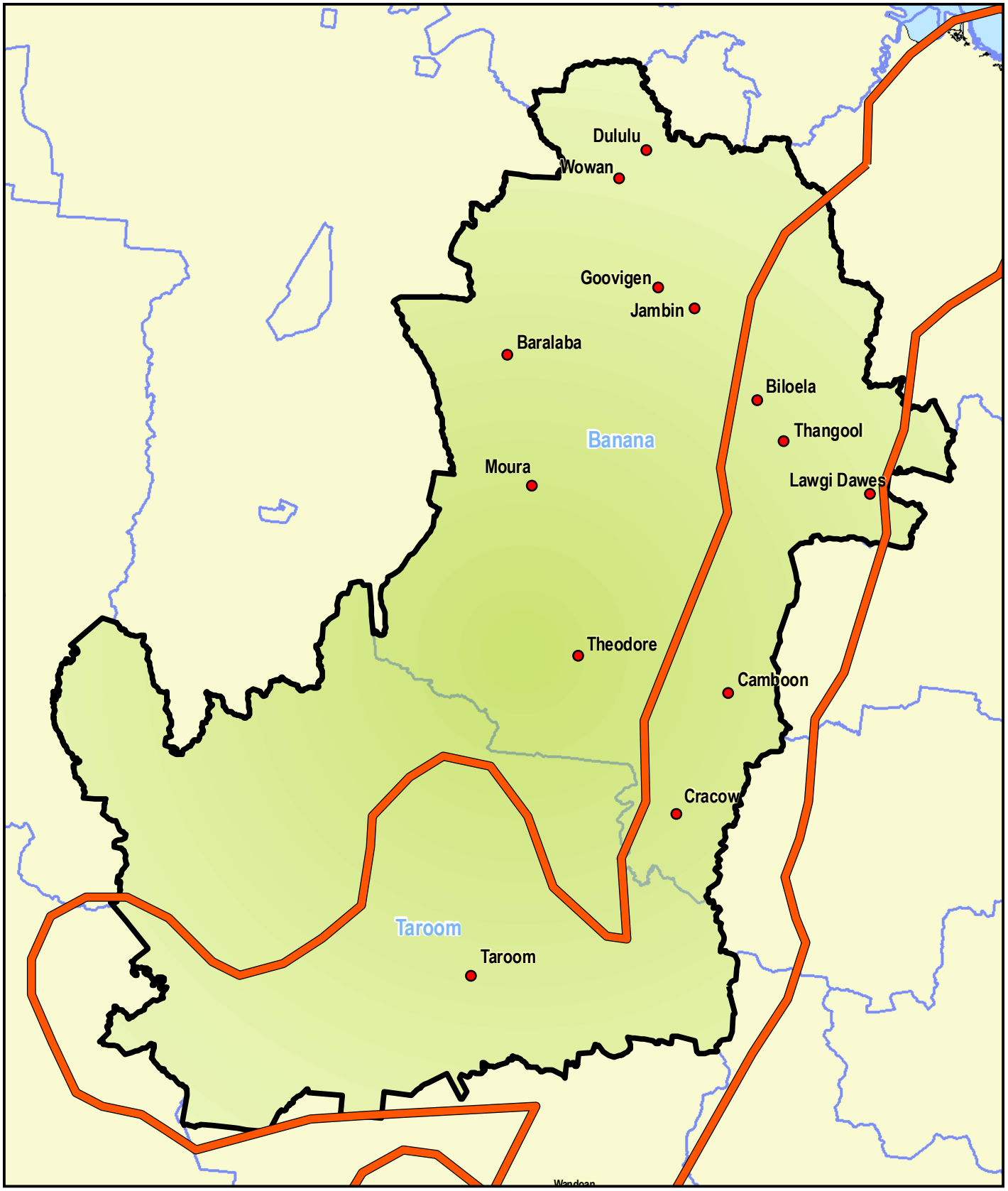
1 This definition was formed on the basis that the Lateral Pipeline and most of the Export Pipeline will pass through Banana Shire LGA. Impacts of the Project, including the Export Pipeline, on communities in Western Downs and Gladstone LGAs are addressed in the Gas Field and LNG Facility Social Impact Assessments (*Section 4* and *Section 6)*. Depending on the final alignment of the pipeline, further assessment of communities within other LGAs may required.

2 Banana Shire LGA changed its boundaries in 2006 following local government amalgamations and includes the following statistical divisions: Banana SLA and Division 1 of Taroom SLA.

3 http://www.gladstoneregion.info/pages/banana-shire/, Accessed 16 January 2009; http://au.travel.yahoo.com/great-outdoors/australia/queensland/gladstone-region/bass-to-barra-fishing-trail-queensland.html, Accessed 19 January 2009



Legend

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

Source Note:
ABS (Australian Bureau of Statistics) 2006

Projection: UTM MGA Zone 56 Datum: GDA 94

0 7.5 15 30 km

N

QUEENSLAND CURTIS LNG A BG Group business	Project Queensland Curtis LNG Project		Title Banana Regional Council Area and Population Centres
	Client QGC - A BG Group business		
ERM Environmental Resources Management Australia Pty Ltd	Drawn JB	Volume 8 Figure 8.5.1	Disclaimer: Maps and Figures contained in this Report may be based on Third Party Data, may not to be to scale and are intended as Guides only. ERM does not warrant the accuracy of any such Maps and Figures.
	Approved PM	File No: 0086165b_EIS_SIA_GIS001_F8.5.1	
	Date 17.03.09	Revision 1	

The towns and localities in Banana Shire have a strong rural character, and over the past 30 years have also benefited from mining and power generation. They share many of the traditional values evident in the gas field communities – family values, an outdoor lifestyle, and cohesive communities. There is also a shared focus on economic development and diversification to ensure that sustainable local industries are developed to support the local population and slow the movement of young people to the urban centres.

The following sections provide a more detailed overview of social conditions and values present in Banana Shire and, where relevant, comparison to broader regional indicators.

5.2.1.1 Social and cultural profile

The boundaries of Banana Shire LGA changed in 2006 to include part of the Taroom Council. This new boundary was not based on existing Australian Bureau of Statistics (ABS) collection districts and therefore assumptions have been made to estimate the division of Taroom LGA. For the purposes of this analysis Banana Shire LGA comprises the Banana Statistical Local Area (SLA) and Division 1 of Taroom SLA.

5.2.1.2 Population size and settlement pattern

Banana Shire had a total estimated population of 15,953 people in 2007. The area is sparsely populated with only 27 km^2 of a total of 28,577 km^2 considered urbanised. It comprises two SLAs, Banana with a population of 14,037 and Division 1 of Taroom with a population of 1,916.

The main population centre in Banana Shire is the town of Biloela which had a population of 5,727 in 2007. Other urban centres include Moura and Taroom, which had populations of 2,022 and 628 respectively in 2007. Smaller centres in the shire include Banana, Baralaba, Dululu, Goovigen, Jambin, Thangool, Wowan and Cracow.

5.2.1.3 Population growth

Banana Shire LGA reported a negative population growth rate from 2001 to 2007 of -0.6 per cent. As shown in *Table 8.5.1*, Division 1 of Taroom SLA had the lowest average growth rate, at -1.2 per cent, well below the average growth rate for Queensland (2.4 per cent) and the Darling Downs and Fitzroy statistical divisions (1.4 per cent and 2 per cent respectively).

Table 8.5.1 Population Growth: 2001–2007

Region	Estimated Population			Average Growth Rate (%) 2001 to 2007
	2001	2006	2007	
Banana SLA	14,448	14,224	14,037	-0.5%
Division 1 of Taroom SLA	2,061	1,964	1,916	-1.2%
Banana Shire LGA	16,509	16,188	15,953	-0.6%
Fitzroy Statistical Division (SD)	181,747	200,604	204,537	2.0%
Darling Downs SD	210,351	227,074	229,254	1.4%
South West SD	27,002	26,408	26,161	-0.5%
Queensland	3,628,946	4,091,546	4,182,062	2.4%

Source: Australian Bureau of Statistics (2008a), Australian Bureau of Statistics (2007a), Australian Bureau of Statistics (2003), AEC*group*.

Population projections from 2006 to 2026 for Banana Shire LGA predict a reversal of this trend and indicate an average positive growth rate of 0.2 per cent, to give an estimated total population of 16,790 by 2026. *Figure 8.5.2* shows the predicted change in population growth in Banana LGA from 2006 to 2026.

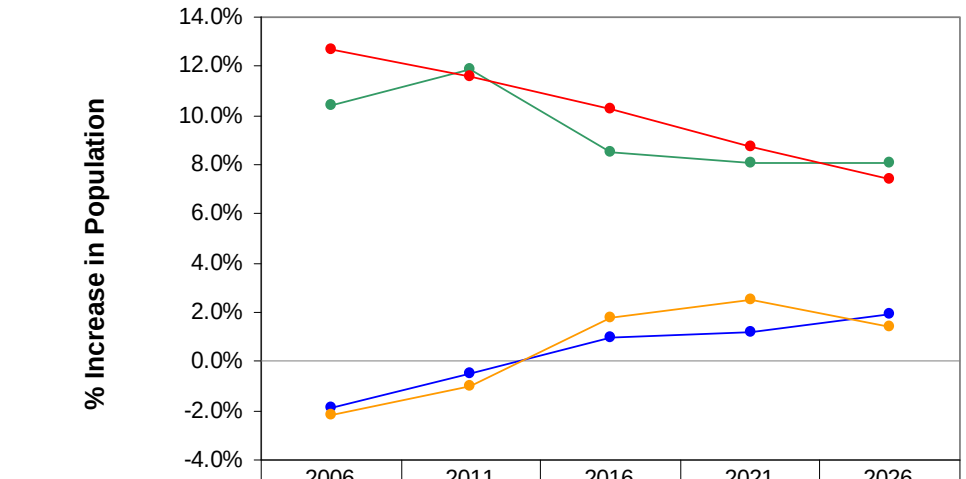
In Banana SLA, population growth is expected to increase slightly during each five-year interval from 2006 to 2026. In Division 1 of Taroom SLA population growth is expected to decrease slightly from 2006 to 2011 before continuing to increase from 2011 to 2026.

5.2.1.4 Gender and Age Profile

Gender distribution in the Pipeline Component area was relatively even across the different age cohorts. The exception to this is in the 15 to 29 years and 45 to 64 years cohorts which have slightly higher proportions of males than females. In the remaining cohorts, the proportions of males were similar to or slightly below that of females (refer to *Table 8.5.2*).

As shown in *Figure 8.5.3*, the age profile shows a distinct dip in the 15-29 age groups, reflecting the loss of young people to other regions for employment and tertiary study.

Figure 8.5.2 Change in population growth: 2006–2026



	2006	2011	2016	2021	2026
Banana Shire LGA	-1.9%	-0.5%	1.0%	1.2%	1.9%
South West SD	-2.2%	-1.0%	1.8%	2.5%	1.4%
Fitzroy SD	10.4%	11.9%	8.5%	8.1%	8.1%
Queensland	12.7%	11.6%	10.3%	8.7%	7.4%

Note: The 2006 population growth rate is based on percentage increase or decrease from 2001.
Source: Queensland Department of Infrastructure and Planning (2008), Australian Bureau of Statistics (2008a), AEC*group*.

5.2.1.5 Household type and structure

Average household size for Banana Shire dropped from 2.7 to 2.6 from 2001 to 2006, in line with the Queensland average.

Household structure in the Pipeline Component area was relatively consistent with state averages in 2006. Couple families with children made up just over a third of households in Banana LGA, while couple families without children represented just under a third of households. The proportion of lone-person households was 24 per cent, slightly higher than the Queensland average of 22 per cent. The proportion of single-parent households is lower, at 8 per cent, than the State average of 12 per cent.

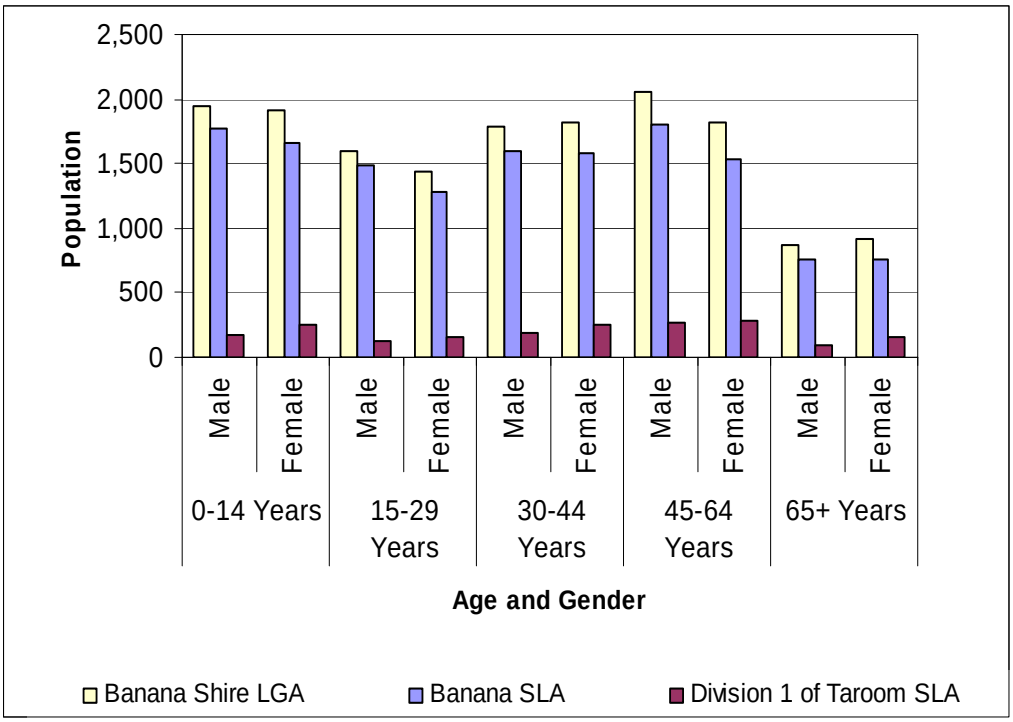
Division 1 of Taroom SLA reported a much higher proportion of lone-person households and a lower proportion of single-parent households than Banana SLA and Queensland.

Table 8.5.2 Gender and Age Profile: 2006

Region	0–14 Years		15–29 Years		30–44 Years		45–64 Years		65+ Years		Total		Total
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Banana SLA	1,773	1,661	1,480	1,288	1,598	1,577	1,796	1,532	763	756	7,410	6,814	14,224
Division 1 of Taroom SLA	175	254	126	155	194	249	268	286	100	157	863	1,101	1,964
Banana Shire LGA	1,948	1,915	1,606	1,443	1,792	1,826	2,064	1,818	863	913	8,273	7,915	16,188
Fitzroy SD	23,852	22,358	20,732	19,491	21,853	21,763	25,572	23,140	10,340	11,503	102,349	98,255	200,604
Darling Downs SD	25,761	24,498	21,605	21,252	21,545	23,048	28,128	28,715	14,698	17,824	111,737	115,337	227,074
South West SD	3,228	3,017	2,413	2,283	2,882	3,001	3,398	3,012	1,555	1,619	13,476	12,932	26,408
Queensland	433,708	411,459	416,365	409,535	434,772	456,169	509,916	513,607	233,317	272,698	2,028,078	2,063,468	4,091,546
Australia	2,107,489	1,997,514	2,099,039	2,051,834	2,212,965	2,309,185	2,560,876	2,605,497	1,236,511	1,520,578	10,216,880	10,484,608	20,701,488

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

Figure 8.5.3 Age and Gender Profile – Banana LGA: 2006



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

Table 8.5.3 Household structure: 2006

Region	Couple Family Children	Couple Family Without Children	Single Parent	Lone Person	Group	Other Household
Banana SLA	35%	30%	8%	23%	3%	1%
Division 1 of Taroom SLA	31%	31%	5%	29%	3%	1%
Banana Shire LGA	35%	30%	8%	24%	3%	1%
Fitzroy SD	34%	29%	11%	22%	3%	1%
Darling Downs SD	31%	30%	10%	24%	3%	1%
South West SD	32%	28%	9%	26%	3%	1%
Queensland	32%	29%	12%	22%	4%	1%
Australia	33%	27%	11%	24%	4%	1%

Note: Percentages may not sum to 100 per cent due to rounding.
Source: Australian Bureau of Statistics (2007a).

5.2.1.6 *Indigenous population*

Based on data from the 2006 ABS Census of Population and Housing, there were 431 people in Banana SLA and 35 people in old Taroom LGA who were of Aboriginal or Torres Strait Islander origin (refer to *Table 8.5.4)*. The majority of indigenous persons in Banana SLA identified themselves as Aboriginal (403 persons) followed by Torres Strait Islander (17 persons) and both Aboriginal and Torres Strait Islander (11 persons). In old Taroom LGA (prior to integration with Banana Shire), 26 persons identified themselves as Aboriginal, six persons as Torres Strait Islander, and three persons as both Aboriginal and Torres Strait Islander.

Banana SLA had a higher proportion of indigenous persons than old Taroom LGA, at 3.23 per cent of the total population. This was consistent with the Queensland average of 3.3 per cent. Old Taroom LGA recorded the highest average annual indigenous population growth rate between 2001 and 2006 of 38 per cent per annum, increasing from a population of seven people in 2001 to 35 people in 2006. However, the proportion of the total population that was of indigenous origin was still low as of 2006, at 1.47 per cent of the total population.

Further analysis of indigenous demography is provided in *Chapter 7.*

Table 8.5.4 Indigenous Population, Pipeline Region: 2006

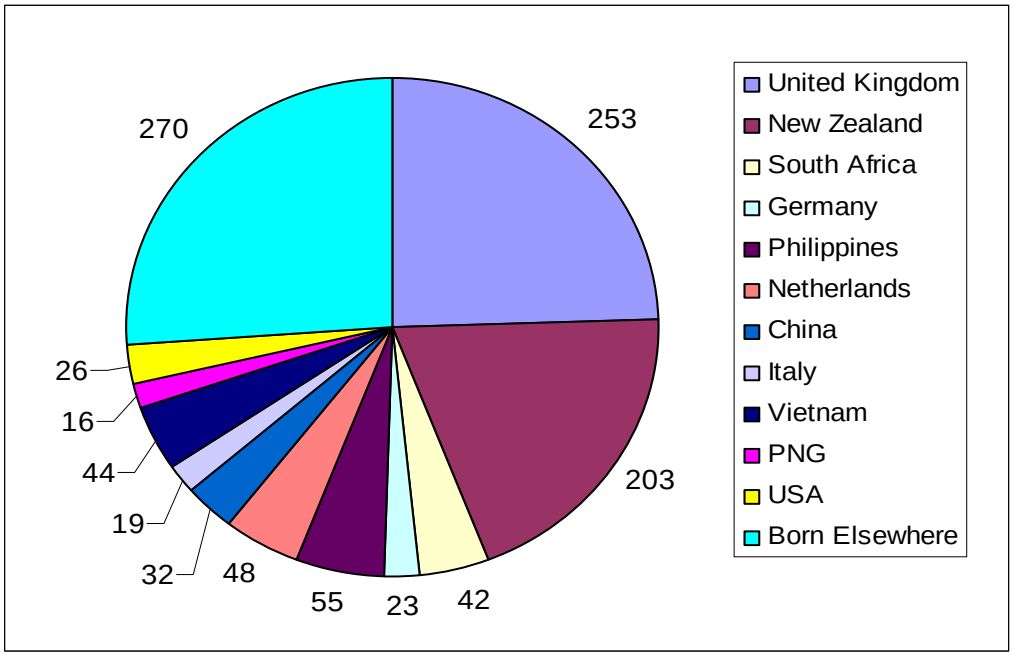
Region	Estimated Population		Ave Growth Rate (%)
	2001	2006	2001 to 2006
Old Taroom LGA	7	35	38%
Banana SLA	373	431	2.9%
Fitzroy SD	7,836	8,918	2.6%
Darling Downs SD	5,524	6,531	3.4%
South West SD	2,597	2,736	1.0%
Queensland	112,772	127,578	2.5%
Australia	410,003	455,031	2.1%

5.2.1.7 *Country of Origin*

The proportion of people born overseas in the Banana LGA is low, particularly in Division 1 Taroom SLA where only 2 per cent of the population was identified as born overseas in 2006. Banana SLA derived 6 per cent of its population from overseas.

Of those people born overseas and living in Banana Shire LGA, just under half were from the United Kingdom and New Zealand. Following these two nationalities, the largest groups were from the Philippines (55), Netherlands (48), Vietnam (44), and South Africa (42).

Figure 8.5.4 Country of origin, Banana LGA: 2006



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

5.2.1.8 Education

School-level Educational Participation

In 2006, there were 1,460 primary school students and 730 secondary school students in the Banana LGA. Secondary students were more likely to be enrolled in a state school than primary school students (96.3 per cent of total students for secondary school compared to 75 per cent of total students for primary school) which likely reflects the lack of private secondary school facilities in the region.

Banana LGA had a higher proportion (64%) of preparatory, primary and secondary school students than Queensland (54%) in 2006. As shown in *Table 8.5.5,* the decline in persons between the 10 to 14 and 15 to 19 years cohorts was substantial for Banana LGA, at -24 per cent, and most likely reflects the movement of young people to more urbanised areas in search of work or further education.

Table 8.5.5 Distribution of school-age children in Pipeline area: 2006

Region	5–9 years (Prep–Yr 4)	10–14 years (Yr 5–Yr 9)	15–19 years (Yr 10–Yr 12)	Total
Banana SLA	1,179	1,106	855	3,140
Division 1 of Taroom SLA	142	149	94	385
Banana Shire LGA	1,321	1,255	949	3,525
Fitzroy SD	15,437	16,361	14,580	46,378
Darling Downs SD	16,530	17,883	16,439	50,852
South West SD	2,235	1,934	1,476	5,645
Queensland	280,748	295,028	283,247	859,023
Australia	1,364,645	1,426,239	1,414,739	4,205,623

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

Student destinations

The proportion of school students entering full-time work in Banana LGA was higher than in more urbanised areas such as Gladstone. Those Year 12 students who found employment in the Banana LGA were more likely to be in full-time work than part-time work.

Participation in vocational education and training (VET) courses (Certificate I+) at Biloela State High School was consistent with the Queensland average, accounting for around 10 per cent of total Year 12 student destinations in 2006. Entering an apprenticeship or traineeship was a common destination, accounting for approximately 10 per cent at Biloela State High, with apprenticeships the more common of the two.[4]

Post school-level education

Banana LGA recorded very few full-time technical students in 2006 and of those who were attending these institutions most studied part-time and were aged 25 years and over.

The proportion of people attending university or other tertiary institutions was also low in Banana LGA, accounting for only 4 per cent of total enrolled students (compared to 12 per cent for Queensland). As with technical education, most university students were aged 25 years and over and studying part-time in 2006. This was in contrast to other major regional centres and Queensland where most students were aged 15 to 24 years and studying full-time.

The proportion of people in Banana LGA who had a Bachelor Degree or higher was approximately half the state average (7 per cent compared to 13 per cent). Similarly, a lower proportion of people in Banana had a Diploma compared to Queensland and other major regional centres and statistical

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

divisions (see *Table 8.5.6*).

The proportion of people in Banana LGA with a certificate qualification was in line with the Queensland average, at 18 per cent.

Table 8.5.6 Post-school qualifications: 2006

Region	Bachelor Degree or Higher	Diploma	Certificate
Banana SLA	8%	4%	18%
Division 1 of Taroom SLA	5%	3%	12%
Banana Shire LGA	7%	4%	18%
Fitzroy SD	9%	5%	19%
Darling Downs SD	10%	6%	17%
South West SD	8%	5%	15%
Queensland	13%	7%	18%
Australia	16%	7%	17%

Note: By place of usual residence.
Source: Australian Bureau of Statistics (2007a), AEC*group*.

5.2.1.9 SEIFA Index of Economic Resources

The Socio-Economic Indices for Areas (SEIFA) is a comparative tool that shows the level of advantage and disadvantage in an area (refer to Section 4.3.1.9 for a more detailed description). As shown in *Table 8.5.7,* Banana Shire LGA (1,018.2) reported economic resources scores above the Queensland benchmark, most likely due to the level of resources contributed by the mining industry. High levels of employment and incomes generated from the mining and construction industries are a key component of economies in the Banana region.

Table 8.5.7 SEIFA Index of economic resources

Region	Score	Rank of SLA in Queensland	Percentile of SLA in Queensland
Banana SLA	1,018.7	282	60
Division 1 of Taroom SLA	1,014.3	272	58
Banana Shire LGA	1,018.2	n/a	n/a
Fitzroy SD	995.3	n/a	n/a
Darling Downs SD	992.3	n/a	n/a
South West SD	983.0	n/a	n/a
Queensland	1,000.0	n/a	n/a

Source: Australian Bureau of Statistics (2007a), Office of Economic and Statistical Research (2008), AEC*group*.

5.2.1.10 *Population stability*

Banana Shire's population was very stable from 2001 to 2006, with almost 70 per cent of residents remaining at the same address or relocating within the same LGA.

The shire reported negative annual net migration from 2002 to 2005. However, the gap between in- and out-migration did decline during this period and a positive net migration figure was reported in 2006. The change may reflect increased employment opportunities in the area and/or households seeking an affordable lifestyle. Migration is expected to remain positive given the projected population growth in Banana Shire in the coming decades (refer to *Section 5.2.1.3*).

5.2.1.11 *Need for assistance*

The Core Activity Need for Assistance is a measure of the number of people with a profound or severe disability. It includes people who require help or assistance in one or more of the three core activity areas of self care, mobility and communication because of a disability, and/or long-term health condition or old age.

The percentage of the population requiring assistance with core activities in Banana Shire in 2006 was 2.7 per cent. This was lower than figures reported for Australia (4 per cent) and Queensland (3.8 per cent) and may reflect the younger populations of some SLAs in the Banana region.

In Banana SLA, only 2.6 per cent of the population (or 363 persons) required core activity assistance, while the proportion of people requiring assistance in Division 1 of Taroom SLA was slightly higher than the Queensland average, at 4 per cent (or 75 persons).

5.2.1.12 *Internet Access*

Internet access is an important indicator for assessing community capacity and wellbeing. It is dependent on a number of factors including affordability, availability of internet connections and service providers, socio-economic characteristics of the population (e.g. income and family composition) and general interests and capabilities of internet users.

In 2006, the total proportion of households in Banana LGA with access to the internet was 57.4 per cent which was slightly lower than the Queensland average of 62.8 per cent[5]. Less than half the total households (48.3 per cent) in old Taroom LGA had access to the internet during the same period. This is consistent with general internet usage trends which show that major cities and regional areas generally have higher internet access compared to rural and remote areas, particularly broadband access. Broadband access accounted for approximately half of all internet connections in Banana LGA but only 21.7

5 ABS (2007): ibid, Table B35

per cent in old Taroom LGA. [6]

5.2.2 Labour force and employment

5.2.2.1 Working population

In 2006, there were 11,788 people of working age in Banana LGA (refer to *Table 8.5.8*). Males of working age accounted for 39 per cent of the total population, while females of working age accounted for 37 per cent of the total population. These figures differed slightly from Queensland which had a higher proportion of people of working age (at 79 per cent of total population) and a higher proportion of working-age females to working-age males (40 per cent compared to 39 per cent). The differences highlight Banana Shire's young population and dominance of traditionally male-oriented employment sectors such as agriculture and mining.

Table 8.5.8 Working-age population by gender: 2006

Region	Working Age Population			% of Total Population		
	Male	Female	Total	Male	Female	Total
Banana SLA	5,295	4,840	10,135	40%	36%	76%
Division 1 of Taroom SLA	741	912	1,653	35%	43%	78%
Banana Shire LGA	6,036	5,752	11,788	39%	37%	76%
Fitzroy SD	73,723	71,281	145,004	39%	38%	77%
Darling Downs SD	80,933	85,512	166,445	38%	40%	78%
South West SD	9,616	9,303	18,919	39%	38%	76%
Queensland	1,521,496	1,576,501	3,097,997	39%	40%	79%
Australia	7,777,909	8,140,173	15,918,082	39%	41%	80%

Note: By usual place of residence.
Source: Australian Bureau of Statistics (2007a), AEC*group*.

In Division 1 of Taroom SLA a higher proportion of females were of working age than males, with working-age females accounting for 43 per cent of the total population and working-age males 35 per cent. This was in contrast to Banana SLA where a higher proportion of working-age males to females was reported (refer to *Table 8.5.8*). Differences in employment opportunities available in the region are likely to be a contributing factor.

6 http://www.ausstats.abs.gov.au/ausstats/free.nsf/0/1B7DD59C9E8F52ECCA2573A1007EE8DA/$File/8146055001_2006.pdf, Accessed 30 March 2009.

5.2.2.2 *Employment and Unemployment*[7]

As shown in *Table 8.5.9,* there were 7,912 employed persons in Banana Shire LGA in 2006, approximately 60 per cent of whom were male.

Nearly 60 per cent of total employed persons in Banana Shire were aged 35 to 44 years in 2006, which was in line with Queensland and Australia (refer to*Table 8.5.10*).

At 36 per cent, the proportion of the workforce under 35 years of age in Banana Shire LGA was slightly lower than the Queensland average of 39 per cent. Division 1 of Taroom SLA had an older workforce with over 70 per cent of the total workforce aged 35 years and over, compared to 63 per cent for Banana SLA and 61 per cent for Queensland.

Table 8.5.9 Employment and Unemployment by Gender: 2006

Region	Employed Persons			Unemployment Rate (%)		
	Male	Female	Total	Male	Female	Total
Banana SLA	4,086	2,803	6,889	2.0%	2.9%	2.4%
Division 1 of Taroom SLA	577	446	1,023	1.5%	2.0%	1.7%
Banana Shire LGA	4,663	3,249	7,912	2.0%	2.8%	2.3%
Fitzroy SD	49,840	37,787	87,627	3.9%	5.2%	4.5%
Darling Downs SD	52,820	43,944	96,764	4.2%	4.8%	4.5%
South West SD	7,019	5,701	12,720	2.9%	3.1%	3.0%
Queensland	984,568	840,429	1,824,997	4.4%	5.1%	4.7%
Australia	4,911,133	4,193,052	9,104,185	5.2%	5.3%	5.2%

Note By usual place of residence.
Source: Australian Bureau of Statistics (2007a), AEC*group*.

7 The ABS Census of Population and Housing defines employment as 'all persons aged 15 years and over who, during the reference week: (1) worked for payment or profit or (2) as unpaid workers in a family business, or (3) had a job from which they were on leave or otherwise temporarily absent'.

Unemployment is defined as 'all persons 15 years of age and over who were not employed during the reference week, and: (1) had actively looked for full-time or part-time work at any time in the four weeks up to the end of the reference week and were available for work in the reference week; or (2) were waiting to start a new job within four weeks from the end of the reference week and could have started in the reference week if the job had been available then.'

http://www.abs.gov.au/AUSSTATS/abs@.nsf/7d12b0f6763c78caca257061001cc588/F714CB617DE0D662CA2572C100244B9A?opendocument, Accessed March 30, 2009.

Table 8.5.10 Employment by Age (%): 2006

Region	15-24	25-34	35-44	45-54	55-64	65+	Total
Banana SLA	17%	20%	24%	22%	12%	5%	100%
Division 1 of Taroom SLA	13%	16%	24%	25%	16%	7%	100%
Banana Shire LGA	16%	20%	24%	23%	12%	5%	100%
Fitzroy SD	19%	20%	24%	23%	11%	2%	100%
Darling Downs SD	18%	18%	23%	23%	14%	4%	100%
South West SD	16%	20%	24%	21%	14%	5%	100%
Queensland	18%	21%	24%	22%	13%	2%	100%
Australia	17%	21%	24%	23%	13%	2%	100%

Note By usual place of residence.
Source: Australian Bureau of Statistics (2007a), AEC*group*.

Banana Shire had the lowest rate of unemployment in the Project area, at 2.3 per cent, which was half the Queensland rate of 4.7 per cent. Division 1 of Taroom SLA had very low levels of unemployment, at 1.7 per cent.

As shown in *Table 8.5.9*, the unemployment rate for females was higher than males in Banana LGA in 2006 but still much lower than unemployment rates for Queensland and other major regional centres. The unemployment rate for females in Banana Shire was 2.8 per cent which was much lower than the Queensland unemployment rates (5.3 per cent for females and 4.4 per cent for males).Table 8.5.11 highlights the level of unemployment by age. Unemployment in Banana Shire was highest among persons aged 15 to 24 years of age, however unemployment figures in the Shire were significantly lower compared to Queensland and other areas of the Project. Unemployment in the 15 to 24-year age group was 4 per cent in 2006, which was half the rate of Queensland and the Fitzroy and Darling Downs SDs.

Unemployment rates in the Banana Shire were lowest in the 45 to 54-year and 65+ year cohorts.

Table 8.5.11 Unemployed persons by age: 2006

Region	15-24	25-34	35-44	45-54	55-64	65+	Total
Banana SLA	4.0%	3.3%	1.8%	1.3%	2.0%	1.4%	2.4%
Division 1 of Taroom SLA	4.4%	5.4%	0.0%	0.0%	1.8%	0.0%	1.7%
Banana Shire LGA	4.0%	3.5%	1.6%	1.1%	1.9%	1.2%	2.3%
Fitzroy SD	8.1%	4.7%	3.5%	2.9%	3.6%	1.4%	4.5%
Darling Downs SD	8.6%	5.0%	3.7%	2.8%	3.0%	1.0%	4.5%
South West SD	6.1%	3.8%	2.3%	1.9%	1.9%	0.5%	3.0%
Queensland	8.9%	4.6%	3.8%	3.2%	3.6%	1.8%	4.7%
Australia	10.2%	5.1%	4.3%	3.6%	4.0%	1.9%	5.2%

Note By usual place of residence. Percentages may not sum to 100% due to rounding.
Source: Australian Bureau of Statistics (2007a).

There were more employment positions in Banana SLA in 2006 than residents in the workforce, resulting in a net inflow of workers. This was in contrast to old Taroom LGA where there were more residents in the workforce than employment positions (refer to *Table 8.5.12*).

Table 8.5.12 Percentage of resident workforce: 2006

Region	Employment Positions In Region	Residents In the Workforce	Employment Positions As a % of Resident Workforce
Old Taroom LGA	1,223	1,336	109.2%
Banana SLA	7,196	6,889	95.7%
Division 1 of Taroom SLA	N/a	N/a	N/a
Banana Shire LGA	N/a	N/a	N/a
Fitzroy SD	81,930	87,627	107.0%
Darling Downs SD	90,049	96,764	107.5%
South West SD	12,152	12,720	104.7%
Queensland	1,737,619	1,824,997	105.0%

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

In 2006, the proportion of people in full-time employment compared to part-time employment within Banana Shire LGA was higher than the Queensland average (refer to *Table 8.5.13*). Banana Shire had the highest level of full-time employment in the Project area, at 76 per cent. At SLA level, Division 1 of Taroom SLA had the highest levels of full-time employment at 77 per cent, followed closely by Banana SLA with 76 per cent.

Table 8.5.13 Employment tenure: 2006

Region	Full Time	Part Time	Total	Total persons
Banana SLA	76%	24%	100%	6,889
Division 1 of Taroom SLA	77%	23%	100%	1,023
Banana Shire LGA	76%	24%	100%	7,912
Fitzroy SD	73%	27%	100%	87,627
Darling Downs SD	69%	31%	100%	96,764
South West SD	75%	25%	100%	12,720
Queensland	69%	31%	100%	1,824,997

Note: By place of usual residence. Percentages may not sum to 100 per cent due to rounding.
Source: Australian Bureau of Statistics (2007a).

5.2.2.3 Employment by Industry

The industry profile in Banana LGA is typical of a rural setting which accommodates resource development in Queensland, with the main sectors of employment in 2006 being agriculture (19 per cent) and mining (14 per cent). Retail trade was the third most common industry of employment at 10 per cent, followed by manufacturing (7 per cent), education (6 per cent) and health and community services (6 per cent). Only 5 per cent of people in Banana Shire reported working in the construction industry in 2006. Employment in manufacturing and construction was more common in Banana SLA, accounting for 8 per cent and 6 per cent of total employment respectively in 2006 (compared to 1 per cent and 2 per cent in Division 1 of Taroom SLA).

Agriculture was the dominant form of employment in Division 1 of Taroom SLA, at 77 per cent, with employment in remaining industries ranging from zero to 4 per cent (refer to *Table 8.5.14*).

5.2.2.4 Income

In 2006, average weekly individual income in Banana Shire LGA was $700 per week, which was slightly higher than the Queensland and national averages. Average household income was also high at $1,313 per week.

Table 8.5.14 Employment by Industry, Banana Shire: 2006

Industry	Agriculture, Forestry and Fishing	Mining	Manufacturing	Electricity, Gas and Water Supply	Construction	Wholesale Trade	Retail Trade	Accommodation, Cafes and Restaurants	Transport and Storage	Communication Services	Finance and Insurance	Property and Business Services	Government Administration and Defence	Education	Health and Community Services	Cultural and Recreational Services	Personal and Other Services	Total
Banana SLA	18%	16%	8%	4%	6%	3%	11%	4%	3%	1%	1%	6%	3%	6%	6%	0%	2%	100%
Division 1 of Taroom SLA	77%	1%	1%	0%	2%	1%	2%	0%	3%	1%	0%	2%	3%	4%	3%	0%	0%	100%
Banana Shire LGA	19%	14%	7%	3%	5%	3%	10%	4%	3%	1%	1%	5%	4%	6%	6%	0%	2%	100%
Fitzroy SD	6%	7%	11%	2%	9%	4%	14%	5%	6%	1%	2%	7%	4%	8%	9%	1%	3%	100%
Darling Downs SD	13%	1%	11%	1%	8%	4%	15%	4%	4%	1%	3%	6%	6%	9%	11%	1%	3%	100%
South West SD	27%	2%	6%	1%	5%	3%	12%	5%	4%	1%	1%	3%	8%	7%	10%	1%	3%	100%
Queensland	4%	2%	11%	1%	9%	5%	15%	5%	5%	1%	3%	10%	6%	8%	11%	2%	4%	100%

Note: Percentages may not sum to 100% due to rounding.
Source: Australian Bureau of Statistics (2007a)

At SLA level, average weekly individual income in Banana was $719 per week, which was almost $200 higher than the average reported for Division 1 of Taroom SLA ($556 per week). Average household income was also much higher in Banana SLA than Division 1 of Taroom SLA ($1,360 per week compared to $994 per week in Division 1 of Taroom SLA). In the case of Taroom this disparity can be explained by the higher proportion of individuals and households who are employed in the agricultural industry where incomes are comparatively lower.

Average industry income in Banana LGA was $876 per week which was above the averages reported for Queensland and Australia. The highest income in Banana LGA was reported in the mining industry at $1,687 per week. Employment in the mining industry undoubtedly plays an important role in contributing to the overall economy of the area, with most other industries reporting a much lower average income. The average weekly income in the agricultural industry was $696 per week. Retail trade had the lowest average industry income in Banana LGA, at $494 per week.

5.2.3 Community Health and Safety

5.2.3.1 Introduction

The World Health Organisation defines health as "a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity".[8] There are a range of individual, social, cultural, economic, institutional and environmental factors that together determine the health status of individuals and populations. Those factors or characteristics that bring about a change in health, either for the better or for the worse, are defined as health determinants.[9]

The following section focuses on social determinants of health and safety including access to health services, employment levels, housing adequacy, vulnerable groups, social capital, crime and perceptions of safety risks.

5.2.3.2 Health Status

Health determinants for Queensland were published by the Queensland Government in 2004, and are summarised below:

- The life expectancy of Queenslanders born in 1999 to 2001 was 76.9 for men and 82.5 for women, similar to that of Australia. Australia has one of the highest life expectancies in the world
- Death rates due to coronary heart disease in Queensland are the highest of the Australian states
- In recent years, more Queenslanders are experiencing diabetes

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

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

- Health behaviours such as tobacco smoking, physical inactivity, poor nutrition and behaviours contributing to obesity and high blood pressure are a sizeable proportion of the total burden of disease

The major causes of death and illness in Banana Health Service District (HSD) include: coronary heart disease, stroke, chronic obstructive pulmonary disease, depression and lung cancer.[10]

The preventable morbidity factors which are currently more prevalent in Banana HSD than Queensland as a whole are believed to be[11]

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

Hospital admissions

Data for hospital admissions are available at the level of the Central Queensland HSD which includes both Pipeline and LNG Facility communities. In 2006–07 (the most recent local-level data available), this district had over 39,000 hospital admissions, of which 45.3 per cent were for day-only procedures compared with 47.2 per cent at the State level. During the same year, the district serviced over 469,000 non-admitted occasions of care, and handled 2,146 births.[12] The top-10 diagnostic groups for the HSD were related to births, injuries in those over 60, chest pain, digestive system disorders, dental problems, colonoscopy and antenatal and other obstetric admissions.[13]

More detailed information about health status was not available. However, status can be qualitatively inferred from the determinants outlined below.

5.2.3.3 *Social Determinants of Health*

Health determinants are typically based on broad socio-demographic characteristics. In general, compared to Queensland as a whole, Banana HSD (which includes the Pipeline communities) has[14]:

10 Queensland Government (2004): Health Determinants Banana Shire Health Services District

11 Queensland Government (2004) Health Determinants Queensland 2004 Banana Health Service District

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

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

14 Queensland Government (2004) Health Determinants Queensland 2004 Toowoomba Health Service District.

- a higher proportion of children
- a higher proportion of men
- projected increase in older population
- projected population decline.

The health issues and their determinants described above are likely to be exacerbated by the combined effect of socio-economic disadvantage and rurality in this and other districts.

Health Infrastructure and Services

Dispersed rural settlement patterns always provide a challenge to equitable access to health services. Banana Shire is the least populated of all LGAs in the study area and has the most dispersed settlement pattern.

Banana Shire has one public hospital and four rural community health centres. Most hospital referrals are to regional centres in Gladstone, Rockhampton and Toowoomba. Full details of the available health infrastructure and services are detailed in *Section 5.2.5.4*.

Housing adequacy

Generally, there is an adequate stock of housing for the population and the proportion of dwellings that are owned or being purchased is similar to the Queensland average. At 33 per cent, there has been significant growth in rent in Banana LGA over the last five years, although less than the state average of 42 per cent. Median house prices grew dramatically to 2006, after which time the rate of growth fell, with little or negative growth in 2008. As at late 2008, house prices in traditionally more affordable towns are now similar to urban prices.

A high proportion of low-income families reported housing stress in 2006, at 28.3 per cent. This is the lowest level of reported housing stress in the study area, but is nevertheless a significant issue.

Social Capital

Communities with strong social capital, that is where there is enjoyment of social relationships and community connections, high levels of volunteerism, active community groups, and a prevalence of people helping each other, generally have a higher level of health and wellbeing.

As described in more detail in Community Values, *Section 5.2.4,* the Pipeline communities have high social capital. A broad survey of residents found that the overall sentiment of the community is positive, with almost all survey respondents feeling that they live in a safe and friendly community.[15] Many respondents regarded community spirit and involvement within the community as the best aspects of living in the area.

15 Banana Shire Council (2008) Survey of Residents, http://www.banana.qld.gov.au/docs/publications/470626_BSC_Survey_by_CQU.pdf, Accessed December 2008

In the 2006 Census, 20.2 per cent of residents in Banana Shire LGA reported that they contributed unpaid time to local organisations or groups. This level of volunteering is considerably above the State level (14.6 per cent).[16]

Recreational Participation

Physical activity has a direct impact on health outcomes, and recreational facilities and opportunities are major contributors to promoting a healthier community. The local council actively promotes outdoor activities such as picnicking, camping, bushwalking, fishing, boating and water skiing.[17] However, access is impeded to some of these attractions and facilities due to the large distances involved and the lack of public transport in these communities.

Vulnerable Groups

This section presents baseline data on vulnerable groups in the general population, as defined by the Queensland Government. The impact analysis will then consider the vulnerability of these groups, that is, whether they have the potential to be disproportionately affected by the Project activities.

The types of groups most likely to be disproportionally impacted by the Project are presented in *Table 8.5.15*.[18] They include:

- young people aged to 14 years
- seniors aged 65 years and over
- low-income earners
- unemployed people
- people with a disability
- people who speak a language other than English at home.

Children are generally considered vulnerable because of their dependency on adults and undeveloped physical and mental abilities. Young people make up the largest vulnerable group in Banana LGA, with almost a quarter of the total population aged up to 14 years in 2006. The proportion was almost 5 per cent higher than for Queensland and Australia, highlighting the shire's young population.

16 ABS (2007): Census QuickStats by Location and 2006 Census Community Profiles by Location, ABS, Canberra, www.abs.gov.au/websitedbs/D3310114.nsf/Home/Census+Data, Accessed September 2008.

17 Banana Regional Council www.banana.qld.gov.au Accessed September 2008.

18 Note: Statistics in Table 8.5.15 were taken from ABS 2006 Community Profiles, so population figures may not be consistent with similar figures presented in earlier sections of this chapter. The 2006 ABS general profiles are based on previous local government area divisions.

Table 8.5.15 Vulnerable Groups in Banana LGA, 2006

Vulnerable Group	Age 0-–14 years		Age 65 years +		Low income[1]		Unemployment[2]		PWD[3]		LOTE[4]		Total Population
Location	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Banana LGA	3,230	24.2	1,425	10.7	314	2.4	167	2.4	363	2.7	323	2.4	13,361
Queensland	806,532	20.7	482,891	12.4	92,756	2.4	90,950	4.7	154,707	4.0	303,096	7.8	3,904,532
Australia	3,937,212	19.8	2,644,374	13.3	538,515	2.7	503,804	5.2	821,649	4.1	3,146,196	15.8	19,855,288

Source; ABS (2007): *2006 Census Community Profiles by Location*, ABS, Canberra, www.abs.gov.au/websitedbs/D3310114.nsf/Home/Census+Data Accessed September 2008.

Notes:

1. Income of $299 or less a week.
2. Unemployed people over 15 years, looking for work. Percentage is based on the labour force, not the total population.
3. People with a disability.
4. Language other than English spoken at home.

Elderly people tend to be more vulnerable to change as they already experience higher rates of illness and disability, isolation due to lack of transport options or poor mobility and fixed incomes which do not allow them to spend on private health care. Banana LGA shows slightly lower levels of people aged 65 years or over than the state average.

People who are socio-economically disadvantaged experience poorer health and shorter life expectancy than the rest of the population. They are at a disadvantage because they cannot access quality health services including lack of access to leisure and active health pursuits, lack of disposable income for health issues and inability to afford private transport to facilitate mobility to access health facilities.

Approximately 2 per cent of the population of Banana Shire fall into the low-income group, a level similar to the state and national averages. Income data, combined with data such as educational qualifications and occupation, assists in evaluating the economic opportunities and socio-economic status of an area. Banana LGA had a fairly high SEIFA score indicating lower levels of relative disadvantage than other localities within the Project area, most likely due to higher incomes and fewer people in unskilled occupations.[19]

People with a disability tend to have poorer long-term health, and restricted employment opportunities and consequently fewer financial resources to maintain their quality of life. In 2006, 2.7 per cent of residents in Banana LGA reported needing assistance to perform their daily activities, compared with 4 per cent for Queensland.

The proportion of the population that speaks a language other than English (LOTE) at home is indicative of the cultural diversity of a population and the level of difficulty that language barriers may pose to accessing services. The proportion of people in the Pipeline community who reported speaking LOTE was low, at 2.4 per cent (compared to the state and national average of 4 per cent). The most commonly spoken languages other than English were Portuguese, Vietnamese, Greek and Afrikaans. Low numbers may also suggest greater isolation and less access to information and necessitate a more innovative way to provide support.

Safety

Communities in the Pipeline region are typically small and enjoy the benefits of safety and security often associated with living in a small town. A survey by Banana Shire Council found that the majority of residents in Banana Shire consider it a safe place to live, where the people are friendly and the sense of community make it ideal for raising a family (refer to *Section 5.2.4.2*).

Reported crime can be an indicator of community security, an essential element of quality of life. Communities in the Pipeline region lie within the Roma and Gladstone Police Districts. The crime statistics of these districts

19 Australian Bureau of Statistics (ABS) (2006): *Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia,* - Data only, Cat. No. 2033.0.55.001, ABS, Canberra www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/2033.0.55.0012006?OpenDocument Accessed September 2008.

are detailed in *Table 8.5.16*. Statistics are not available at a more local level.

With the exception of sexual offences in the Roma district, offences against the person declined in Gladstone and Roma districts from 2000 to 2008. Sexual offences in the Roma district decreased by almost 50% from 2000-01 (146 reported offences) to 2005-06 (85 reported offences), but increased again from 2005-06 to 2007-08 (190 reported offences). Offences against properties also declined in both districts, with the exception of fraud which increased quite significantly in the Roma Police District from 2005 to 2008. Offences including drug and good order offences increased from 2000–08 in both districts, while Weapons Act offences decreased. Traffic and related offences decreased from 2005 to 2008.

Table 8.5.16 **Reported Crime per 100,000 Population in Pipeline Region: 2000 to 2008**

Police District	**Gladstone**			**Roma**		
Reported Offences	**2000–01**	**2005–06**	**2007–08**	**2000–01**	**2005–06**	**2007–08**
Offences Against Person						
Homicide	5	2	1	5	0	0
Assault (excluding sexual assaults)	612	486	454	716	582	607
Sexual offences	179	137	133	146	85	190
Robbery	45	11	27	23	4	9
Other offence against person	133	-	56	164	-	56
Offences Against Property						
Unlawful entry	1,681	800	671	1564	697	693
Other theft	2,367	1,402	1,274	1,975	1437	1,296
Fraud	1,441	850	167	579	162	1,120
Handling stolen goods	146	83	97	141	51	65
Other Offences						
Drug offences	1,241	918	1,307	1,076	1,046	1,417
Prostitution	0	8	7	0	0	0
Weapons Act offence	237	118	105	392	128	134
Traffic and related offences	971	1,386	1,306	743	1,007	857
Good order offences	1,054	1,045	1,377	999	1,407	1,753

5.2.4 *Social Amenity and Community Values*

This section outlines the social amenity and values of potentially affected communities within the Pipeline region. It describes the key characteristics of selected communities, including a description of local values, amenity and areas of recreational and environmental importance, as described in the shire's Community Development Profiles[20].

Social values and attitudes in Banana Shire are discussed with regards to the integrity of social conditions, including sense of community, wellbeing, amenity and liveability. Access to recreation and social and community services and infrastructure is addressed in *Section 5.2.5*.

This section also outlines land use and local and regional planning in the context of social values. Land use, including areas used for rural, agricultural, forestry, industrial, and residential purposes is discussed in detail in *Volume 4, Chapter 5*.

5.2.4.1 *Characteristics of Banana Shire Communities*

Townships in close vicinity to the Pipeline network include Biloela, Thangool, Cracow, Theodore and Taroom. A description of these towns and values are detailed below. A description of Moura is also provided as it is an important administration and service centre for the shire's sparsely distributed population.

Biloela

With a population of approximately 5,500 people, Biloela is the main population and administrative centre in the Banana Shire. It is situated at the junction of the Burnett and Dawson highways, around 120 km inland from Gladstone.

Biloela has been functioning as an agricultural centre since the 1920s. The area's agricultural strengths are in grazing and cropping including cotton, sorghum, mung beans, wheat and herbs. Other important industries in the area include several coal mines and a gold mine, two power stations, piggery and an abattoir.

The community is well serviced, with more facilities than many other country towns of the same size[21]. Community infrastructure includes a number of primary and secondary schools, TAFE centre, local hospital, community resource and conference centres, and a modern shopping centre. Biloela also has an active sporting sector including football, tennis and swimming facilities.

20 The Banana Shire Council developed Community Development Profiles for 11 of the Shire's towns. These profiles provide an overview of the community and any current or potential issues they face.

21 Biloela Community Profile, http://www.banana.qld.gov.au/index.php/11, Accessed 5 January, 2009.

In addition to amenities offered in town, the area has a diverse community and cultural life, centred in rural pursuits, environmental appreciation, and arts and crafts.

Biloela identifies itself as "a small clean, diverse, and innovative community with an accepting and conservative attitude, serving a diverse industry base". Its future vision is to strengthen the community through increased opportunities for young people, better access to higher education and health services, and diversification of industry.

Taroom

Taroom is located on the Dawson River and the Leichhardt Highway and serves as one the shire's main population centres. Non-indigenous settlement began in the Taroom area as early as 1845, but was marked by a violent incursion and conflict with the local indigenous people.

The population of Taroom is now more than 600 people, and is well serviced with a hospital, town centre, shops, hotel and motel, heritage centre, swimming pool and other sporting facilities including a golf course, tennis, and horse racing centres. Local cultural events depicting Taroom's rural values include agricultural shows and rodeos.

Agricultural industry in the area is predominantly range-bred beef cattle, forestry, hard wheat, and other grain production. The surrounds are scenic with gorges, wild flowers and walking tracks. Taroom has a rich visual amenity, with grazing lands, national parks and an open outback feel.

Taroom is an active community that embraces the contribution of rural industries to the area. They have strong social connections, take pride in their community's heritage and value the fresh air and relaxed, country lifestyle.[22]

Moura

Moura is located 65 km west from Biloela and has a population of approximately 2,000. Often referred to as the "coal and cattle centre of the Dawson Valley", it is predominantly supported by the mining and agriculture industries.[23]

There are a number of health, education and community facilities in Moura which support the remote rural and mining communities, including emergency services, primary and secondary schools, a hospital and community welfare services. Attractions include the Dawson River, a popular spot for recreational activities such as water skiing and fishing, and the annual Coal and Country Festival.[24]

22 Wandoan Coal Project Social Impact Assessment, http://www.wandoancoalproject.com.au/eis01.cfm, Accessed 2 April 2009.

23 http://www.banana.qld.gov.au/docs/profiles/cp_moura_08_08.pdf, Accessed 19 January 2009.

24 http://www.gladstoneregion.info/pages/banana-shire/, Accessed 19 January 2009.

As outlined in its community development profile, Moura identifies itself as a "diverse, caring, multicultural community serving industry and the rural sector". It is a safe, friendly and interactive community that offers a wide range of employment opportunities. The town's future vision is a continuation of its current identity, in which people work together from variety of backgrounds. It aims to expand the service sector, attract new residents and increase the development of local organisations and level of youth community involvement.

Theodore

Theodore is located 105 km south-west of Biloela on the Leichhardt Highway. It has a population of approximately 450 and is considered an important service centre for irrigation and agricultural industries, namely cotton and dry land crops. There are plans to develop the coal mining industry in the area in the future.[25]

Theodore has a number of government and community welfare services, including emergency services, a hospital and Home and Community Care (HACC) service, as well as a number of sport, recreational and educational facilities. The Dawson River is a popular spot for sport and recreation, with other attractions in the area including Junction Park and Glenmoral Gorge.[26]

Theodore identifies itself as a safe and friendly rural community that provides support to regional economies and has all the "necessary facilities for survival".

Cracow

Cracow is located 154 km south-east of Biloela, on the Theodore–Eidsvold road. Its historical function was as a gold mining town (dating to 1875, with the mining operation continuing to 1976). The population then declined and parts of the town fell into disrepair.

Cracow has a population of around 120. It is considered a small and safe community, where people can enjoy their chosen lifestyle. They take pride in the town's heritage and seek to protect its aesthetic values.

Key facilities include the outpatients' clinic, and the hotel as the social hub. The Cracow school closed in 1997. The gold mine has recently reopened, providing some encouragement for sustaining the local community.

The future vision for Cracow embodies the following: "a friendly mining town with a thriving tourism industry offering opportunities to present and new residents".

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25 http://www.banana.qld.gov.au/docs/profiles/cp_theodore_08_08.pdf, Accessed 19 January 2009.

26 http://www.gladstoneregion.info/pages/banana-shire/, Accessed 16 January 2009.

Thangool

Thangool is located 12 km south of Biloela and has a population of approximately 350. Features of the town include a racetrack and an airport, which provides daily flights to and from Brisbane. Mt Scoria, a rare rock formation rising 150 m above the ground, is regarded as another important feature within the town.

Industry in Thangool is primarily centred on agriculture, namely dry land farming (sorghum and wheat) and irrigated crops (cotton and lucerne). Squab processing is also important, with one local business servicing over 60 per cent of the Australian market.

Thangool has a variety of services and facilities for its size, including a post office, sporting facilities, local community centres, an aerodrome, primary school, race club, churches and fire brigade.

The town is renowned for its country hospitality and having well-kept parks and gardens. It is a friendly, cohesive and supportive community whose future vision centres on continued support of local residents, events and organisations, improvement of aesthetic values and the protection of local history.

5.2.4.2 Social Values in Banana Shire Communities

The Community Development Profiles reveal that most residents in Banana Shire value their towns for the friendly and supportive people and safe and relaxed country lifestyle. They seek increased opportunities and improved services through diversification and expansion of industries in the future. Most concerns relate to loss of services and facilities, protection of town values and identities, and lack of youth activities and volunteers.

The Banana Shire Council 2008 Community Survey provides additional insight into the social values and attitudes of residents throughout the shire, including perceptions of the community, access to facilities and services, and concerns following recent boundary changes.

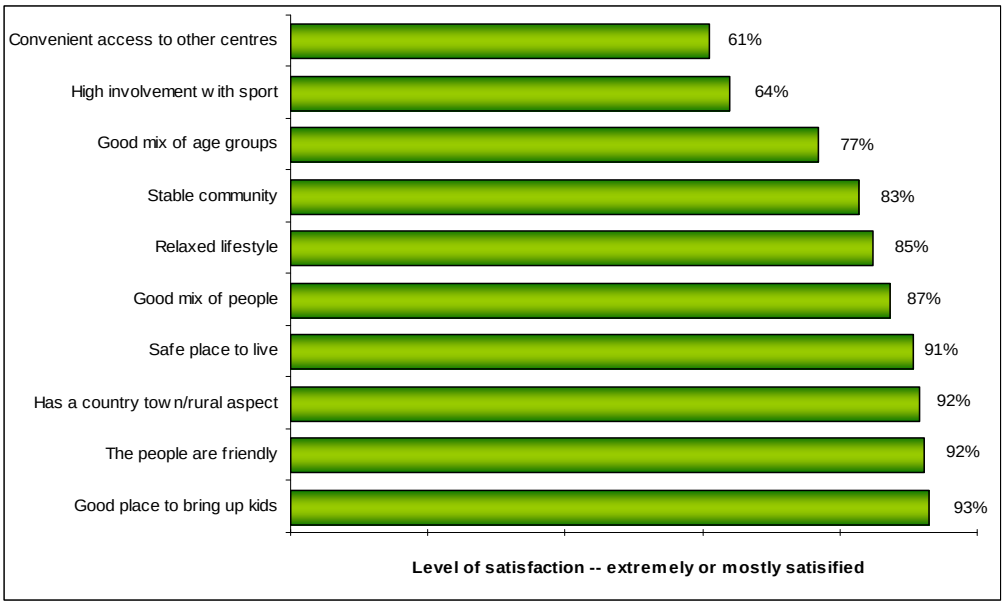
Using the results from the survey, social values in Banana Shire are discussed in detail below, based on the following social conditions:

- sense of community, harmony and wellbeing
- amenity and liveability.

Sense of Community, Harmony and Wellbeing

The overall sentiment of the Banana Shire community is positive, with almost all survey respondents regarding Banana Shire as a safe and friendly country community with a distinct and special character ideal for raising children. The level of community satisfaction in Banana Shire is highlighted in *Table 8.5.5.*

Figure 8.5.5 Level of Community Satisfaction in Banana Shire: 2008



Note: The survey participants were asked to respond to the statements using the following scale: "very much", "mostly", "sort of", "sometimes", and "not at all" . Source: Banana Shire Council 2008 Survey of Residents.

There are strong community connections, with many respondents regarding community spirit and involvement within the community the best aspects to living in the area. Quotations from the survey include:

Box 1 Survey Quotations

"Good place, good people, community spirit."
"It's a close knit sort of community. There's a lot of involvement."
"People are friendly, more community spirited."
"There's a sense of community."
"Most people have good values, with country-friendly mentality, and care about you."

Source: Banana Shire Council 2008 Community Survey

The majority of respondents (51 per cent) believe their identity will not be affected negatively by the council boundary changes. Sixteen per cent neither agreed nor disagreed and 33 per cent were concerned. Residents outside of Biloela expressed the greatest concern regarding boundary changes, with approximately 40 per cent agreeing with the statement that the community's identity will worsen as a result of the amalgamation (compared to 20 per cent for respondents from Biloela).

Amenity and liveability

Residents of Banana Shire value their community because of the balance it offers between a country lifestyle and availability of services and infrastructure. In addition to being close to other major regional centres, Banana Shire offers a range of opportunities, infrastructure and services yet maintains the valued qualities of a small country town.

Box 2 ***Survey quotations***

"Rural but not remote."
"Safe, not too big, got everything we need."
"Small enough to be friendly but big enough to have everything."
"It's a country town but still close to major centres."
"There is work and we are only 100 km from the beach."
"It's safe, peaceful and quiet – good place to raise kids."

Source: Banana Shire Council 2008 Community Survey

Concerns about liveability

The most common liveability concerns in Banana Shire include poor roads and road maintenance, lack of water, the inconvenience of travelling to major centres, and lack of some facilities and services, namely youth and medical facilities.

Box 3 ***Survey quotations***

"There's a lack of things for the kids to do apart from sports."
"There's not a lot for young people – no cinema, no skate rink, no bowling centre."
"We're too far away from any decent medical services."
"We don't have many doctors, dentists, or other health professionals."

Source: Banana Shire Council 2008 Community Survey

Few respondents felt the shire had environmental problems and of those who did, most expressed concern with drought, pollution from coal mines, weeds, animal pests, poor water quality and chemical run-off.

The most common responses as to what respondents would like to occur in the shire are listed below:

- improve roads and maintenance
- equitable distribution of funds and services
- improve general services and facilities
- improve communication with the council
- improve family/youth activities and facilities
- maintain and/or improve community spirit
- improve growth and development.

5.2.4.3 *Land Use and Regional Planning Values*

Banana Shire is predominantly rural, with only 27 km^2 of 28,577 km^2 considered urbanised. The character, values, and livelihoods of communities in the shire are strongly connected to land use. Many communities share a strong, historical connection to the land, having developed from early agricultural industries. More recently, mining has also become important in shaping the character of some communities in Banana Shire.

Land uses on the Export and Lateral Pipeline routes by council area are displayed in *Figure 8.5.6* and *Figure 8.5.7.* In general, land use in the Banana Shire includes a mosaic of large-scale grazing properties with small areas of intensive cropping. Cracow, Theodore, Thangool and Biloela are the closest townships to the proposed alignment, servicing grazing properties, local mining activity and in the case of Biloela servicing the Callide Power Station and associated mine.

The route of the Export Pipeline typically covers the following types of land use:

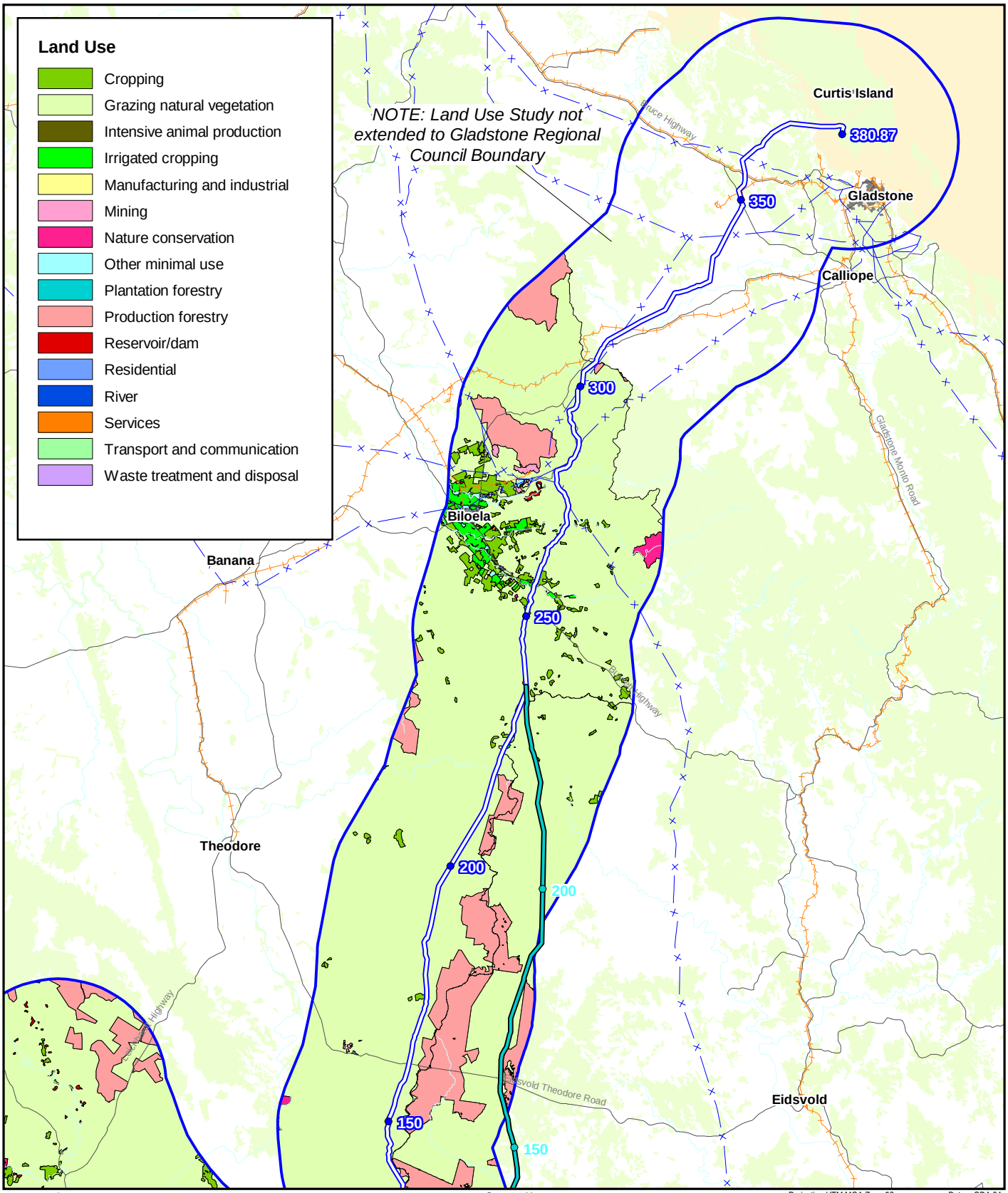
- land that has previously been cleared for grazing and cropping
- sections of intensive agriculture
- patches of regrowth (mostly Brigalow regrowth)
- remnant forest
- wetlands
- grassland vegetation
- stock routes
- road and rail reserves
- several major roads (including state-controlled roads)
- major rivers
- mountainous areas
- industrial (planned) areas
- powerline easements.

The distribution of Good Quality Agricultural Land (GQAL) along the route of the Export Pipeline and the Lateral Pipeline is presented in *Figure 8.5.8*. [27]

The Pipeline component network predominantly passes through Class C Pasture Land and Class D Non-Agricultural Land. The Lateral Pipeline passing near to Taroom travels through Class A Crop Land and Class B Limited Crop Land. The Export Pipeline between Taroom and is located within Class C Pasture Land and some Class A land as it nears the township of Biloela. From Biloela the land is a mixture of Class C Pasture Land and Class D Non-Agricultural Land.

Industrial land use in Banana Shire is primarily centred near major townships. The key industrial use near Biloela is the Callide Power Station which was developed in the 1970s and currently supplies approximately 20 per cent of Queensland's power requirements.

27 The definition of GQAL is "land which is capable of sustainable use for agriculture, with a reasonable level of inputs, and without causing degradation of land or other natural resources". It is rated on the ability of land to maintain sustainable levels of productivity using four classes – A, B, C and D. http://www.dip.qld.gov.au/docs/ipa/plng_guide_identif_ag_land.pdf, Accessed 3 April, 2009.



Legend:

- Export Pipeline & Kilometre Point
- Export Pipeline Option 2 & Kilometre Point
- Lateral Pipeline & Kilometre Point
- Upstream Infrastructure Corridor & Kilometre Point
- QGC Project Study Corridor
- Powerline
- Railway

Source Note:

1:250,000 Topographic vector copyright Geoscience Australia
QLD Land Use data copyright Queensland Department of Natural Resources and Mines

Projection UTM MGA Zone 56 Datum GDA 94

0 20 40 60 80
Kilometres

N

QUEENSLAND CURTIS LNG
A BG Group business

ERM
Environmental Resources Management Australia Pty Ltd

Project	Queensland Curtis LNG Project	Title	Land Use - Export Pipeline
Client	QGC - A BG Group business		
Drawn	Mipela	Volume 8	Figure 8.5.6
Approved	CDP	File No	EO5-P-MA-96154
Date	08.07.09	Revision	A

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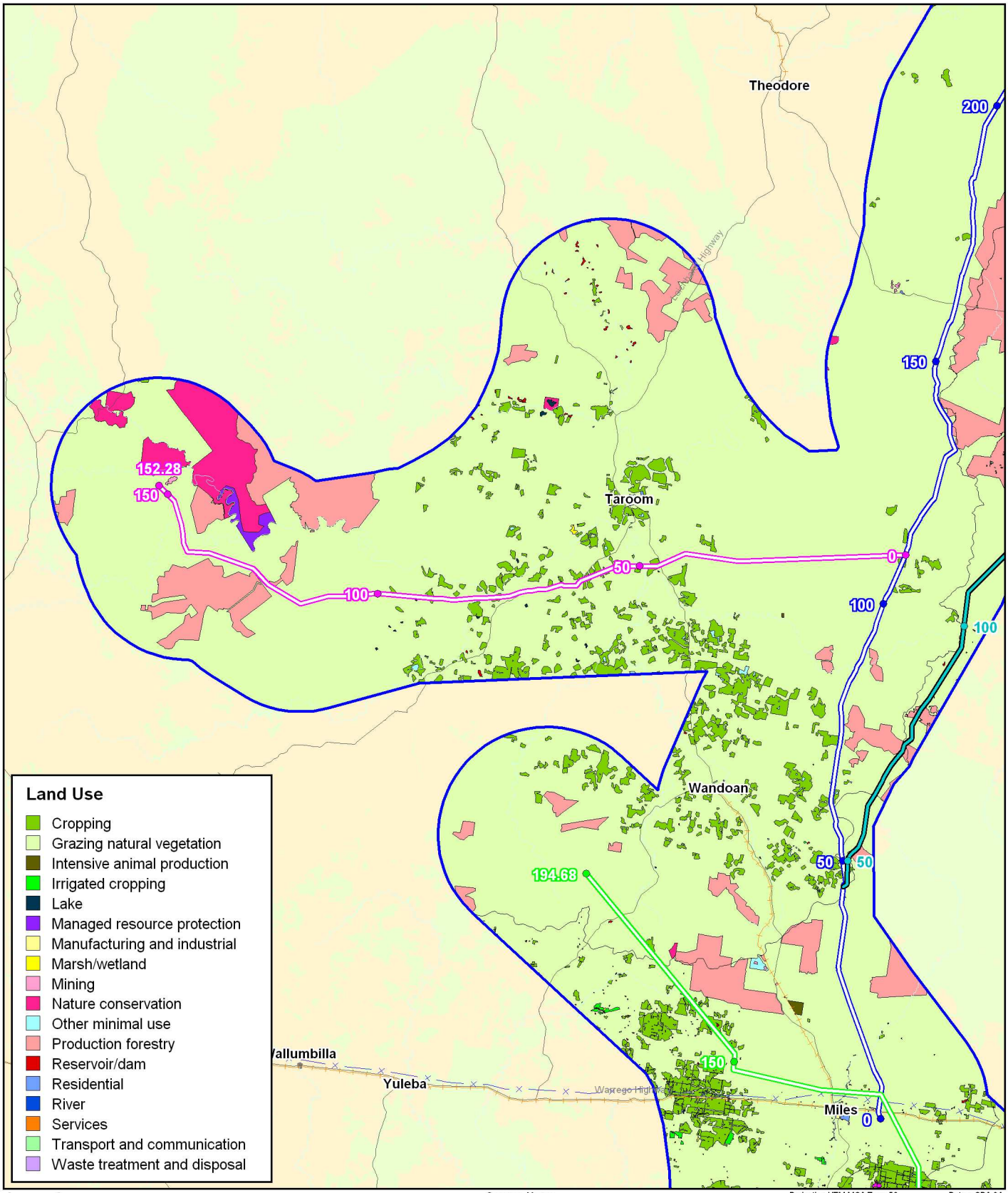

Legend:

- Export Pipeline & Kilometre Point
- Export Pipeline Option 2 & Kilometre Point
- Lateral Pipeline & Kilometre Point
- Upstream Infrastructure Corridor & Kilometre Point
- QGC Project Study Corridor
- Powerline
- Railway

Source Note:

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QLD Land Use data copyright Queensland Department of Natural Resources and Mines

Projection UTM MGA Zone 56 Datum GDA 94

0 20 40 60 80
Kilometres

N

QUEENSLAND CURTIS LNG
A BG Group business

ERM
Environmental Resources Management Australia Pty Ltd

Project	Queensland Curtis LNG Project	Title	Land Use - Lateral Pipeline
Client	QGC - A BG Group business		
Drawn	Mipela	Volume 8	Figure 8.5.7
Approved	CDP	File No	EO5-P-MA-96153
Date	08.07.09	Revision	A

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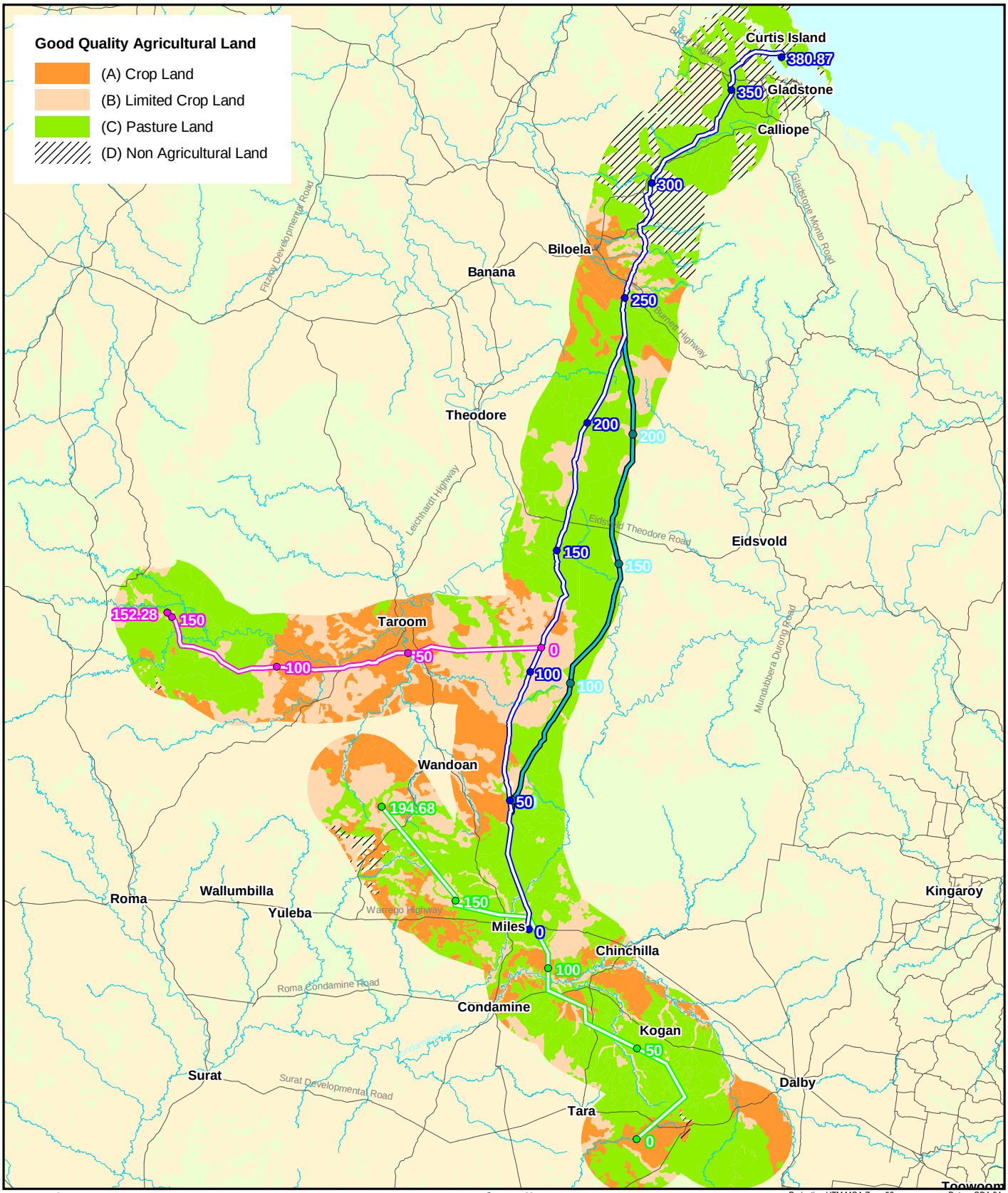

Legend:

- Export Pipeline & Kilometre Point
- Export Pipeline Option 2 & Kilometre Point
- Lateral Pipeline & Kilometre Point
- Upstream Infrastructure Corridor & Kilometre Point

Source Note:

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Projection UTM MGA Zone 56 Datum GDA 94

0 20 40 60 80 Kilometres

N

QUEENSLAND CURTIS LNG
A BG Group business

ERM
Environmental Resources Management Australia Pty Ltd

Project	Queensland Curtis LNG Project	Title	Good Quality Agricultural Land
Client	QGC - A BG Group business		
Drawn	Mipela	Volume 8	Figure 8.5.8
Approved	CDP	File No	EO5-P-MA-96190
Date	15.06.09	Revision	A

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Industrial activities in Moura include the Dawson Central Mine (a significant industry and employer in the area) and the Queensland Nitrates' Ammonium Nitrate Plant.

There is a range of economic opportunities emerging in the shire including the potential for Nathan Dam to accelerate employment in the area, the Energy Park Industrial Area being developed adjacent to the Callide C Power Station, and expansion of existing industries and Surat Basin extraction and mining activities.

Local Government Planning Schemes

Local planning assists communities in measuring and achieving social economic and environmental management goals. They reflect the desired outcomes of a community and act as a useful tool for understanding the needs and core values of people within the community.

Local planning in the Banana Shire is governed by the Banana Shire Council. The council amalgamated with a significant part of the Taroom Shire on 15 March, 2008, to form the new Banana Shire Local Government Area. Under the new changes, Banana LGA includes the following divisions: Banana SLA and Division 1 of Taroom SLA.

Banana Shire Council currently relies on the "Tomorrow's Banana Shire" planning scheme, which was adopted in 2005. *Table 8.5.17* summarises the desired outcomes of this scheme, in addition to the council's corporate objectives outlined in the 2006–07 annual report. Desired outcomes of the Taroom Shire 2006 Planning Scheme are also included in the table.

The objectives of both shires are similar with each desiring balanced outcomes between community lifestyle, development and the environment. They recognise the importance of development in stimulating growth and seek sustainable opportunities that will enhance the character and heritage of the community while preserving its natural resources.

Table 8.5.17 Desired Outcomes of 'Tomorrow's Banana Shire' Planning Scheme

Banana Shire Council, 2006–07	**Banana Shire Planning Scheme, 'Tomorrow's Banana Shire', 2005–2012**	**Taroom Shire Planning Scheme, 2006**
Corporate objectives	Desired outcomes[28]	Desired outcomes
• To provide a wide range of lifestyle choices in the community and facilitate its ongoing development with facilities and services that enhance quality of life.	• The character and cultural heritage of the community is preserved and the community is safe and well serviced to accommodate growth.	• Development matches community needs and expectations and is aligned with the community's rural character.

28 'The desired outcomes are written from the perspective of reporting on Banana Shire in 2012. They are based on the achievement of ecological sustainability as outlined by the IPA", Banana Shire Planning Scheme – June 2005, pg. 38

Banana Shire Council, 2006–07	Banana Shire Planning Scheme, 'Tomorrow's Banana Shire', 2005–2012	Taroom Shire Planning Scheme, 2006
• To stimulate economic growth and investment in the shire while sustaining the community's integrity and lifestyle requirements.	• Rural residential areas are located and consolidated to provide a suitably serviced living alternative close to major townships.	• Sustainable use of natural resources through a wide range of economic activities, with Taroom and Wandoan as the principal places of business activity.
• To protect the environment in accordance with the community's environmental, social and economic interests	• Protection of the Shire's natural resources including conservation areas and open space networks, and sustainable water management.	• The natural environment and areas of cultural and heritage importance are protected and enhanced through compatible development.
• To ensure effective planning and delivery of infrastructure services for current and future infrastructure needs.	• Protection of productive agricultural land from incompatible uses to ensure long-term viability of the agricultural industry.	• Development supports the health and safety of the community and contributes to a range of social infrastructure and services.
• To support a "growing, healthy, vibrant and sustainable community" by adopting planning processes that have regard for the environment and community aspirations.	• Industrial development opportunities are available and support the community's economic, social and environmental values. • Expansion of parks and recreational opportunities for residents and visitors	• Industrial areas are consolidated and protected.

Regional Planning Frameworks

The "CQ A New Millennium" Regional Growth Management Framework provides an understanding of environmental, economic and social values in a regional context. It describes Central Queensland region (including Banana Shire) as having and aspiring to the following community values:

- community vitality and safety
- cultural diversity and acceptance
- ecological sustainability
- improved health and wellbeing
- learning, knowledge and information
- principles of social justice, namely equity, access, participation and equality
- regional and rural communities
- respect for the environment, the land, the climate
- shared and committed vision for the region
- a thriving economy.

5.2.5 *Social Infrastructure*

A wide range of services and facilities are available in Banana Shire including

recreational and sporting facilities, family support services, medical facilities, community centres and emergency services. Local and district-level facilities appear to be well provided, particularly emergency services, however this likely reflects an increased need for typical service levels to compensate for the shire's low-density settlement pattern.

The purpose of this section is to provide an overview of social infrastructure in Banana Shire, focusing on built facilities and services such as basic water and transport utilities, libraries, community centres and hospitals which provide services to a community. It outlines the adequacy of existing facilities based on results of a social infrastructure analysis (provided in *Appendix 8.3*), and community satisfaction with access to social infrastructure and services in the region, as identified in the Banana Shire Council 2008 Community Survey.

5.2.5.1 *Regional Services*

Banana Shire is relatively well serviced, with five public health facilities, emergency facilities, a TAFE college and a comprehensive range of sporting, educational and community facilities.

The major service centres in Banana LGA are:

- Biloela – the main district centre, providing some health, education and courthouse facilities
- Taroom, Theodore and Moura – rural villages providing a number of health, education and community facilities that support rural and mining communities.

Beyond the courthouse and TAFE facilities at Biloela, Banana LGA has no regional-level facilities, with its needs met from local or district-level facilities and the regional centres of Gladstone City, Rockhampton City and Toowoomba City.

5.2.5.2 *District and Local Services*

There are three state secondary schools and 13 primary schools (Taroom State School caters for Preparatory to Year 10 and therefore are included in both secondary and primary school counts) in the Banana LGA. The state secondary schools are located in Biloela, Moura and Taroom. The high number of primary schools is due to the presence of small rural settlements providing for the local community.

There are five child-care centres and four kindergartens in Banana LGA with the majority of these facilities being concentrated in Biloela. The remaining facilities are found in Moura, Taroom and Theodore.

The LGA also has three aged-care services: two run by Bluecare in Moura and Callide Valley, and a Home and Community Care service in Theodore. There are a numerous aged-care accommodations in the LGA, including retirement villages in Biloela, Moura and Taroom. However, the rural health services (primarily rural hospitals) have a major role in providing high-needs residential care for older people.

There is a variety of community centres, youth facilities and libraries located within the Banana LGA. These include:

- one district (central) library in Biloela and three local libraries in Moura, Taroom and Theodore
- two district level centres in Biloela and Banana and 10 local centres and halls distributed across the rural villages and towns in the LGA
- two district level centres, in Moura and Theodore.

Banana LGA has numerous emergency facilities including seven police, five fire and rescue (all auxiliary facilities) and six ambulance stations in rural towns and villages. Smaller townships may also be supported by volunteer emergency services such as the rural fire brigade.

Table 8.5.18 Existing Hierarchy of Provision – Main Service Centres in Banana Shire

Town	Population of Town locality	Service Centre Hierarchy (and secondary hierarchy)	Indicative Range of Infrastructure
Biloela	5,371	District (Regional)	Civic centre Courthouse Hospital Library Primary school Secondary school TAFE
Moura	1,774	Local (District)	Youth centre Primary school Secondary school Health centre/hospital
Taroom	629	Rural Village (District and Local)	Primary school Secondary school Kindergarten Health centre/hospital
Theodore	444	Rural Village (District and Local)	Youth centre Primary school Health centre/hospital

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

5.2.5.3 Trends in Service Provision

Based on the information from consultation findings as well as the population projections, it is likely that the main townships acting as district centres, either as a primary or secondary function, may require higher levels of provision for some facilities to cater for the growing demand of fly-in fly out (FIFO), as well as permanent workers, employed in the energy and resources sectors.

Local level facilities within Banana LGA serve the dispersed rural settlements, and are critical for the wellbeing of small communities that are not close to the nearest district and regional centres. There is a growing trend however towards providing service delivery to rural areas through more remote models of delivery including outreach and technologically based models.

5.2.5.4 *Health services*

There are four public hospitals in the Pipeline region, located in the townships of Baralaba, Biloela, Moura and Theodore. These hospitals provide 53 beds collectively and offer a range of services including general medical, emergency, surgical, paediatric, obstetrics, radiography, and visiting speciality medical services. They have several clinics such as dental and antenatal. Biloela Hospital operates outreach services in the areas of child, allied[29], Aboriginal and dental health.

A health service operates in Taroom, providing hospital services in medical, surgical, outpatient, and accident and emergency.

Most hospital referrals are directed to Rockhampton Hospital, approximately 125 to 225 km north of hospitals in the Pipeline region. Rockhampton Hospital is a key health facility in the Central Queensland region, offering a range of services including 24-hour intensive care, chemotherapy, coronary and renal services, rehabilitation and palliative care, as well as surgery and general medicine. It also has a number of visiting specialists in various fields such as neurosurgery, oncology and neonatal.

Despite there being a number of health service facilities in the Pipeline region, it should be noted that physical access to these services is often difficult for many residents, particularly those on low incomes or without access to a private vehicle. There is a high reliance on private road transport due to the sparse distribution of population in the shire and lack of public transport.

5.2.5.5 *Educational facilities*

As detailed in *Table 8.5.19,* educational facilities and services in Banana Shire are predominantly located in the town of Biloela, with smaller facilities found in other townships such as Taroom, Theodore, Jambin and Moura. Altogether, there are five kindergartens/preschools, 15 primary schools (public and private), and three secondary schools (at Biloela, Moura and Taroom[30]) located in the region.[31] The high number of primary schools reflects the numerous, dispersed small rural settlements of Banana Shire.

The only tertiary facility in Banana Shire is the Central Queensland Institute of TAFE, Callide Dawson campus at Biloela. It offers a number of on-campus and off-campus programs including child care, engineering, manufacturing, health, community services and building. The closest universities include the Central Queensland University campuses in Gladstone and Rockhampton and the University of Southern Queensland in Toowoomba.

Other educational facilities and services available in the shire include special

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29 Queensland Allied Health includes the following disciplines: audiology, medical imaging technology, nuclear medicine technology, nutrition and dietetics, occupational therapy, pharmacy, physiotherapy, podiatry, psychology, radiation therapy, social work and speech pathology (http://www.health.qld.gov.au/allied/requirements.asp, Accessed June 2009)

30 Taroom State School caters for Prep to Year 10 and therefore included in both secondary and primary school counts.

31 Queensland Department of Education and Training, Education Directory, http://education.qld.gov.au/directory/phone/, Accessed November 2008.

education units at Biloela and Moura, Parents and Citizens/Friends Associations and a non-accredited Reading & Writing for Adults service in Biloela.

Table 8.5.19 Educational facilities, Banana Shire

Kindergartens	**Locality**
Biloela Community Preschool and Kindergarten	Biloela
C&K Coo-Inda Community Kindergarten	Biloela
Moura Community Kindergarten Association	Moura
Taroom Kindergarten	Taroom
Taroom State Pre-school	Taroom

Primary Schools	**Locality**
Banana State Primary School	Banana
Biloela State Primary School	Biloela
Redeemer Lutheran Primary School	Biloela
St Joseph's Catholic School	Biloela
Goovigen State School	Goovigen
Jambin State School	Jambin
Mount Murchison State School	Mount Murchison
Moura State School	Moura
Prospect Creek State School	Prospect Creek
Peek a Doo State School	Taroom
St Mary's Primary School	Taroom
Taroom State School (PY–10)	Taroom
Thangool State School	Thangool
Theodore State School	Theodore
Wawoan Primary School	Wawoan

Secondary Schools	**Locality**
Biloela State High School	Biloela
Moura State High School	Moura
Taroom State School (PY–10)	Taroom

Tertiary Education	**Locality**
Callide-Dawson TAFE Campus	Biloela

Other Education Facilities/Services	**Locality**
Biloela Reading & Writing for Adults	Biloela
Parents & Citizens/Friends Associations	Various

Kindergartens	Locality
Biloela State High School Special Education Program	Biloela
Moura Special Education program	Moura
Biloela Special Education Unit	Biloela

5.2.5.6 *Police and Emergency Services*

There are a number of number of emergency facilities located in Banana LGA, including seven police, six ambulance, and five fire and rescue (all auxiliary) stations.[32] Smaller townships are also supported by volunteer emergency services such as the rural fire brigade and Special Emergency Services (SES). There are six SES groups in the Pipeline area which are located in the townships of Baralaba, Biloela, Moura, Theodore, Taroom and Wowan. [33]

5.2.5.7 *Recreational and sporting facilities*

There is a wide range of active sporting clubs and recreational associations within the Banana LGA, ranging from bowls clubs to triathlon and Little Athletics associations. Sport and recreation is an important part of lifestyle in Banana Shire and there are almost 500 sporting and community clubs for residents to choose from.[34]

Banana Shire also has a variety of public open spaces, including walking tracks, bicycle paths, parks and gardens. Parks and open spaces such as Bell Creek Conservation Park in Jambin and Kroombit Dam provide cycle paths, picnic areas and walking trails while the Callide Dam and Dawson River provide a range of recreational opportunities such as boating and fishing.[35]

5.2.5.8 *Cultural life*

Cultural events and festivals are held throughout the year in Banana LGA, with many local towns involved in the Regional Arts Development initiative. *Table 8.5.20* highlights some of the events and festivals that occur in the region.

Table 8.5.20 Cultural events

Event	Location
Coal and Country Festival	Moura
Banana Bull and Park	Banana
Queensland Heritage Park	Biloela

32 http://www.police.qld.gov.au/station-locator/stationIndex.asp?type=Station, Accessed November 2008; www.fire.qld.gov.au/about/regions/region3.asp, Accessed November 2008; and www.banana.qld.gov.au/docs/profiles/cp_biloela_08_08.pdf, Accessed Nov 2008; www.banana.qld.gov.au/docs/profiles/cp_wowan_05_08.pdf , Accessed November 2008; www.ambulance.qld.gov.au/about/regions.asp, Accessed September 2008.

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

34 http://www.banana.qld.gov.au/index.php/8, Accessed 26 February 2009.

35 Banana Shire, http://www.gladstoneregion.info/pages/banana-shire/, Accessed 23 February 2009.

Event	Location
Biloela Rockfest	Biloela
Biloela Eisteddfod	Biloela
Brigalow Arts Festival	Biloela
Biloela Comedy and Food Festival	Biloela
Agricultural Society Shows	Dululu
Callide Valley Show	Biloela

Cultural centres in Banana LGA include the Greycliffe Homestead Museum and the Primary Industries Exhibition in Biloela, and the Dawson Folk Museum and Tourism and Cultural Centre in Theodore.

5.2.5.9 *Roads and transport*

There are air, rail and road services within the Banana LGA. There is a heavy reliance on road transport in the shire due to the low population density and large distances between major settlements.

Banana LGA is serviced by the Leichhardt, Dawson and Burnett highways and a series of minor roads throughout the region. These highways also connect to Gladstone and Rockhampton, via the coastal Bruce Highway and western Capricorn Highway.

Queensland Rail operates from Theodore, Moura, Banana, Jambin, Thangool, Biloela, Goovigen and Rannes. This network provides passenger services and direct freight and coal transportation to the Port of Gladstone.

Major regional airports are located in Rockhampton and Gladstone, with international services operating from Rockhampton. Major uses of these services are for passengers, freight and military services. Minor airfields servicing the Banana LGA are located in Thangool and Taroom. Flights between Brisbane and Thangool Airport are available twice daily, from Monday to Friday. There are four minor unlicensed airstrips also located in the Banana LGA, at Theodore, Baralaba, Banana and Moura. These airports are predominantly used for recreation, aerial ambulance, Rural Flying Doctor Services and agricultural sprayers and do not provide any commercial services.

5.2.5.10 *Water*

The Fitzroy River Basin is the predominant water source for the Pipeline region, with water currently impounded within the Awoonga, Callide, Fairbairn and Kroombit Dams, the Fitzroy River Barrage and 12 smaller weirs.

The region has been severely affected by drought, with many areas (refer to *Table 8.5.21*) experiencing water supply issues.

Table 8.5.21 Water supply in Banana Shire

Sub-Region	Town	Supply Issue
Dawson–Callide	Banana	Now dependent on Moura supply.
	Cracow	The town has been without town water supply since the early 1990s. Residents rely on tank water.
	Duaringa	Performance of supply of concern.
	Goovigen	Permanent/severe restrictions necessary; poor quality.
	Thangool	Now dependent on Biloela supply.
	Wowan	Unsuitable quality for most domestic uses. Most residents rely on tank water for drinking supply and bore water for non-drinking purposes.

Source: *Central Queensland Regional Water Supply Strategy,* 2006, Department of Natural Resources and Water.

The Queensland Department of Environment and Resource Management's *Central Queensland: Regional Water Supply Strategy* manages current and future water needs in the region[36]. The strategy outlines the following information on Banana LGA:

- Groundwater in the Callide Valley is not being replenished as quickly as it is being used.
- Supply in the Dawson–Callide and Upper Dawson sub-regions is limited, with many water sources being fully utilised.
- Supplemented Water Supply Schemes in the Dawson Valley and Callide Valley are operated by SunWater and predominantly provide medium-priority water for irrigation.
- Increased demand for water in the Upper Dawson sub-region is expected to come from new mines proposed for development from 2011 onwards.
- The short- and medium-term needs of the region are expected to be met by the construction of Nathan Dam (to begin once EIS and approvals are finalised).
- Unallocated water in the sub-region is reserved for the proposed Nathan Dam on the Dawson River (approximate storage capacity of 880,000 ML).

5.2.5.11 Social Infrastructure Demand Assessment

A social infrastructure analysis was conducted as a part of this Project to provide a baseline assessment of social infrastructure needs.[37] The approach adopted for assessing infrastructure needs was similar to the South East Queensland Regional Plan 2005–2026 "Implementation Guideline No. 5 Social Infrastructure Planning (2007)" and involved the following steps:

36 http://www.nrw.qld.gov.au/water/regionalsupply/central_queensland/pdf/cqrwss_report_dec06.pdf, Accessed 26 February 2009.

37 The definition for social infrastructure refers to services, facilities and networks that enhance the community's wellbeing and their capacity for development,

- analysis of baseline data and information from consultation activities
- spatial analysis of settlement pattern against the existing social infrastructure network
- development of desired standards of service that indicate locally appropriate rates of facility provision
- identification of supply gaps and likely future needs
- validation of findings through consultation with selected agencies.

The benchmarking analysis referred to below compares the existing level of facility provision to South East Queensland benchmarks[38] for the existing and projected population of Banana Shire, (without the Project). The "with Project'' case is discussed in *Section 5.3.4*. The full report, including a detailed description of the methodology used to conduct the analysis, is provided in *Appendix 8.3*.

Overall, results of the benchmark analysis indicate that existing facilities in the Banana LGA appear adequate for the period up to 2026. A primary school was identified as a benchmarked need, but this was not supported as it effectively aggregates need across a dispersed population, and it would be more likely that existing schools would expand to meet this demand.

Hospitals and rural community health centres may need modification and service realignment to be more responsive to community needs, but no additional facilities were identified as a benchmarked need to 2026. The biggest issue relating to health services in the region is attracting and maintaining appropriately trained health staff. This issue is altering the way in which some services are provided, including through contract services staff (on temporary location) and outreach models of service delivery.

Ambulance, fire and rescue, and police stations appear to be adequate in meeting the region's future needs, with the analysis indicating an apparent oversupply of four ambulance stations, two auxiliary fire and rescue stations and five police stations. Other facilities with an apparent oversupply include local halls and community centres.

Reasons for the apparent oversupply (as benchmarked) and lack of demand for facilities in Banana LGA include low population growth and dispersed settlement patterns. It is likely that the existing number of facilities is necessary to enable access to a base level of service for dispersed communities.

Much of the infrastructure in rural areas is old and unlikely to be well-suited to contemporary needs. Ageing infrastructure, greater mobility, and declining volunteer capacity mean that many facilities may not be suitable for contemporary use, and require upgrading. This presents some challenges as many of these facilities are aged and maintained by volunteers. Lack of volunteer capacity to support existing social infrastructure was identified as an expressed need in Banana Shire.

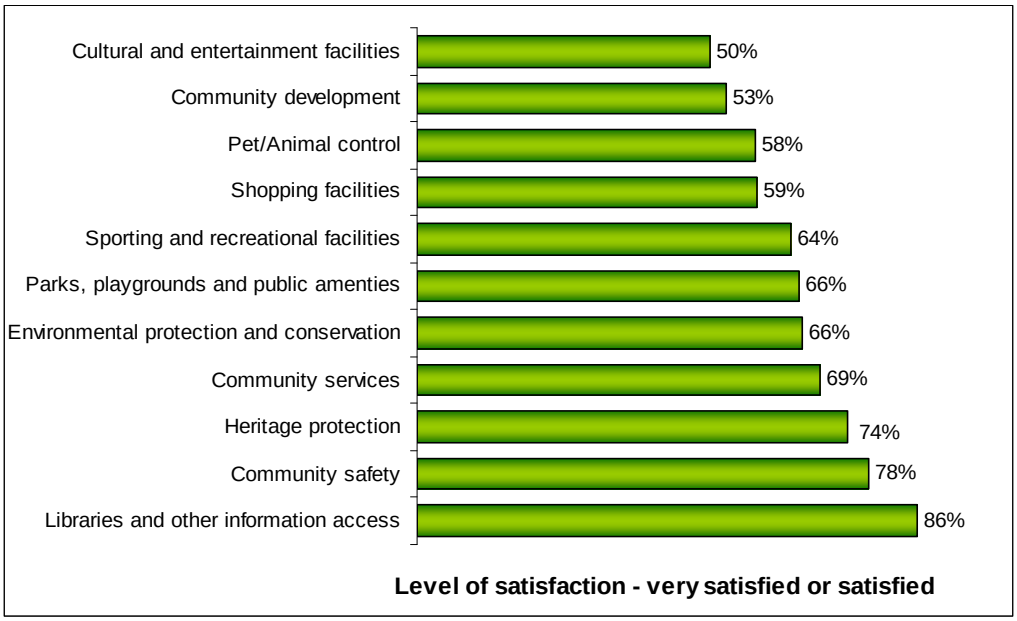
38 Queensland Government and Elliott Whiteing, Andrea Young Planning Consultants, Briggs and Mortar and SGS, (2007)SEQ Regional Plan 2005-2026 Implementation Guideline No. 5 Social Infrastructure Planning

The 2008 Banana Shire Council Survey gauged residents' perceptions of community infrastructure and services in the region. Overall, very few survey respondents in the survey expressed dissatisfaction with the level of services and facilities offered in the region. There were some disparities between Biloela and the rest of the shire, with residents outside of Biloela more dissatisfied with the level of community and lifestyle services, particularly in terms of community development.

As shown in *Figure 8.5.9*, residents were most satisfied with libraries and other information access, community safety and heritage protection. Cultural and entertainment facilities and community development accounted for the highest levels of dissatisfaction from respondents.

Access to sporting and recreational facilities rated highly in the survey, particularly in Biloela where approximately two thirds of respondents were satisfied or very satisfied with the level of facilities provided. Very few respondents (less than 15 per cent) in Biloela were dissatisfied with the level of recreational and sport facilities available. Environmental protection and conservation facilities and parks, playgrounds and public amenities also rated highly across the shire.

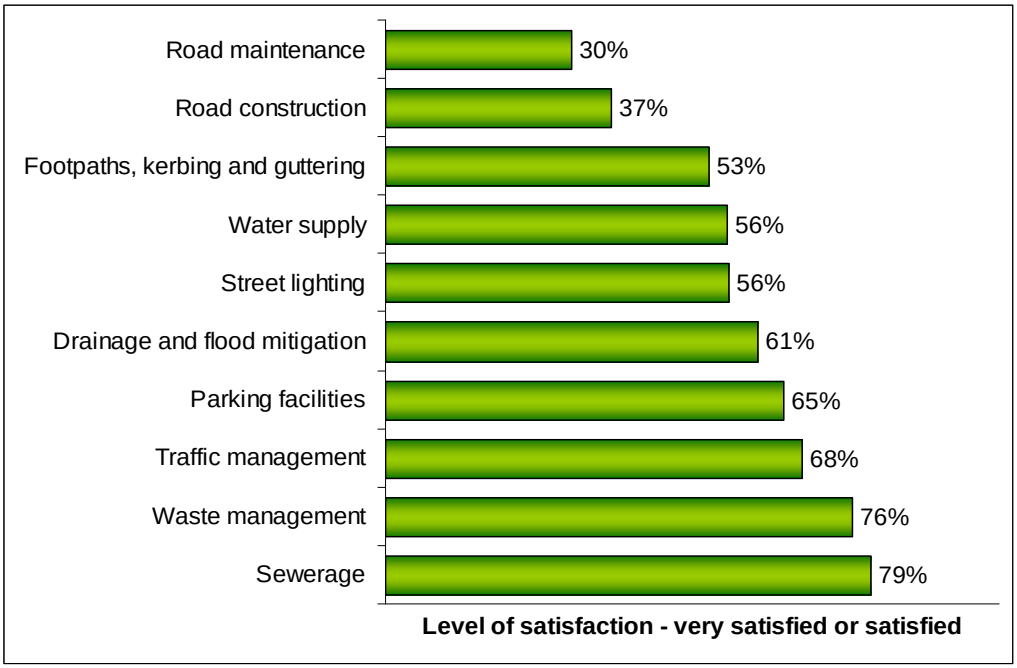
Figure 8.5.9 **Resident satisfaction with community and lifestyle services in Banana Shire**



Source: Banana Shire Council 2008 Survey of Residents

In terms of community infrastructure, respondents were most satisfied with waste management and sewerage services (see *Figure 8.5.10*). Respondents from Biloela were least satisfied with water supply (31.4 per cent) and road maintenance (23.2 per cent), while residents from the rest of the shire were mainly dissatisfied with road construction (45.3 per cent) and road maintenance (52.6 per cent).

Figure 8.5.10 **Resident satisfaction with community infrastructure in Banana Shire**



Source: Banana Shire Council 2008 Survey of Residents

5.2.6 Housing

5.2.6.1 Housing stock

There were 5,429 dwellings in Banana LGA in 2006, 90 per cent of which were separate dwellings. Flats, units and apartments were the second-most common type of dwelling, at 5 per cent. Compared to the Queensland and national averages, Banana LGA had a much higher proportion of separate dwellings and lower proportion of flats, units and apartments (refer to *Table 8.5.22*).

Key indicators for the housing sector are summarised below:

- The number of approvals for the construction of new houses varied between 20 and 50 per annum over the last five years, but showed no overall trend.
- In 2006, 37 per cent of occupied dwellings in Banana Shire were fully owned and 27 per cent were being purchased. These figures show a higher level of ownership than the Queensland average, which reported 34 per cent of households being purchased and only 32 per cent fully owned.
- The proportion of rental households in Banana LGA was consistent with the state average of 31 per cent.

Table 8.5.22 Housing type

Region	Separate House		Semi-Detached Dwelling		Flat, Unit or Apartment		Other		Not Stated		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Old Taroom LGA	796	88%	74	8%	24	3%	10	1%	0	0%	904	100%
Banana SLA	4,281	91%	49	1%	227	5%	161	3%	0	0%	4,718	100%
Division 1 of Taroom SLA	606	85%	74	10%	24	3%	7	1%	0	0%	711	100%
Banana Shire LGA	4,887	90%	123	2%	251	5%	168	3%	0	0%	5,429	100%
Darling Downs SD	67,318	87%	3,099	4%	5,765	7%	917	1%	27	0%	77,126	100%
South West SD	8,192	92%	96	1%	378	4%	219	2%	3	0%	8,888	100%
Queensland	1,106,874	80%	105,917	8%	156,298	11%	21,503	2%	1,040	0%	1,391,632	100%

Note: Percentages may not sum to 100 per cent due to rounding.
Source: ABS (2007a), AEC*group*.

- Median house prices in Banana Shire increased dramatically from 2004 to 2006. Growth peaked in 2005, increasing by 54 per cent, and increased again in 2006 by 42 per cent. Median house prices have steadily decreased since 2006 with negative or little growth reported in 2008 and 2009. However, as at September 2008, house prices in these traditionally affordable towns are now at "urban" prices. Four-bedroom houses in Moura and Biloela were advertised for more than $360,000 in 2008, which would purchase a house in the outer areas of Brisbane, Toowoomba or Rockhampton.
- Moura had the highest average for a two- to three-bedroom house ($271,000) in Banana Shire in 2008, likely reflecting demands from Bowen Basin mining households. Averages for two- to three-bedroom houses in Biloela and Taroom were $252,000 and $230,000 respectively. Both Biloela and Moura had similar averages for a four-bedroom house at around $360,000 to $365,000. Taroom reported the lowest average cost for a four-bedroom house, at $270,000.
- From 2001 to 2006, average weekly rent increased by 33 per cent in Banana LGA (from $89 to $119 per week). This was lower than the state average of 42 per cent but higher than the national average (29 per cent).
- The high increase was influenced mainly by Banana SLA which had a 34 per cent increase in rent during this time, increasing from an average of $94 a week to $127 a week. In Division 1 of Taroom SLA rent only increased by 9 per cent, from $49 to $53 a week, which was the lowest of all LGAs in the Project area and significantly lower than the state and national figures.

5.2.6.2 *Housing stress*

In 2006, Banana LGA had the lowest level of housing stress for low-income families in purchased dwellings in the Project area, at 28.3 per cent. The percentage of low-income rental households in housing stress was 31.4 per cent. This was significantly lower than other areas within the Project area and approximately half the proportion reported for Queensland and Australia (refer to *Table 8.5.23* and *Table 8.5.24*). The low proportion of households in housing stress in Banana LGA is most likely due to the relatively affordable rents and lower percentages of people in low-income brackets.

Table 8.5.23 Low-income households in housing stress (mortgage) 2006

Region	Households In Housing Stress Due to Home Loan	Total Dwellings Being Purchased (in Bottom 40% of Household Income)	Proportion of Dwellings Being Purchased in Housing Stress
Banana SLA	107	377	28.4%
Division 1 of Taroom SLA	7	26	26.9%
Banana LGA	114	403	28.3%
Fitzroy SD	2,039	6,363	32.0%
Darling Downs SD	1,165	2,859	40.7%

Region	Households In Housing Stress Due to Home Loan	Total Dwellings Being Purchased (in Bottom 40% of Household Income)	Proportion of Dwellings Being Purchased in Housing Stress
South West SD	179	549	32.6%
Queensland	69,721	137,875	50.6%

Source: Australian Bureau of Statistics (2007a).

Table 8.5.24 Low-income households (rental) in housing stress: 2006

Region	Households In Housing Stress Due to Rent Payment	Total Dwellings Being Rented (Households In Bottom 40% of Household Income)	Proportion of Dwellings Being Rented in Housing Stress
Banana SLA	157	493	31.8%
Division 1 of Taroom SLA	19	67	28.4%
Banana LGA	176	560	31.4%
Fitzroy SD	3,667	6,951	52.8%
Darling Downs SD	4,074	7,667	53.1%
South West SD	363	949	38.3%
Queensland	97,622	150,044	65.1%

Source: Australian Bureau of Statistics (2007a).

5.2.7 Summary of Social Conditions

5.2.7.1 Population Size and Growth

Banana Shire had a total estimated population of 15,953 people in 2007.

The shire experienced a negative population growth from 2001 to 2007. This trend however is expected to reverse in the coming decades, with projections indicating a small, but positive growth rate of 0.2 per cent from 2006 to 2026. The region's total estimated population size is expected to reach approximately 16,800 people by 2026.

5.2.7.2 Social Determinants of Health

A brief summary of selected social determinants that together influence the health status of individuals and populations in Banana LGA are listed below.

Banana LGA has a number of health services, however, the region's dispersed settlement patterns may provide a challenge to equitable access to health services, particularly for vulnerable groups and those without access to private vehicles.

The Pipeline communities have high social capital, with many residents regarding community spirit and involvement within the community as the best

aspects of living in the area. Volunteering is also strong with around 20 per cent of the population engaging in some form of volunteer work in 2006 (over 5 per cent more than the Queensland average).

The total proportion of the population belonging to one of the six vulnerable groups was generally lower in Banana LGA than other areas of the Project and Queensland. The only exception was the zero to 14-year age group. Banana Shire has a very young population and people within this age group accounted for almost a quarter of the region's total population in 2006.

Statistics on vulnerable groups in Banana Shire generally revealed the following:

- slightly lower proportion of people aged 65 years or over (10.7 per cent compared to 12.4 per cent for Queensland)
- lower proportion of LOTE speakers (2.4 per cent compared to 7.8 per cent for Queensland)
- lower levels of unemployment (2.4 per cent compared to 4.7 per cent for Queensland)
- lower proportion of the population requiring assistance with a disability, (2.7 per cent compared to 4 per cent for Queensland).

Communities in the Pipeline region are typically small and enjoy the benefits of safety and security often associated with living in a small town.

Reported crime statistics were not available at the local level, however, offences against persons and properties have generally declined in the Police Districts pertaining to Banana Shire from 2000 to 2008.

5.2.7.3 *Housing*

There were 5,429 dwellings in Banana LGA in 2006, 90 per cent of which were separate dwellings. There was a high level of home ownership, with 34 per cent of all households being purchased and 32 per cent fully owned.

Median house prices in Banana Shire increased dramatically from 2004 to 2006. Little or negative growth was reported since 2006, however, house prices in traditionally more affordable towns are now similar to urban prices.

Rent increased significantly in Banana LGA from 2001 to 2006, however, average weekly rental prices in 2006 continued to be lower than other LGAs in the Project area and were almost half the state average ($119 per week compared to $217 per week for Queensland).

Banana LGA had the lowest level of housing stress for low-income families in purchased dwellings in the Project area, at 28.3 per cent. The percentage of low-income rental households in housing stress was also low, at 31.4 per cent.

5.2.7.4 *Social Values*

Banana Shire residents value their community for its friendly and the balance it offers between a country lifestyle and availability of services and

infrastructure. There are strong community connections, with many residents regarding community spirit and involvement the best aspects to living in the area. Over time, the traditional agricultural base of the region has shifted to share economic importance with the resources sector.

As reflected in local and regional planning schemes, communities in the Banana Shire Planning schemes desire a balance between community lifestyle, development and the environment. They recognise the importance of development in stimulating growth and seek sustainable opportunities that will enhance the character and heritage of the community while preserving its natural resources.

The most common liveability concerns in Banana Shire include poor roads and road maintenance, loss of services and facilities, lack of water, the inconvenience of travelling to major centres, and lack of some facilities and services, namely youth and medical facilities.

5.2.7.5 Social Infrastructure

A wide range of services and facilities are available in Banana Shire including recreational and sporting facilities, family support services, medical facilities, community centres and emergency services. Local and district level facilities appear to be well provided, particularly emergency services, however, this probably reflects an increased need for typical service levels to compensate for the shire's low density settlement pattern. Local level facilities are critical for the wellbeing of small communities that are not close to the nearest district and regional centres.

Hospitals and rural community health centres may need modification and service realignment in the future, however, the biggest issue relating to health services in the region is attracting and maintaining appropriately trained health staff. This issue is altering the way in which some services are provided, including through contract services staff (on temporary location) and outreach models of service delivery.

Infrastructure in rural areas is also typically old and unlikely to be well-suited to contemporary needs. Ageing infrastructure, greater mobility, and declining volunteer capacity mean that many facilities may not be suitable for contemporary use, and require upgrading.

5.2.7.6 Social Indicators

The status of key socio-economic indicators in Banana Shire, which would host Pipeline construction, is summarised in *Table 8.5.25*. This table will assist in identifying and monitoring the social impacts of the Project in the Banana Shire.

Table 8.5.25 Social conditions

Indicator	Measures	Status Banana Shire[39]	Comparator
Population stability	• same address five years	51%	45% (Qld)
Economic resources	• SEIFA Economic Resources Score	1,018.2	1,000 (Qld)
Community cohesion	• community satisfaction (Banana Shire Council Survey)	• 92% believe people are friendly • 93% believe good place to bring up kids • 87% believe has good mix of people	N/a
Cultural diversity	% of overseas born people	6%	18% (Qld)
Indigenous population	% of indigenous people	2.3%	3.1% (Qld)
Health status	• self-reported health status	Unavailable	
Employment rates	• unemployment rate	2.3%	4.7% (Qld)
	• Indigenous unemployment rate[40]	8% (Banana SLA)	13% (Qld)
Workforce skill levels	• % of workforce with certificate qualifications	18%	18% (Qld)
Community safety	• community perception (Banana Shire Council Survey)	91% believe Banana Shire is safe	N/a
	• reported crimes against the person (per 100,000 population)	• Gladstone Police District = 671 offences (2007–08) • Roma Police District = 861 offences (2007–08)	Qld = 742 offences (2007–08) [41]
Housing availability and affordability	• % low-income rental households in housing stress	31.4%	65.1%
	• % purchased low-income dwellings in household stress	28.3%	50.6%

39 2006 ABS Census of Population and Housing is used as comparative tool

40 ue to data limitations regarding indigenous community profile 2006 data could not be aggregated based on new Council boundaries

41 http://www.police.qld.gov.au/Resources/Internet/services/reportsPublications/statisticalReview/0708/documents/Queensland%20Crime.pdf, Accessed 1 April 2009.

Indicator	Measures	Status Banana Shire[39]	Comparator
	• average weekly rent	$119 per week	$217 per week
Social infrastructure access	• quantitative and qualitative assessment	• sufficient facility numbers, apparent oversupply of some facilities • lack of volunteer capacity to support local clubs • need for activities and programs for young people	n/a
Business and commercial services access	• number of businesses	2,627	N/a

5.3 POTENTIAL IMPACTS OF THE PROJECT IN THE PIPELINE REGION

The potential impacts of the Pipeline component construction and operation phases are discussed in detail below, specifically:

- labour force and employment impacts
- demographic impacts
- housing impacts
- social infrastructure impacts
- community health and safety impacts
- property and land use impacts
- lifestyle, amenity and community values impacts.

5.3.1 Labour force and employment impacts

5.3.1.1 Local labour force availability

There were 7,912 employed persons in Banana Shire LGA in 2006, and the region's unemployment rate was low, averaging less than 3 per cent from 2006 to 2008.[42] Project developments in the Surat and Bowen Basins contributed to relatively high labour force participation rates, and the region experienced skilled labour shortages (particularly in trades) as a result.

The effect of the recent slowdown in mining employment has not yet been determined. However, given employment levels, the number of Pipeline projects proposed for the region and the fact that Pipeline construction is highly specialised, it is unlikely the Project will be able to draw on much local

42 http://www.workplace.gov.au/NR/rdonlyres/7600FAF4-F2E9-4962-88C1-BC01B62E6D20/0/SALMDecember2008.pdf, Accessed 6 April 2009.

labour during the construction of the Pipeline. This analysis will be reviewed closer to the construction period to enable local labour to participate if it is available, to maximise the local benefit from the Project.

Five hundred workers will be required during construction of the Lateral and Export Pipelines from early 2011 to mid-2012. Approximately 10 per cent of workers will be non-manual staff, and the remaining, skilled manual workers.

It is anticipated that an operational workforce of up to 20 people will be employed for direct management and monitoring of the Pipeline network.

5.3.1.2 *Labour force impacts*

Construction

The majority of the 500 Pipeline construction roles will be trade-based, requiring a range in skills from general earthworks through to specialised welding techniques. Approximately 10 per cent of the employment will be non-manual, i.e. professional, management or administration.

QGC will prioritise the employment of local people and the use of local contractors and service companies wherever possible in order to maximise the potential economic benefits of the construction. Nevertheless, the Pipeline construction is unlikely to have a significant impact on direct employment in the locality due to: (1) current skilled labour shortages in the region; and (2) the fact that only a limited number of companies in Australia can provide the specialised skills required. Pipeline construction crews usually travel around the country from project to project. It is expected that very few local skilled workers will leave their existing jobs to work on the Pipeline construction due to the short-term nature of the work and the mobile nature of the crews. As such, the primary employment benefit will be to Pipeline construction workers living throughout Australia.

The largest direct employment impacts for the region will occur during the Pipeline transportation stage. An estimated 50 trucks will be required to transport Pipeline equipment, materials, and camp facilities from Gladstone to various parts of the Pipeline. This will provide direct regional employment opportunities for haulage contractors and have positive economic flow-on effects. These issues, and the indirect economic benefits that are likely to arise, are discussed in the economic impact assessment in *Chapter 10.*

Operations

Operation of the Pipeline will require up to 20 personnel. They will operate out of either the LNG Facility or the Gas Field and will be accommodated either in Gladstone or in the Miles/Chinchilla area. The operational staffing for the Pipeline is insignificant and is not expected to have any impact on the region's labour force, beyond a very small increase in the Fitzroy region's skilled workforce.

5.3.1.3 *Cumulative impacts on labour*

A list of proposed projects that are anticipated to be undertaken between 2010

and 2013 in the Pipeline study area is provided in *Table 8.5.26*. Dates for commencements and completion are provided where possible.

Table 8.5.26 Major Construction Projects Proposed for Pipeline region: 2010 to 2013

Proposed Projects	Details	Construction		Operations	
		Commence	Complete	Commence	Complete
Gladstone LNG Project[43]	Santos plans to build a pipeline from its gas fields in the Surat and Bowen Basins to an LNG plant on Curtis Island, Gladstone. The Pipeline is expected to traverse area surrounding Biloela, Banana and Bauhinia Downs.	2010	Not stated	2014	Not stated
Moura Link–Aldoga Rail[44]	Queensland Rail plans to develop a rail link between the existing Moura Short Line to the North Coast Line in Aldoga, which will connect to the proposed Wiggins Island Coal Terminal in Gladstone.	Stage 1: 2010 Stage 2: 2012 Stage 3: 2014 Stage 4: 2019	Stage 1: 2012 Stage 2: 2013 Stage 3: 2015 Stage 4: Unknown	Not stated	Line has minimum design life of 50 years.
Nathan Dam Development[45]	SunWater has proposed to develop a dam on the Dawson River, about 35 km north-east of Taroom. The project will involve the construction of a dam wall, infrastructure and pipeline systems that will link the dam to areas in the Surat Basin.	Mid 2012	Not stated	2014	n/a
Surat Basin Rail Project[46]	Surat Basin Rail Pty Ltd plans to build a 210-km railway that will connect the Western Railway System near Wandoan to the Moura Railway System near Banana.	2009	2012	2012	Line has minimum design life of 50 years.

43 http://www.santos.com.au/Content.aspx?p=342, Accessed 7 April 2009.

44 http://www.qrnetwork.com.au/Infrastructure-investments/Projects/Moura-link-Aldoga-rail-EIS.aspx, Accessed 7 April 2009

45 http://www.dip.qld.gov.au/resources/project/nathan-dam/nathan_dam_initial_advice_statement.pdf, Accessed 7 April 2009.

46 http://www.dip.qld.gov.au/resources/project/surat-rail/surat-basin-rail-eis.pdf, Accessed 7 April 2009.

There is potential for these projects to have a cumulative impact on Queensland's labour availability if construction periods overlap. It is difficult, however, to quantify these impacts given the limited information available for some projects in terms of specific labour force requirements and expected labour sources. Nevertheless, considering the Nathan Dam Development, GLNG project and QCLNG Project involve the construction of pipelines, the types of workers and skill sets required are likely be similar. This has the potential to place additional pressure on the availability of skilled labour.

Moura Rail, which intends to commence construction in 2010, expects to source its workers from other recently completed projects[47]. As a stand-alone project, impacts on local and regional labour availability would be minimal, but given the number of other projects commencing at the same time, cumulative impacts on labour availability are probable. Surat Basin Rail intends to commence construction over a three-year period from 2009 and require approximately 1,000 workers during construction (10 per cent of whom will be sourced locally).[48] Given the expected workforce size, this project is also likely to have a cumulative effect on labour force availability.

Potential cumulative labour impacts arising from projects in the Pipeline region include:

- heavy demand on the Queensland labour pool, resulting in restricted availability for other projects in other parts of Queensland
- a rise in labour prices in the region to attract workers from other areas, potentially impacting on the price of labour for other local industries while also providing benefits in the way of increased income levels
- a requirement for labour from overseas, which could have a range of cultural diversity impacts.

Further information is provided in *Chapter 10.*

Mitigation

The Project intends to contribute towards local employment and retention of young people in the region as much as possible, but this will be constrained by labour availability and the fact that only a limited number of companies in Australia can provide the specialised pipeline skills required.

To maximise local employment the Project will invest in training and development programs to build labour force capacity and skills within regional communities.

47 Moura Link–Aldoga Rail Environmental Impact Assessment, Chapter 16, Social Environment pg. 16 http://www.qrnetwork.com.au/Infrastructure-investments/Projects/Moura-link-Aldoga-rail-EIS.aspx. Accessed 7 April 2009.

48 Surat Basin Rail Environmental Impact Assessment, Section 13, Social Environment, pg. 293 and 298 http://www.suratbasinrail.com.au/files/EIS/Main%20Text/Section13SocialEnvironment.pdf Accessed 7 April 2009.

5.3.2 Demographic impacts

5.3.2.1 Construction and Operations

The Pipeline Component is likely to have negligible impact on the demographic profile of Pipeline communities during either construction or operations. It is very unlikely that a significant number of people will permanently move to the region because:

- the workforce is only 500 individuals with specialised skills, and the construction period is relatively short
- construction workers will be housed in construction camps and will move along the Pipeline as work progresses
- as a profession, pipeline construction crews tend to travel around the country from project to project and do not tend to remain in the region at the end of construction.

5.3.3 Housing impacts

5.3.3.1 Construction

Construction camps will be used to accommodate workers, so the Project is not expected to have a significant impact on the availability of short- or long-term accommodation in the area during the construction phase.

5.3.3.2 Operations

The operational phase is also not expected to have a significant effect on the availability of long- and short-term housing due to the small workforce size (up to 20 people).

5.3.4 Social Infrastructure impacts

There is a wide range of services and facilities available in the Pipeline region including educational facilities, health and emergency services, community centres and family support services.

The potential impacts of the Project on community infrastructure are discussed below.

5.3.4.1 Construction

Health and emergency services

The direct effects of Pipeline component construction on health services in Banana LGA are expected to be minimal as all Pipeline workers will be accommodated in construction camps. Each camp will have its own health and support services provided as part of the Project's worker accommodation scheme. FIFO workers will use either the health care provided by the Project or the health care services in their home location during leave periods.

While most services will be provided within camps, there may be demand for support services from local health services and emergency services to treat

staff with illnesses or injuries. Results of the benchmarking analysis indicate that existing health facilities in the Banana LGA appear adequate to meet future growth in the region (including construction worker numbers). Supply of general practitioners' services is less adequate, but demand is expected to be minimal.

A protocol for medical evacuation will be established with Queensland Health on a fee-for-service basis, as part of the Project's occupational health and safety obligations. Consultation with local emergency services providers and public health facilities in Banana Shire will be undertaken by the contractor to ensure services' awareness of camps' activities and locations, and any issues regarding services access are addressed.

Community services and facilities

As mentioned previously, the majority of services and facilities that construction workers require will be supplied within the construction camps. Therefore, impacts on community services and facilities are expected to be minimal. Potential exists for an increase in family support requirements in the area if local workers obtain employment in the Project during construction, however this impact is expected to be minimal or negligible.

Results of the social infrastructure needs analysis indicate that existing community facilities in the Banana LGA appear adequate for the period up to 2026 (refer to *Appendix 8.3*). However, a lack of community capacity to maintain ageing community infrastructure such as halls and communities centres was identified.

There may be a perceived lack of community benefit in the Banana LGA which is hosting significant Pipeline infrastructure through its region, particularly if both Western Downs and Gladstone LGAs are perceived to gain economic and other beneficial outcomes at either end of the Pipeline.

There may be an opportunity to increase local benefits by attending to some existing local needs through a ''good neighbour'' policy. There is a likely need for rationalisation and refurbishment of existing facilities so they are fit for use, and a bolstering of community capacity to sustain their management, and this will be considered in the Project's Community Development Fund (refer to *Chapter 8*).

Roads

Heavy vehicle and movement of equipment may result in temporary localised damage to road surfaces. The Project is not expected to have any long-term adverse impacts on roads as most Project-associated traffic will cease upon completion of construction activities (refer to *Volume 4, Chapter 13*).

Selected locations may also require upgrades prior to construction and water and maintenance grading during concentrated construction periods (at QGC's expense in consultation with relevant authorities).

Mitigation

The Project will comply with the requirements of the Department of Transport and Main Roads (DTMR) and damage to state-controlled roads and additional risk to other road users should be minor. Damage caused by the Project will be rectified by agreement with the DTMR or the local government authority as appropriate.

5.3.4.2 Operations

The Project is expected to have negligible impact on the shire's social infrastructure during the operational phase due to the small number of workers required. Employees will be housed in Gladstone and other areas along the Pipeline, thus avoiding the potential for localised impacts.

5.3.4.3 Cumulative impacts

Cumulative impacts on communities in Banana Shire could occur if other projects stimulate population growth and increased demand for social infrastructure. Demands on social infrastructure from the Pipeline are expected to be negligible. However, if demand for health and emergency services increases, this could lead to an appreciable increase in health and emergency services requirements, and consequently to a reduced availability for existing local demands.

5.3.4.4 Mitigation

The following measures will be implemented during the construction phase to minimise potential impacts on social infrastructure:

- provide health care services within construction camps to minimise impacts on local health services
- provide voluntary assistance to community facility maintenance to minimise perceived lack of community benefit in Banana LGA
- conduct regular consultation with local health and emergency service providers to monitor impacts and implement corrective action where required.

5.3.5 Community Health and Safety impacts

This section outlines Project benefits and potential impacts on community health and safety during the construction and operational phases of the Project.

5.3.5.1 Construction

The employment of construction workers is likely to increase the proportion of males residing throughout the area on a temporary basis, but the Project will have negligible impact on the demographic health determinants of the population as a whole. There will be no impact on housing availability or affordability predicted. As such there are no impacts to demographic or housing health determinants.

As discussed above, the construction workforce will be housed in camps, with health care and evacuation services enabled by the contractor and there will be no appreciable demand on social infrastructure to restrict existing residents' access.

While workers will be housed in camps, it is likely that they will access local towns (and particularly hotels) from time to time. There is potential for construction workers to have a negative impact on community health and wellbeing, and this is discussed later in this section.

Air Quality

There are some areas where pipelines will be constructed in proximity to urban areas, namely around Taroom and Biloela, and near sensitive receptors such as a residence or school.

The key activities that have the potential to impact on the air environment are earthworks and transport on unsealed roads. The construction earthworks and associated vehicle movements are likely to generate dust that may become a nuisance in dry, windy weather conditions.

Any dust generated during construction will be temporary and it is expected that only minor volumes of particulates will be released following mitigation measures.

In-line compressors, which may be required in certain areas of the Pipeline, may produce air emissions. However, due to the composition fuel source use in running these compressors, it is not expected that the engines will emit particulates. No other major air contaminants are predicted to occur during the construction period.

Potential impacts and air quality management measures are discussed in more detail in *Volume 4, Chapter 11.*

Mitigation

- Regular watering of tracks, roads and the Pipeline routes during dry conditions will minimise dust generation in the surrounding area. Dust fallout is anticipated to be well within acceptable limits at all sites using this method
- Upon completion of construction, the pipeline corridors will be reinstated with vegetation and grass seed to encourage vegetation re-establishment. This will in turn bind the soil and further reduce dust nuisance.

Noise and vibration

Noise and vibration has the potential to impact on the quality of life and general wellbeing of the community if it interferes with activities such an individual's ability to sleep, relax and engage in everyday activities.

During the construction phase, the noise levels emitted from construction equipment are likely to temporarily increase background noise levels in the vicinity of the activity.

Trenching and restoration work are predicted to create the highest levels of noise during construction. Other potential sources include noise from campsites and traffic movements.

If compressor stations are used to increase export pipeline capacity there may also be local noise impacts associated with the construction of the compressor stations (refer to *Volume 4, Chapter 12).*

The predominantly rural location of the Pipeline component and the temporary nature of the construction works should ensure avoidance of adverse noise impacts during construction. There may be individual instances where the Pipeline will be constructed near an existing residence but in most instances construction will be at distances where noise will not be discernible.

Potential sources of vibration include blasting and the operation of bulldozers during clearing and rehabilitation works and trenching equipment. However, vibration impacts are expected to remain predominantly within the RoW and subsequently have a negligible impact on communities.

Mitigation

The relatively short period of intensive construction activity at any one point along the line will minimise impacts.

All noise impacts will be mitigated in accordance with BG Group and Queensland regulatory standards. QGC will liaise with the community to advise the likely duration of noisy activities and, where necessary, undertake particularly noisy activities during periods likely to cause least nuisance to nearby residents.

Other mitigation measures include:

- construction activities will be conducted in accordance with noise standards
- ensuring machinery and equipment are well maintained
- locating campsites to ensure noise impacts at nearest residences are at an acceptable level
- managing vehicle movements and access locations to avoid adverse noise impacts.

Diseases

The arrival of new workers associated with construction projects is often associated with an increase in sexually transmitted infections (STIs) in the local resident population.

The Project is not expected to contribute to the spread of vector-related diseases, however a Mosquito and Midge Environmental Management Plan (EMP) has been developed (refer to *Volume 10* of the EIS). The plan provides an assessment of mosquito-breeding areas and mitigation measures in place to prevent proliferation of mosquitoes and associated diseases in the Project area.

Mitigation

- Awareness-raising of health considerations will be conducted.
- A personal health program associated with occupational health responsibilities will include access to advice on communicable diseases, including STIs. Nevertheless, when considering social investment projects, the Project will take into account not only the priority needs of the community as a whole but those services where the Project may have an impact, such as communicable diseases and family support programs.
- A Mosquito and Midge Environmental Management Plan in *Volume 10* will be used to manage and prevent the harbourage and breeding of mosquitoes and other pests of health significance.

Waste

Details of potential impacts and waste management measures are discussed in *Volume 4, Chapter 15.*

The nature and volume of waste generated during the construction of the Project, if not managed appropriately, may potentially impact on:

- water quality of local drainage lines and watercourses
- contamination of land or water resources, particularly through the inappropriate release of effluent from sewage treatment facilities
- health and safety of workers and visitors to the site.

It is expected that relatively small amounts of domestic and industrial waste will be generated during construction of the Pipeline. Most waste is expected to be generated from plant and vehicle maintenance (e.g. fuels and oils), cutting lubricants, cleaning agents, water treatment chemicals and non-destructive testing.

Mitigation

- Waste management strategies will be in accordance with the *Environmental Protection Act 1994* in Queensland and in accordance with the resource management hierarchy principals of ‘‘avoid, reuse, recycle, recover and disposal’’.
- Wastes will be disposed of to an appropriately licensed facility in agreement with the local government authority.

Stress

A common definition of psychological stress is ‘‘a condition or feeling experienced when a person perceives that demands exceed the personal and social resources the individual is able to mobilise’’[49]. The demands of coping with sudden changes, perceived and actual, positive and negative, have demonstrable effects on stress levels.

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

Given the limited duration to which any group of people will be exposed to the construction program, this is not expected to be a significant impact. Moreover, the Project's economic benefits are likely to counter-balance some stress that is inevitable during a time of broader economic and employment uncertainty. Nevertheless, given the potential for cumulative impacts, this issue will be monitored through community relations activities, specifically through analysis of complaints through the grievance system.

Vulnerable Groups

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

Low socio-economic status and lack of employment are closely linked to almost every major cause of mortality and morbidity. It is not expected that the Pipeline construction will have a significant impact on socio-economic status and therefore community health.

There may be some reduction in access to health facilities and services during the construction period. There is a very low risk this may disproportionately impact on pensioners and/or those with disabilities and/or children, all of whom are higher users of health services.

It is also possible that children will be disproportionately affected by safety risks associated with the increase in traffic along school bus routes.

It is not considered that the other vulnerable groups detailed in *Section 5.2.3.3* will be disproportionately impacted on by the Project's activities.

Mitigation

- The Project will monitor access to health facilities for vulnerable people during construction and where necessary take corrective action through supporting local health providers.
- The interaction of haulage traffic times and school bus pick-up and drop-off times will be assessed and monitored to minimise disruptions and safety risks to children.

Social capital and worker behaviour

During peak construction, approximately 500 workers will be employed. Of these, it is likely that the vast majority will be a FIFO workforce.

As temporary workers' camps will be used to house workers, construction workers will most likely come into contact with the local community in the following ways:

- where a construction worker's role involves activities off site, such as transporting equipment or while travelling to the construction site from the camp
- where workers would be expected to travel from camps to local towns for small shopping needs and recreation.

There is potential for the influx of construction workers to have a negative impact on social cohesion and therefore social capital and community health and wellbeing. Impacts will mostly be associated with worker behaviour during time off work. Community interaction will be limited during work periods as construction camps will be used to accommodate the majority of workers.

The potential impacts arising from the presence of construction workers may include:

- Development of relationships between men on leave (whether single or in a relationship) and local residents which can lead to family breakdown issues and tensions with local communities.
- Cultural differences between construction workers and local residents which may lead to tensions with local community if workers disregard local cultural norms and generate an increase in prostitution.
- Adolescent and young men witnessing poor role modelling from construction workers on leave can lead to changes in their behaviour and tensions with the community.
- Workers obtaining and consuming illegal substances and/or excessive amounts of alcohol. Experience from previous construction projects has shown that this can have a negative impact on the local community through increasing the incidents of crime and/or violence and real or perceived threats. These impacts are particularly felt by women and would be concentrated in public places such as hotels and clubs.

Mitigation

Mitigation focuses on management of the workers' camps and the management of community relations in connection with the camp (see below).

- Camp management

Some recreational facilities will be provided within camps to reduce the need for workers to leave the camp for evening recreation. Entry to the camp by unauthorised personnel will be managed in accordance with the Project Security Management Plan.

Workers will be trained on Camp Rules and Code of Conduct, and failure to adhere to these procedures will lead to disciplinary measures. The procedures, which will comply with BG Group's Business Principles, include the following:

- no access to camps by unauthorised personnel and use of security passes for workers
- zero tolerance of illegal activities, including use of illegal drugs
- strict policy with respect to alcohol
- no hunting or fishing
- zero tolerance of bribery or requesting gifts from communities
- no use of company vehicles for non-work purposes
- description of disciplinary measures for infringement of the camp rules

and code of conduct

- description of community liaison activities, specifically who to contact in the event a member of the community makes approaches regarding the Project
- community relations orientation, including expectations of behaviour outside the camp.

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

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

- Community Relations

The Project will develop a detailed community relations plan. This will include responsibilities falling on the Engineering, Procurement and Construction (EPC) contractor, sub-contractors as well as QGC. Contractor responsibilities will be built into their contract and enforced.

The Project will coordinate with the police and other agencies to ensure activities have minimal impact on the local population. Community liaison personnel will work alongside the construction activities to ensure the social mitigation measures outlined in this EIS are implemented.

In the event a community member wishes to make a complaint, a formal procedure will record and address their concern. Details of the procedure, including contact details, will be distributed at community meetings and via leaflets and posters. There will be a free telephone hotline for contacting the Project.

Safety risks

Traffic safety

A transport and logistics impact assessment has been carried out for the field construction activities, the main focus of which is the potential impacts on existing traffic and transport. The findings are detailed in *Volume 4, Chapter 13*.

Traffic will be generated from the transportation of personnel, pipe carrying trucks, transportation of field joint coating, quarry transport, heavy plant for construction and meter station facilities. Vehicle requirements will therefore be a mixture of four-wheel drive vehicles and trucks. Pipe sections will be transported using conventional articulated vehicles, with extended semi-trailers as necessary. The Pipeline corridor is predominantly on private property, therefore disruptions to traffic from the physical construction of the Pipeline are unlikely to occur.

Pipe will be manufactured out of Australia, transported to a port, and then by road. The study considered the potential transport implications of seven different port options, and concluded that delivery to Gladstone and transport

by road had the least impact. Those roads where increases in traffic volumes are greater than 5 per cent are considered to have significant impacts and are considered in more detail.

Altogether, approximately 10,000 truckloads will be required to deliver the entire length of the Export Pipeline from Gladstone to site. An estimated 4,000 truckloads will be required for the Lateral Pipeline. Transport of construction camp facilities will involve approximately 90 semi-trailer loads from Brisbane to the site. It is estimated that to support a construction rate of 2 km of pipe a day, 110 pipe lengths will need to be delivered from Gladstone to the construction site. This will require the daily use of approximately 35 to 55 extendable semi-trailer trucks.

Traffic from construction camps will consist of a fleet of approximately 100 vehicles which will be used to transport 200 construction workers from camp to site on a daily basis (within a 70 km radius). For construction camps, buses will be used to transport workers from the nearest airport at the start and end of each work cycle. Camps will also be relocated during the scheduled breaks to minimise disruption to local traffic.

The study considers the following safety aspects:

- Each intersection likely to be affected by construction worker traffic will be assessed to ensure that sight distances meet the safe intersection criteria. Initial assessment shows that there are some intersections on the local government-controlled road network where remedial actions such as improvement of sight distance or development of alternative routes will be required.
- The haulage of materials is predominantly along rural highways and roads. The interaction of Project vehicles with pedestrians, cyclists and motorcyclists is in cities and towns. The increase in volume along urban roads is insignificant and therefore there is no increase in the safety risk to these other road users.
- School bus routes run along some of the routes the Project-related traffic will use. The interaction of haulage traffic times and times when children are being picked up or set down by the school bus will be assessed on a road-by-road basis for all school bus routes.

The construction traffic volume presents a minimal proportional increase compared to existing traffic volumes and is therefore not thought to be significant. Nevertheless, it is possible that the increased volume of traffic on the roads will increase risks of the general public being involved in a road traffic accident.

Mitigation

During detailed engineering design, the transport planning will be optimised to minimise potential impacts on sensitive community receptors. This will include the development of a detailed Traffic Management Plan, in consultation with relevant local authorities and law enforcement within each jurisdiction that will take into account routes, speeds, times of travel, key roads in terms of local services such as school bus routes, and measures to limit impacts on the roads and existing users.

Traffic safety is a high priority for the Project, and whatever the routes selected, mitigation measures will be taken to reduce the risk of accidents. Mitigation will focus on two areas: Project driving standards, and safety awareness in the community.

Measures to ensure a high standard of Project driving include:

- There will be zero tolerance for Project workers not adhering to the rules of the road.
- There will be a Vehicle Monitoring System to track vehicle movements and driving habits and to support emergency response systems.
- The Project Health and Safety management plans will include commitments to ensure that no employee is obliged to undertake a long journey when too tired to do so safely.
- Defensive driver training will be offered to ensure a high standard of Project driving.
- Contractors and sub-contractors will be held to the same Health, Safety, Security and Environment (HSSE) standards and their compliance will be audited.
- There will be a well-publicised community grievance procedure such that any member of the public observing poor driving by a Project employee can report the incident to management.

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

Other Safety Risks

Pipeline community safety risks that have arisen on other pipeline construction projects include:

- Animals and people falling into an open trench and injuring themselves. This is a particular risk where the RoW cuts normal travel routes.
- Community traffic taking short-cuts along the RoW, increasing risk of an accident.
- Unauthorised removal of struts supporting the pipeline during the period when pipe is strung and laid in the trench. This may cause the pipe to roll and potentially result in serious injury.

Mitigation

- Local people and animals will not be allowed on or near the construction activities. Adequate safety zones will be established for all Pipeline infrastructure and construction activities will be signed and managed such that entrance to site is prevented.
- The time between stringing and burial of the pipe will be minimised.
- Trench breakers, ramps and stock crossing points will be installed at key

locations.

- The community relations plan will include a grievance procedure that will ensure any community concerns will be recognised and addressed quickly.

Worker Health and Safety

The Project is compliant with Australian legislative requirements and has adopted BG Group's HSSE standards and policies (as specified in *Volume 8, Section 4.4.5.1*)

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

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

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

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

Mitigation

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

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

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

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

5.3.5.2 Operations

The impacts on community health and safety during operations are not expected to be significant, predominantly due to the small size of the workforce (approximately 20 people) and type of workforce activities that will be undertaken.

Dust generated during operations will be minimal in comparison to construction, with concentrations and fallout expected to be well within acceptable limits, and discernible noise and vibrations from the operating Pipeline are expected to be below or within government regulatory standards.

Some concerns may surround the hazards and risks associated with gas pipelines including the potential for gas release and consequences for human health. Technical studies have shown that hazards and risks associated with the Project are very low (refer to *Volume 4, Chapter 16*), and subsequently impacts on surrounding communities are expected to be negligible.

The main noise event associated with the operation of gas pipelines is the venting of gas for maintenance or emergency shutdown. The venting of gas creates a very loud, high-pitched noise but these are rare events and for limited durations. Planned venting for maintenance will take into account the potential for impact on residential areas and any identified impact will be notified to potentially affected landholders.

If compressor stations are used to increase Pipeline capacity there may also be local noise impacts associated with the operation of the compressor stations (addressed in *Volume 4, Chapter 12).*

Mitigation

Examples of measures that will be adopted during the operational phase to minimise impacts on community health and safety are listed below. More detailed information on mitigation is provided in *Volume 4, Sections 15–16 and Volume 4, Section 12.*

- ensure noise events are carried out in accordance with relevant state legislation
- provide adequate community notice of any scheduled, atypical noise events
- manage the storage and distribution of hazardous materials and fuels during Pipeline operations to prevent spillage and contamination and ensure no adverse affects on communities and the natural environment
- establish and maintain adequate safety zones for pipeline infrastructure to minimise risk to human health

- construct pipelines according to Australian Standards
- ensure no dangerous goods are stored at pipeline locations
- above-ground sites will typically be fenced to prevent inadvertent public access to the site
- Comprehensive Emergency Management Plans will be developed to further mitigate potential hazards and manage any hazards that may occur.

5.3.6 *Property and Land Use impacts*

The proposed Pipelines traverse predominantly freehold land, with occasional parcels of leasehold and crown land. The proposed route and the types of land tenure the Export and Lateral Pipelines will cross are highlighted in *Figure 8.5.11* and *Figure 8.5.12.*

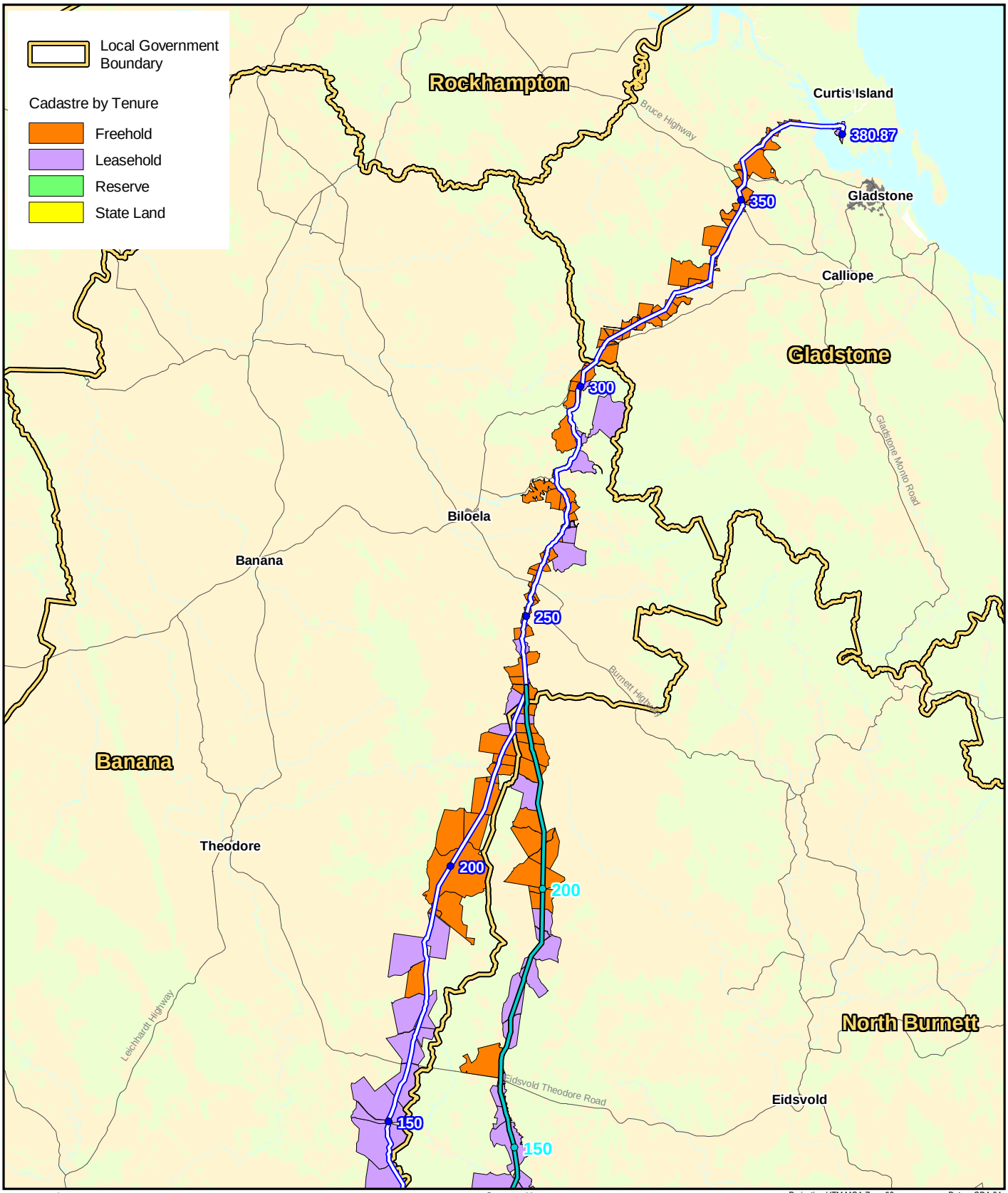
Land use within the Pipeline project area is predominantly grazing, followed by cropping and irrigated cropping. Grazing spans for 364 km along the length of the entire Export Pipeline while cropping and irrigated cropping cover a length of approximately 12 km (refer to *Table 8.5.27*). For the Lateral Pipeline, approximately 143 km of the Pipeline traverses grazing natural vegetation and 9 km through cropping areas.

Cropping activities along the pipeline corridors are primarily found in the centre of the Lateral Pipeline region, south of Taroom, and to the north of the Export Pipeline, near Biloela, with some cropping east of Wandoan.

There are no forestry activities situated within the pipeline corridors, with the nearest plantations located near the start the Lateral Pipeline (west of Taroom) and north-east of where the Export and Lateral Pipelines intersect. There are also a few plantations north of Biloela, to the west of the Export Pipeline (refer to *Figure 8.5.6*).

Table 8.5.27 Land Use by Type and Area, Lateral and Export Pipelines

Land Use	Export Pipeline Area	Lateral pipeline
	Total Length (m)	Total Length (m)
Grazing natural vegetation	364,031	143,128
Cropping	9,337	8,790
Lake	203	358
Irrigated cropping	2,324	
Reservoir/dam	137	
River	138	
Marsh/wetland	1,804	
Marsh/wetland – conservation	1,245	
Ocean	1649	



Legend:

- Export Pipeline & Kilometre Point
- Lateral Pipeline & Kilometre Point
- Upstream Infrastructure Corridor & Kilometre Point
- Export Pipeline Option 2

Source Note:

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Projection UTM MGA Zone 56 Datum GDA 94

0 20 40 60 80
Kilometres

N

QUEENSLAND CURTIS LNG
A BG Group business

ERM
Environmental Resources Management Australia Pty Ltd

Project	Queensland Curtis LNG Project	Title	Land Tenure - Export Pipeline
Client	QGC - A BG Group business		
Drawn	Mipela	Volume 8	Figure 8.5.11
Approved	CDP	File No	EO5-P-MA-96150
Date	08.07.09	Revision	A

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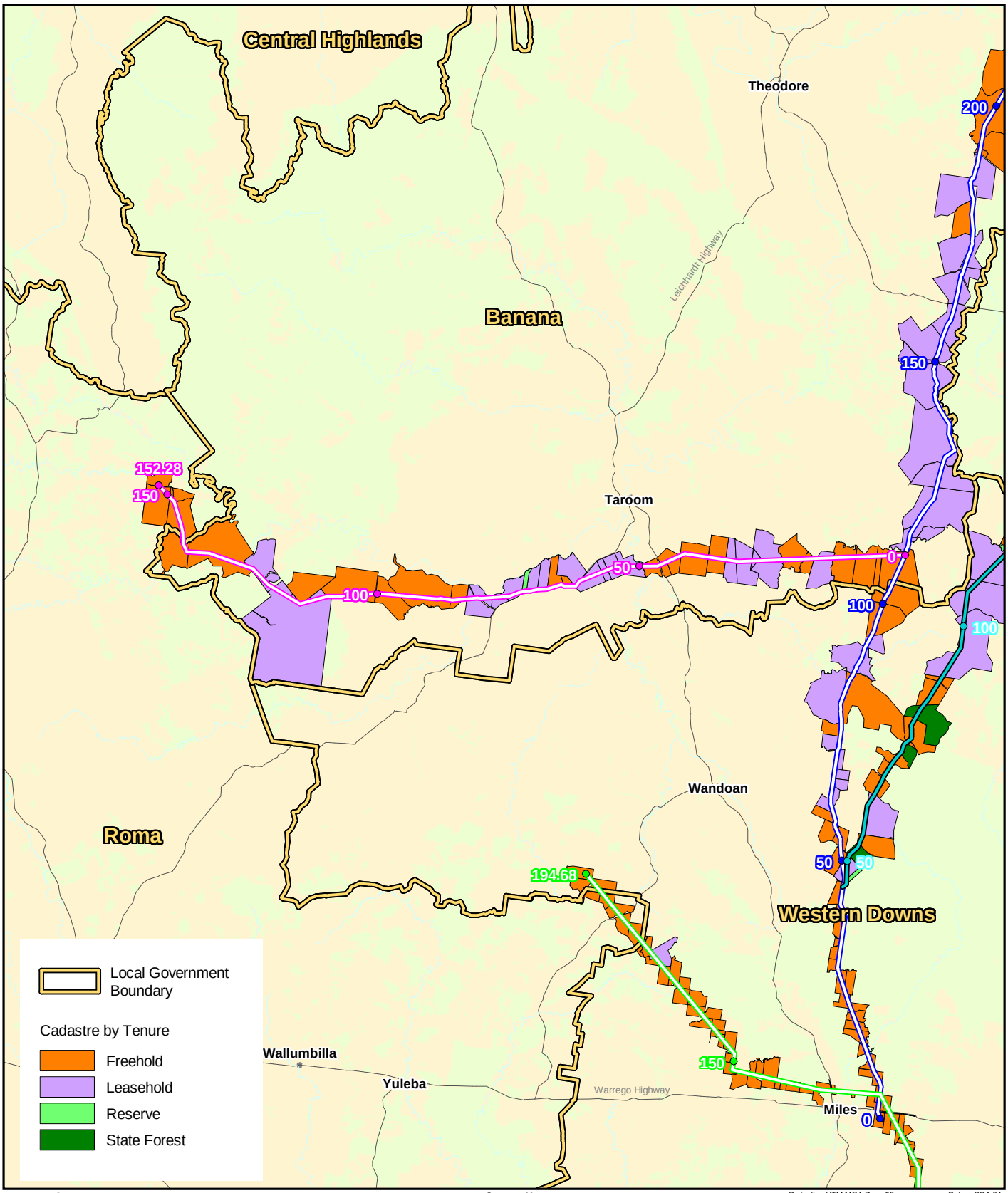

Legend:

- Export Pipeline & Kilometre Point
- Lateral Pipeline & Kilometre Point
- Upstream Infrastructure Corridor & Kilometre Point
- Export Pipeline Option 2 & Kilometre Point

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0 20 40 60 80
Kilometres

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QUEENSLAND CURTIS LNG A BG Group business	Project Queensland Curtis LNG Project		Title **Land Tenure - Lateral Pipeline**
	Client QGC - A BG Group business		
ERM Environmental Resources Management Australia Pty Ltd	Drawn Mipela	Volume 8 Figure 8.5.12	Disclaimer: Maps and Figures contained in this Report may be based on Third Party Data, may not be to scale and are intended as Guides only. ERM does not warrant the accuracy of any such Maps and Figures.
	Approved CDP	File No EO5-P-MA-96149	
	Date 08.07.09	Revision A	

There are approximately 100 distinct groups of landholders within the Export Pipeline corridor and 29 groups of landholders within the Lateral Pipeline corridor[50]. Consultation with landholders identified the following key issues which form the basis of this property impacts assessment:

- weed management
- future use of and for primary production
- access control (who is on the property doing what)
- ''Project overload'' – particularly in the most southerly 60 km and the most northerly 50 km - with so many projects in the region
- fair compensation
- avoidance of houses and improvements by suitable distances used for recreation, industry, education, aesthetics, scientific or residential purposes
- potential for impacts on cropping, grazing, or forestry
- future constraints on surrounding land.

5.3.6.1 Construction

Land Acquisition and Access Agreements

Residential uses will not be affected as the Pipeline corridor traverses primarily cropping land in remote locations. However, affected landholders may lose access or be subjected to restricted access to parts of their property during the construction phase.

The Project will require both temporary land use agreements (i.e. for preliminary investigations and later, temporary construction uses) and permanent (i.e. easements and freehold/lease) agreements. These agreements will provide the Project with certain rights over land while allowing the landholder to continue conducting their business over the land.

Mitigation

All land and property issues will be managed in accordance with the *Queensland Acquisition of Land Act 1967* and BG Group's Business Principles to ensure fair compensation for landholders and proper recourse and protection measures.

Landholders will be consulted individually and compensated according to the effect of the Pipeline component on the property and its operation.

Fragmentation or Loss of Agricultural Land

Construction of the Pipeline may temporarily result in fragmentation of properties and loss of agricultural land. Long-term impacts are not anticipated because the Pipeline will be buried after construction and landholders will regain access to the corridor and be allowed to resume most agricultural activities.

50 Note: Some landholders may own multiple land parcels

Cropping activities in the areas surrounding Taroom and Biloela may be affected during construction either directly through loss of Good Quality Agricultural Land (QGAL) or indirectly through impacts such as increased dust. Impacts are unlikely to be permanent as land along the pipeline corridor will be rehabilitated and previous agricultural activities allowed to resume provided they do not interfere with the buried pipeline.

Disturbance to Good Quality Agricultural Land is expected to have minor local impacts on the productive use of land for agriculture and grazing activities, with the original productive value of the land being restored following construction.

Mitigation

The routes of the Pipeline component have been aligned to minimise the impact on agricultural operations and production through consultation with affected landholders. The pipeline routes has been selected to minimise impacts on GQAL by following fence lines where practicable and/or minimising construction and camps in areas designated as Class A Agricultural Land. Landholders will be consulted individually and compensated according to the effect of the Pipeline on their property and potential loss of agricultural land.

The following measures will be used to further mitigate impacts on landholders and agricultural land use:

- measures to reduce dust impacts on surrounding properties and crops (refer to *Volume 10* of the EIS)
- erosion and soil management measures to minimise the potential for erosion and sedimentation, and retain future cropping productivity (refer to *Volume 10* of the EIS).

Restricted Access and constraints to livestock grazing

The presence of the RoW will cause a temporary loss of access to land, usually between 30 to 40 m-wide along the length of the Pipeline. In addition, the RoW will be an impediment to freely crossing from one part of a property to another, except at signed crossing points, during construction.

Typically it will take approximately 12 to 16 weeks for all the crews to pass through an area to complete their tasks, and access restrictions would apply during this period.

Restriction in access may cause inconvenience to landholders. In addition, grazing patterns and stock crossings will be temporarily changed. Property gates and fences may need to be temporarily removed during construction to make way for the pipeline and RoW areas.

In cropping areas, some irrigation systems may need to be temporarily blocked or removed during construction to allow for the laying of the Pipeline (refer to EIS *Volume 4, Chapter 5*).

Mitigation

Temporary and alternative permanent fences will be constructed in close consultation with landholders to ensure normal farming activities are minimally

impacted on.

Stock crossing points will be installed at key locations during construction to reduce the impacts on graziers. Where possible, existing access tracks will be used and the width of access tracks minimised to limit impacts to property.

Negotiations for cash compensation for landholders will include fair consideration of all access issues.

Consultation will be undertaken with landholders on agreed appropriate compensation, as well as the detailed timing and execution to minimise impacts.

Impacts outside RoW

Impacts on land, crops or stock surrounding the RoW may occur as a result of the following:

- vehicles or people straying from outside construction areas
- clearing of vegetation beyond the approved Project area
- dust from construction.

Mitigation

To minimise the risk of damage to land outside the RoW, construction will be undertaken within designated boundaries. Workers will be briefed on designated boundaries and grievance procedures put in place such that landholders can gain compensation if required.

Pipeline contractors will be subject to the conditions of access and compensation agreements with respect to minimising impacts on the property's existing uses, including residential uses.

Other mitigation measures include:

- restricting public access to the Pipeline RoW through the construction of physical barriers such as fences and erecting signs
- accessing the Pipeline RoW, where possible, using existing roads/tracks.

Dust generation and Air Quality impacts

Site clearance, access road construction, Pipeline installation and vehicle movements are likely to have a negative impact on air quality through the generation of dust. Significant dust levels can also reduce plant growth and hence land productivity, and mitigation measures are discussed in detail in *Volume 4, Chapter 11*.

Mitigation

Measures that will be adopted to minimise air quality impacts and disturbance to nearby residents include the following:

- providing notification and consultation of scheduled construction activity likely to generate dust
- limiting vehicle speed along the RoW to reduce air quality impacts on

nearby properties

- watering of construction sites and access roads on an as-required basis, increasing in frequency during periods of high risk (e.g. high winds)
- management and control of bulldust, e.g. watering, and mulching
- fitting vehicles and machinery with appropriate exhaust systems and devices
- implementing a strict ‘‘no burning’’ policy to avoid smoke generation.

Weeds and seed transfer

Landholders expressed concern during consultation that construction and associated transport activities may contribute to weed and seed transfer along the pipeline corridors. Introduction of weeds could have a number of socio-economic impacts including loss of productivity and increased costs of pest removal.

Mitigation

The potential impacts of weed and seed transfer and management and mitigation measures in place to reduce these impacts are discussed in detail in *Volume 4, Chapter 7* and a draft of the weed management measures for construction is included in the Pipeline EMP in *Volume 10* of the EIS.

5.3.6.2 Operations

Restricted land use along the Pipeline and RoW

Following construction, the Pipeline will be buried and the land reinstated such that landholders will be able to resume most farming activities. Reinstatement includes removal of foreign material, such as construction material and waste, re-spreading of topsoil and cleared vegetation and re-seeding if necessary. Laydown areas and construction camp sites will also be rehabilitated.

There will be some permanent restrictions on land use which are considered in the negotiations for compensation with landholders. Grasslands will be re-established, but deep-rooted vegetation will be discouraged directly above the Pipeline (approximately 6 m in width). Soil disturbance will be limited to 300 mm depth. Should the landholder wish to excavate beyond 300 mm, they would be required to advise the pipeline operator who will locate the Pipeline and supervise the excavation works if appropriate.

The preferred pipeline routes have been deliberately selected to minimise the impact on GQAL and to minimise the risk of crossing land that may be the subject of future intensive land use development.

Land use will be allowed to return to normal after the construction phase; however some restrictions will apply to ensure protection of the pipeline. Restrictions will relate mainly to tree planting, building, drilling, and any other activity that could potentially cause damage to the pipeline.

Mitigation

Measures such as markers and easement agreements will be used to protect the Pipeline while minimising disturbance and restrictions to land users.

Privacy and land access issues

While landholders will regain access to the pipeline corridor following construction, a long-term access agreement will be required between QGC and affected landholders to allow for continual maintenance. The impact of this on landholder access and privacy will most likely be minimal but last for the duration of the Project.

Mitigation

- Access to RoW will be restricted to activities essential to continued operation of the pipeline and protection of the local environment. The pipeline RoW will not be used as a general thoroughfare.
- Access to the pipeline RoW will be conducted, where possible, through use of existing roads/tracks.
- Landholders will be notified, where possible, at least seven days before the period of required access.

Damage to land or property

Increased risk of damage to land and property may be an issue during the operational phase if new access roads remain. The risk of outsiders accessing private properties may increase as construction ends and commercial activity along the pipeline decreases.

Mitigation

Public access to the pipeline RoW will be restricted through constructing physical barriers such as fences and erecting signs. Landholder complaints will be recorded and actioned by Operations Management to ensure prompt rectification and change management where required.

5.3.6.3 Cumulative impacts

People most likely to be affected by cumulative social impacts are landholders who have more than one project traversing their properties. This has the potential to create ''Project overload'' in some areas of the Pipeline and impact on the lifestyles and livelihoods of landholders, through severance or fragmentation of properties and access roads. Based on available information on projects in the area, the potential for cumulative impacts and Project overload is present in three areas where the pipeline would intersect with other linear infrastructure:

- with the Nathan Dam pipeline in the Miles area
- with the proposed Gladstone LNG pipeline north-east of Biloela
- with the Moura–Aldoga Rail Link west of Gladstone.

5.3.7 *Lifestyle, Amenity and Community Values impacts*

5.3.7.1 *Construction*

Agricultural industry impacts

The agricultural industry has shaped the character and values of many towns in the Pipeline area. As a result, any impact on the future viability of agricultural land has the potential to affect the rural values and character of these communities.

The construction phase is unlikely to have any impact on the character of the Pipeline region. The pipeline routes are aligned to avoid important agricultural areas and takes up a very small proportion of land. The pipeline will also be buried and landholders will mostly be able to resume land use activities following construction.

Recreation

Communities in Banana Shire participate in a variety of outdoor leisure and recreational activities such as fishing, water skiing, and bushwalking.

The Pipeline Component is unlikely to impact on these activities as most of the corridor traverses private property or freehold land. National parks and areas of conservation are avoided in the current pipeline route to minimise environmental and socio-economic impacts.

River-based recreation activities may be temporarily affected for limited periods as the pipeline construction will include several water crossings. This includes with the crossing of the Condamine Rover, Calliope River, Callide Creek and the Dawson River. Every effort will be made to minimise the impacts of river crossings on environmental values and watercourses will not be permanently modified.

Mitigation

Mitigation measures that will minimise impacts on local waterways include:

- advising landholders and township residents in the local area of works occurring near and across waterways
- reinstating watercourse banks as closely as possible to their former profile, stabilising and vegetating banks as necessary to prevent scouring
- completing crossings promptly
- constructing the disturbance corridor for the bed and bank of watercourses as narrowly as possible for safe construction
- retaining large trees, where practicable
- installing trench breakers and sediment fences between watercourses and construction areas.

Refer to *Volume 4, Chapter 9* for more details of management practices that will be implemented to minimise potential impacts during construction.

Visual amenity

The construction of the pipeline involves clearing corridors ranging in width from 30 to 40 m and up to 100 m in some areas. These will be highly visible in pasture and grazing areas until crops and/or grasses can be re-established.

Construction is unlikely to significantly affect the visual amenity of communities as most of the pipeline corridors pass through predominantly rural areas with limited housing and transport infrastructure.

In forested areas the visual impact will be permanent, but of lesser magnitude because the remaining trees will act as screens. The detailed pipeline route design includes criteria to minimise tree clearing.

More detailed information on potential visual amenity impacts and mitigation measures is provided in *Volume 4, Chapter 14.*

Lifestyle impacts

Landholders are accustomed to quiet surroundings and construction of the pipeline has the potential to disturb their quiet lifestyles. The impacts of construction will depend on the proximity of the landholder to the pipeline corridors.

Artificial light disturbance from night construction activities is unlikely to occur as most construction will be undertaken from 6am to 6pm. The only exception is during drilling activities and filling of the pipe for hydro-testing, which need to continue until completion of the activity (refer to *Volume 4, Chapter 14*).

While construction will lead to some disturbance and nuisance, impacts will be temporary and short-lived. For the majority of areas, construction impacts will only be apparent for on average 12 to 16 weeks (this will be higher for more complex activities such as creek crossings).

Mitigation

As far as practicable the pipeline routes have been selected to reduce proximity to residential areas and major highways. This should reduce adverse impacts from dust and noise. Other management techniques employed are water trucks to damp-down travel areas on the RoW and any key, unsealed access roads; and reducing speed limits, particularly in dusty areas in windy conditions. This is addressed in detail in *Volume 4, Chapter 11*.

Traffic disruption at road crossings

Detailed information on impacts associated with road disruptions and mitigation measures is provided in *Volume 4, Chapter 13*.

The level of traffic disruption will be mainly concentrated around the construction spread (transport destinations). Localised impacts are expected to be temporary. As construction progresses along pipeline routes, the construction spread will move accordingly, thereby lessening the duration of impact in any one area.

During construction, there may be temporary interruptions to traffic on the Warrego, Dawson and Bruce Highways as well as local roads (for detailed information, refer to *Volume 4, Chapter 13*). The use of boring techniques on sealed roads and major transport routes will assist in minimising impacts on road users.

The level of disturbance will be the greatest on local roads as heavy vehicles may require use of the entire breadth of the road. Disturbance will likely be more pronounced in smaller rural communities that typically enjoy low levels of traffic on local roads.

Mitigation

- QGC and its contractors will always have ''bypass'' or detour options agreed with the local manager prior to commencement of local road crossings.
- All sealed roads and rail lines will be bored to reduce impacts on traffic flow and minimise or avoid damage to roads.
- A road use management plan will be implemented which addresses the use of warning and restriction signs and coordination of traffic movement.
- Road crossings will be planned to take place outside peak periods to minimise disruption.
- Open-cut roads will be reinstated to the satisfaction of local authorities.

5.3.7.2 *Operations*

Operation of the pipeline is not expected to impact on the lifestyles, amenity and values of communities in the pipeline region due to the following reasons:

- small workforce size
- the pipeline will be buried following construction and surrounding land, in most cases, reinstated to its former land use

Impacts to roads or traffic conditions will be negligible during operation.

5.3.7.3 *Cumulative impacts*

Impacts on community values related to worker behaviour in town on nights off or during leave periods are unlikely given the remote nature of most camps. However, if a number of camps are located close to Biloela or Moura, simultaneously in the same area, there is potential for an increased presence of construction workers to impact on community values such as the quiet rural life, and potentially on traffic safety depending on projects, worker transport arrangements and codes of conduct.

The Project's potential contribution to this impact is discussed in *Section 5.3.5.1*.

5.4 SUMMARY OF IMPACTS AND SIGNIFICANCE

Potential socio-economic impacts from pipeline construction will predominantly affect landholders rather than the broader communities within Banana Shire.

A summary of the potential impacts associated with the pipeline construction is provided in *Table 8.5.30.* Significance of impacts was determined using criteria shown in *Table 8.5.28*. Indicators that will be used to evaluate and monitor change are outlined in and *Table 8.5.29.*

Table 8.5.28 Significance Assessment Criteria

Assessment Criteria	Neutral (neither positive or negative)	Minor Impact (positive or negative)	Significant Impact (positive or negative)
The degree of change likely to arise due to the Project	Insignificant/no change	Some low-level change, but not likely to be of importance to individual or community wellbeing.	Change affecting existing social conditions or equity
The number and nature of people likely to be affected	None	A small number of people (e.g. immediate neighbours) Limited effects only	A large number of people (e.g. local community, regional impact). Likely effect on disadvantaged people
Whether the impact will be direct or indirect	No impact	Indirect impact	Direct impact
The duration of the impact	N/a	During Project planning or construction only	Permanent, or pertaining to operations
The level of expressed or anticipated community concern	None	Low level of reaction from the people affected	High level of reaction from people affected (may include local community or wider communities)
The potential for cumulative impacts	Insignificant/none	Little likelihood of leading to an increase in the overall effects on the area	High likelihood of leading to a substantial accumulation of effects over time

Table 8.5.29 Indicators used to evaluate and monitor change

Indicator	Measures	Current status[51]
Population Stability	Same address 5 years ago	51%
Indigenous population size	% indigenous people	2.8% indigenous people
Economic resources	SEIFA Economic Resources Score	1,018.2
Employment rates	Unemployment rate Youth unemployment rate	Low unemployment, at 2.3% Low youth unemployment, at 3.5 to 4% Higher % in full-time employment
Employment equity	Indigenous employment rate	Banana SLA: 58% Low indigenous unemployment rate in Banana SLA (8%)
Cultural diversity	% of overseas born people	2% of resident population born overseas
Community cohesion	As per community profiles and council survey	High level of volunteering (20%)
Health status	Need for assistance	Low % of persons requiring assistance with core activities (2.7%)
Workforce skills levels	% workforce with certificate qualifications	
Incomes levels	Average weekly household income	High average industry income ($876) High household income ($1,313) High individual income ($700)
Community safety	Reported crimes against the person Traffic Safety on Project routes	Roma Police District: 200 offences Gladstone Police District: 478 offences[52]
Social infrastructure access	Benchmarked need	Existing community facilities appear adequate up until 2026 Apparent oversupply of some facilities such as community centres
Use and enjoyment of private land	Number of properties affected	Current high level of privacy and land hold control

5.5 CONCLUSION

Social impacts associated with the Pipeline Component of the Queensland Curtis LNG (QCLNG) Project will primarily be felt during the construction period, and primarily by landholders with whom access and compensation agreements will be negotiated.

51 Latest available comparable data – 2006 census if not otherwise noted

52 Queensland Police, District Crime Report, 2007-08, http://www.police.qld.gov.au/Resources/Internet/services/reportsPublications/statisticalReview/0708/documents/District%20Crime.pdf, Accessed June 2009

The key impacts relate to:

- temporary restrictions on land access and property use
- increased traffic volumes due to Pipeline Component delivery trucks, and the consequent need to ensure traffic safety is comprehensively addressed
- potential for worker behaviour to impact on community values in recreational venues (principally hotels), and the need for a workforce management strategy which addresses this potential.

The QCLNG Project is unlikely to have significant local benefits during construction, apart from access to regional economic benefits as described in *Volume 8, Chapter 10*.

Pipeline Component operation will have minimal social effects.

Whole of Project mitigation strategies are discussed in *Volume 8, Chapter 8*.

Table 8.5.30 Summary of Impacts and Significance

Potential Impact	Likely Significance					Indicators affected	Mitigation/Enhancement	Likely Residual Impact
	Major Positive	Minor Positive	Neutral or None	Minor Negative	Major negative			
Labour force								
Direct employment of approximately 500 jobs during Pipeline construction			X			• Unemployment rate (+)	Implement a local recruitment and training strategy.	No
Indirect employment through increased demand for local good and services during construction		X				• Unemployment rate (+)	Utilise local suppliers and service providers where possible.	No
Direct employment during transportation of Pipeline materials, equipment and construction camp facilities (most likely sub-contractors)		X				• Unemployment rate (+)	Maximise local employment where possible.	No
Demographic Impact								
The construction phase is unlikely to have any impact on the social and cultural profile as construction is transient and workers will be housed in camps.			X				Construction camps will be used to house workers and at various points along the Pipeline. Camps will move as construction progresses, thereby avoiding and/or reducing demographic impacts on local communities.	No

Potential Impact	Likely Significance					Indicators affected	Mitigation/Enhancement	Likely Residual Impact
	Major Positive	Minor Positive	Neutral or None	Minor Negative	Major negative			
Housing and Accommodation								
Social Infrastructure								
The direct impacts of pipeline construction on community infrastructure in Banana LGA are expected to be minimal as all Pipeline workers will be accommodated in workers' camps. Each camp will have its own health and support services provided as part of the Project's worker accommodation scheme.			X					No
Increased demand for health and emergency services *(Cumulative impact)*				X		• Health status • Social infrastructure access	Contribution through social investment to community capacity building.	No
Property and land use								
Temporary loss of land access and use				X		• Use and enjoyment of private land	Addressed through compensation and land access agreements. Identify whether construction activities will, cumulatively, cause an unacceptable burden for landholders with respect to noise, dust and access impacts; and ensure that, where possible, staging of construction mitigates cumulative impacts on landholders.	No

Potential Impact	Likely Significance					Indicators affected	Mitigation/Enhancement	Likely Residual Impact
	Major Positive	Minor Positive	Neutral or None	Minor Negative	Major negative			
Disturbance to future land use			X			• Use and enjoyment of private land	As above	No
Damage to land outside of RoW			X			• Use and enjoyment of private land	As above	No
Access restrictions in Pipeline corridor			X			• As above	As above	Yes
Removal of irrigation systems				X		• As above	As above	No
Weed and seed transfer				X		• As above	Refer to *Volume 4, Chapter 7* and *EIS Volume 10.*	No
Grazing constraints and impacts on livestock				X		• As above	Trench breakers, ramps and stock-crossing points will be installed at key locations. Grievance procedures will also be put in place.	No
Dust generation				X		• As above • Health status	Refer to *Volume 4, Chapter 11.*	
Community Health and Safety								
The number of Project-generated jobs will have negligible demographic impact and therefore unlikely to significantly affect specific health determinants.			X					N/a

Potential Impact	Likely Significance					Indicators affected	Mitigation/Enhancement	Likely Residual Impact
	Major Positive	Minor Positive	Neutral or None	Minor Negative	Major negative			
Reduced access to health infrastructure and services			X			• Health status • Social infrastructure access	Increased service funding and community development program investment will be taken if required. The Project will provide health care and support within the camp.	No
Safety risks arising during construction • injuries to people and animals from open trenches and pipe • accidents along RoW from community traffic taking short-cuts • incidents of construction workers obtaining and consuming illegal substances and/or alcohol				X X X		• Social infrastructure access • Community Safety • Health status • Community cohesion	Local people and animals will not be allowed near construction activities. Time between stringing and burial of pipe will be minimised. Trench breakers, ramps and stock-crossing points will be installed at key locations. Grievance procedures will be in place to recognise and address community concerns. Refer to *Volume 12* The Project will undertake a comprehensive road awareness education initiative throughout the Pipeline area. The Project will develop a detailed community relations plan. Workers will be trained on Camp Rules and Code of Conduct and undergo community relations orientation.	No N/a

Potential Impact	Likely Significance					Indicators affected	Mitigation/Enhancement	Likely Residual Impact
	Major Positive	Minor Positive	Neutral or None	Minor Negative	Major negative			
Lifestyle and Community Values								
Traffic and transport impacts associated with construction of the Pipeline (cumulative impact) • increase in noise, vibration • dust and air quality impacts • disruptions to local traffic and school bus routes • disruption to highway traffic				X X X X		• Use and enjoyment of public land • Community health and safety • Health status	A Traffic Management Plan to reduce impacts on sensitive receptors. The Project driving standards will be implemented. *Refer to Volume 4, Chapter 13*	
Leisure and recreational impacts from Pipeline construction				X		• Use and enjoyment of public land	Minimise impacts of river crossings on environmental values and ensure permanent water crossings are not modified. Avoidance of national parks and areas of conservation.	No
Impacts on landholder lifestyles *(Possible cumulative impact if landholder has more than one project crossing their property)* • reduced privacy during construction and operation • reduced visual amenity during construction and operation • safety risks and hazards				X X X		• Use and enjoyment of private land	Refer to *Volume 4, Chapters 11 to 16.*	No

Potential Impact	Likely Significance					Indicators affected	Mitigation/Enhancement	Likely Residual Impact
	Major Positive	Minor Positive	Neutral or None	Minor Negative	Major negative			
• noise, vibration, dust and air quality impacts from construction of RoW and transport of Pipeline materials and machinery • artificial light disturbance from night activities				X				