



D1 | Social



Report

GLNG CSG Field

Social

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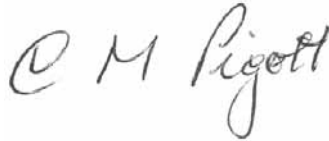


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Abbreviations

Abbreviation	Description
ABS	Australian Bureau of Statistics
CSG	Coal Seam Gas
DIDO	Drive-in, drive-out
EIS	Environmental Impact Statement
FIFO	Fly-in, fly-out
GLNG	Gladstone Liquefied Natural Gas (project)
IAS	Initial Advice Statement
IMS	Incident Management System
IPA	Integrated Planning Act
LNG	Liquefied Natural Gas
MMscfd	Million Standard Cubic Feet per Day
OESR	Office of Economic and Statistical Research
PIFU	Planning Information and Forecasting Unit
QAS	Queensland Ambulance Service
RFDS	Royal Flying Doctor Service
SIA	Social Impact Assessment
TAF	Temporary Accommodation Facilities
WHS	Workplace Health and Safety

Executive Summary

This social report forms part of the Gladstone Liquefied Natural Gas (GLNG) Environmental Impact Statement (EIS) Supplement, which is a requirement of the Queensland Department of Infrastructure and Planning (DIP). This report analyses updated project information as well as addressing a number of issues raised by key stakeholders through the public submission process.

Santos supports the Maranoa regional community in a number of ways. In the last 12 months, over \$100,000 has been invested in local community sponsorships and events. Santos has organised and funded local training and apprenticeship programs and has sponsored numerous community events including:

- Stock Up for Hope;
- Q150 Queensland's 150th Celebrations;
- The Roma Show;
- Santos Food and Fire Festival; and
- Injune Bowls Club.

Further to this community investment, over many years Santos has grown its local operations to a point where over 25 Santos staff and their families now live and work in the Maranoa regional community. In addition, Santos contracts out to local goods and service providers. This 'localisation' philosophy continues to provide social and economic benefits to the region, which are expected to grow with the development of the GLNG Project.

Summary of Project Changes Assessed

The following components have been assessed in this EIS Supplement. They include:

- Roma Logistics Hub;
- Roma Underground Gas Storage Area;
- A new workforce migration scenario; and
- The Roma airport.

The new workforce migration scenario was based on the experiences of the Fairview operation. The scenario has anticipated 2 % of the imported workforce would migrate to the area in year one and 1 % each additional year up to year five. The scenario projected migration up to year five because predictions beyond year five would become too speculative. The remainder of the imported workforce would be housed in TAFs throughout the CSG field dependent on their area of activity.

Summary of Changes to Impacts

The project is not anticipated to have significant negative impacts on the demographics and community profile of the Roma area. The population increase is expected to be a positive impact due to its manageable size (less than 35 people to the area in year one). Year's two to five provide a similar outcome with migration at approximately 20 to 23. By maintaining a TAF system for imported workers, the project would reduce the social impacts on the communities in the area. Data collected on the TAF accommodated workers and the general population found low levels of interaction between the two.

As of October 2009 there were over 200 homes listed as 'for sale' in the Roma area, indicating ample housing supply. The project intends to house the imported workforce in TAFs which will not impact the local housing market. The minor population increases anticipated through the five year migration scenario could easily be absorbed by the local market. Housing prices may increase as a result of the

Executive Summary

project but this is anticipated to be based on speculation rather than demand since the workforce will be accommodated in TAFs.

The project may have an impact on local health and emergency services due to the increase in the number of workers in the field. This impact is anticipated to be low to medium depending on the volume of incidences and the cumulative effect of routine demand by area residents. Coordination efforts between the project and local service providers will be required to manage project impacts.

The potential impact from education and training programs is anticipated to be a positive impact for the area. Santos will attempt to enhance local skills capacity through various education and training programs. There is not anticipated to be a large contingent of local workers available for the project due to low local unemployment and the small population. Education and training programs will increase opportunities for locals and may also help attract people to the area.

The project is anticipated to have a positive impact on economic and employment opportunities in the Roma area. Although the project will offer opportunities for employment and local businesses to cater directly to the project as well as indirectly to new residents, there is the potential for workers to leave current positions to work for the project.

The project is anticipated to have low impacts on social infrastructure with the exception of airport facilities and roads. Road traffic and transportation issues are addressed in Attachment C. A management strategy for the Roma Airport will need to be developed in collaboration with the Maranoa Regional Council as project demand increases due to terminal and runway constraints.

1.1 Introduction

The following report addresses the key social impact assessment (SIA) related concerns and issues raised through the public comment component of the Gladstone Liquefied Natural Gas (GLNG) Project Environmental Impact Statement (EIS). In some cases further clarification and assessment is provided as well as additional studies conducted to address underlying concerns. The SIA used the most up-to-date data available at the time of the assessment. New data has been used to inform updates to the social baseline for the CSG field component of the project. In addition, ongoing consultation with key stakeholders has helped qualify issues of concern which has resulted in further studies and analysis.

1.2 Definitions

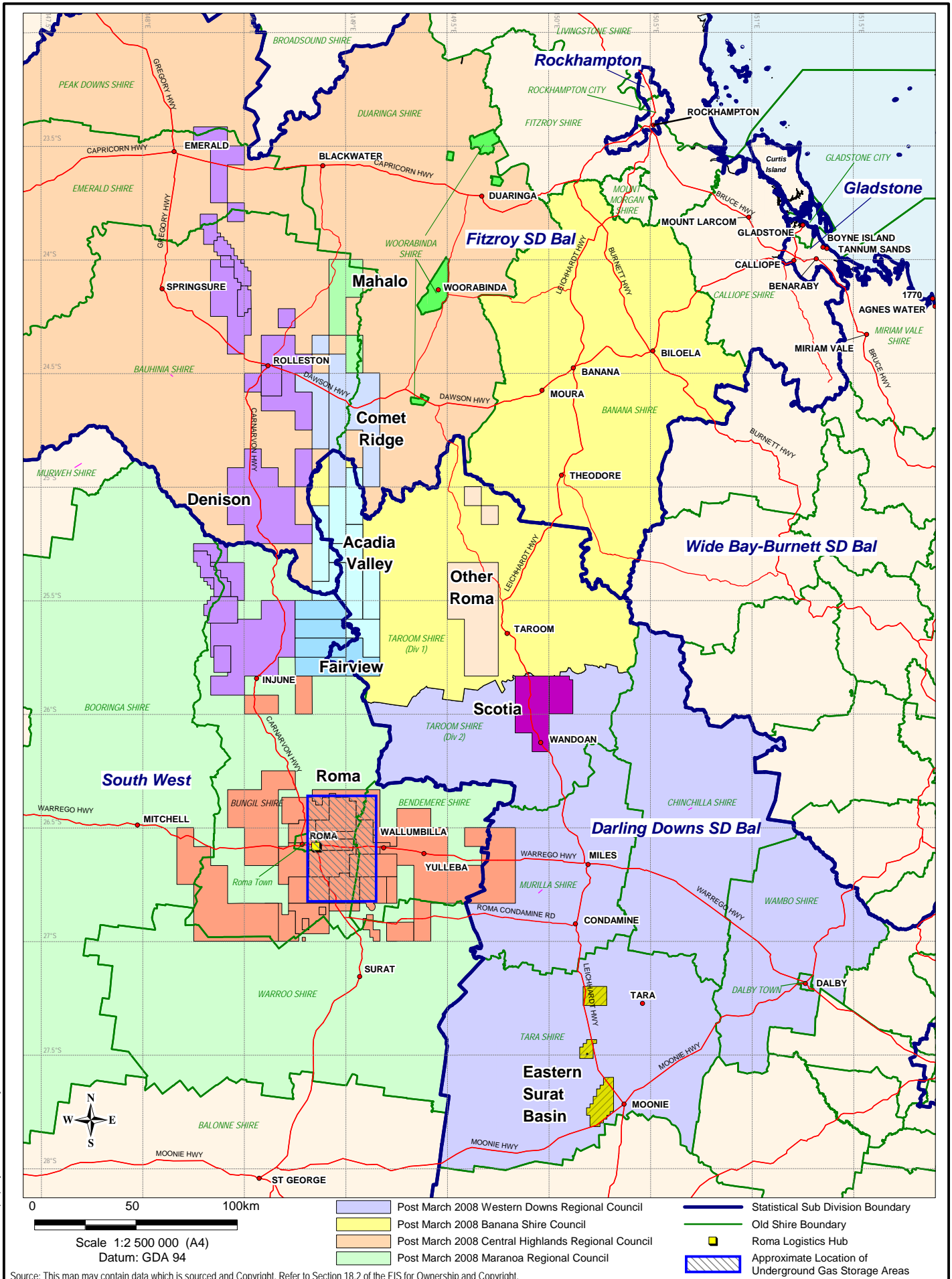
The following are common definitions used throughout this report.

1.2.1 Study Area



The study area remains the same as that stated in the original social impact assessment report of the EIS (EIS SIA), with the CSG field encompassing the entire field area as seen in Figure 1-1.

1.2.2 Imported and Local Workers

The definitions for imported and local workers remain as per the definitions in the EIS SIA report. That is, an individual who does not live in the study area or within reasonable commutable distance to the project site. The imported workforce is expected to be fly-in, fly-out (FIFO) or in some cases drive-in, drive-out (DIDO). A reasonably commutable distance has been set at < 100 km.



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Client  	Project GLADSTONE LNG PROJECT ENVIRONMENTAL IMPACT STATEMENT SUPPLEMENT SOCIAL ASSESSMENT		Title SIA STUDY AREA CSG FIELD	
	Drawn: LL Job No: 4262 6440	Approved: JB File No: 42626440-g-2174.wor	Date: 09-11-2009	Figure: 1-1

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1 Methodology

1.3 Ongoing Consultation

During the public review period for the GLNG EIS, Santos conducted a comprehensive round of community information sessions and key stakeholder briefings. In many locations, Santos experienced record numbers of community members attending the information sessions. In addition, Santos was provided with all of the public submissions outlining stakeholder concerns about the project. This report intends to address the issues raised in those forums, recognising that some issues will need to be closely monitored over time. This will be achieved through the social management plan identified in the SIA and currently under development.

1.4 Background

The EIS SIA assessed the project based on the existing Santos operated TAFs in the Roma area. These TAFs have very little interaction with the general public and the proposed GLNG Project TAFs will operate in the same manner. As a result, potential positive and negative impacts on the community were assessed as low, since all field workers would be housed in the TAFs. The EIS SIA therefore focussed on the impacts that could be anticipated to occur in the community from the Santos Roma Office.

Table 1-1 shows the CSG workforce totals presented in the EIS SIA. These totals are indicative of anticipated field activities but are subject to a number of variables including:

- Gas productivity at developed sites;
- Worker availability;
- Onsite construction and development issues; and
- Other environmental factors.

Table 1-1 Total CSG Field Study Area Workforce Numbers 2010 to 2034

Area	2010	2011	2012	2013	2014	2019	2024	2029	2034
Construction									
Compressor Construction	20	50	60	20	15	0	0	0	0
Drilling	266	180	200	80	130	153	153	153	153
General Field Construction	500	700	700	700	600	31	31	31	31
Operations									
Roma Centre	29	39	45	53	57	59	60	62	62
Roma CSG field	62	123	185	245	245	252	260	266	270
Fairview CSG field	137	198	258	320	320	335	344	339	339
Arcadia Valley CSG field	20	27	19	62	62	82	99	99	99
Total	1,034	1,317	1,467	1,480	1,429	912	947	950	954

Note: Due to the uncertainty of estimating workforce numbers beyond 2014, five year estimates have been provided. Numbers may change based on gas field productivity, emerging technologies, government regulations or several other potential variables and are therefore provided as an estimate based on the current information available.

Source: GLNG EIS SIA (Table 8-3).

1 Methodology

Current Roma Area Workforce

The Roma and Wallumbilla workforces currently operating on different Santos projects are based out of Roma. Thirty workers currently work in the Roma fields and ten workers at the Wallumbilla facility. All workers commute daily, predominantly from Roma. The overall number of workers based in the Roma area ranges from 30 to 50 throughout the year depending on field activity and project requirements.

Current Fairview Operations

A brief case study of the Fairview Operations can be found in Section 5 of this report.

Methodology

This report for the CSG field social assessment has followed a similar methodology as was used for the EIS SIA. The following assessment methodology was used:

1. Present baseline assessment – baseline from the EIS SIA was used with updates as required;
2. Present new changes to the project description;
3. Present relevant information from Santos operated TAFs in the area;
4. Develop migration scenario;
5. Impose information from bullets 2 to 4 on the baseline to determine potential impacts;
6. Assess potential impacts;
7. Develop mitigation and enhancement strategies; and
8. Develop an executive summary.

Interviews with key stakeholders were carried out where appropriate in order to provide additional information or close gaps in the data. Interpretation of potential impacts was also conducted in some cases to determine perceived impacts given certain scenarios. Analogous sites were included as new information to support findings, conclusions and mitigation/enhancement strategies.

This report has examined the social impacts over the first five years of the project in more detail given the project description changes and updated information from existing operations in the study area. The report has:

- Examined the social impacts relating to new project description changes; and
- Assessed an accommodation scenario where 2 % of the imported workers relocate to Roma in year one and 1 % relocate each following year up to year five based on the experiences at the Fairview operation.

A new accommodation scenario has been developed to assess the possibility of GLNG construction workers migrating to the Roma community. This has been developed in response to stakeholder feedback that Santos should consider a mix of accommodation options that allow for growth of the local community, rather than housing the majority of its construction workforce in TAFs (see Section 3.3 for more information). This report has also examined the social impacts from project description change for the development of a new Roma Logistics Hub (see Section 3.1) and updates on the development of the Roma Underground Gas Storage Area (see Section 3.2).

Project Description Changes

3.1 Roma Logistics Hub

The Roma Logistics Hub is a project description change to the EIS. Attachment D4 provides further assessment of this development, including a more detailed description of proposed construction and operational activities.

The social assessment of the Roma Logistics Hub has been included in this report as it has been assessed as part of the CSG field component of the overall GLNG Project.

3.1.1 Assumptions

The following assumptions were applied to the Roma Logistics Hub:

- Approximately 70 workers would be required for the first five years as supplies are stockpiled for the CSG field development;
- Year's five and six would experience a decrease in workers (approximately 25 each year) as operational efficiency improves and the site develops sufficient stocks of equipment and materials;
- The 90:10 ratio between imported and locally sourced workers would be the same as for the rest of the CSG field, given the low unemployment in the area;
- Imported workers would be accommodated in TAFs; and
- Local workers would commute daily to/from the site, with locals being defined as those residing within approximately 100 km of the site.

3.1.2 Description

As detailed in Table 3-1, the Roma Logistics Hub is anticipated to employ 70 individuals for the initial years of the project while supplies and project equipment are being stockpiled in the area. After the initial build up, the workforce is anticipated to decline. This Roma Logistics Hub will operate for the duration of the project (construction and operational phases).

Table 3-1 Estimated Roma Logistics Hub Workforce

Area	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Roma Logistics Hub	70	70	70	70	70	45	20	20	20	20

Source: Santos

Santos will encourage local employment through employment and training opportunities. Since the Roma area has a low unemployment level it is likely that the majority of the workforce will need to be FIFO or DIDO, and will therefore require TAF accommodation.

The Roma Logistics Hub workforce has been added to the CSG field total for assessment under the revised accommodation scenario (refer Section 3.3).

3.2 Roma Underground Gas Storage Area

The Roma Underground Gas Storage Area has some updated information from that presented in the EIS.

3.2.1 Assumptions

The following assumptions were applied to the Roma Underground Gas Storage Area:

3 Project Description Changes

- These sites will be required for approximately four years;
- A workforce of 50 to 170 workers is anticipated;
- The split between imported and locally sourced workers is the same for the rest of the CSG field at 90:10;
- Imported workers will be accommodated in TAFs; and
- Local workers will be able to commute daily to/from the work site/s, with locals being defined as residing within approximately 100 km of the fields.

3.2.2 Description

Gas recovered during the CSG field development phase and prior to the LNG facility becoming operational will be collected and delivered to existing gas reservoirs around Roma. When the LNG facility becomes operational, gas will be withdrawn from these facilities and delivered to the LNG facility via the gas transmission pipeline. This will involve the construction of injection and withdrawal facilities at the existing reservoir locations and the installation of gas gathering lines.

This component of the project is only required while the LNG facility and gas transmission pipeline are being constructed and any workforce requirements for this operational beyond 2013 will be minimal.

Table 3-2 Roma Underground Gas Storage Area Workforce Requirements

Area	2010	2011	2012	2013	2014
Roma Underground Gas Storage	60	170	100	50	0

Source: Santos

Santos anticipates the majority of this workforce could be secured through local contractors. The Roma Underground Gas Storage Area workforce has been added to the CSG field total for assessment under the revised accommodation scenario (refer Section 3.3 and Table 3.2).

3.3 Imported Workforce Migration Scenario

The imported workforce migration scenario (migration scenario) is only indicative of information from the current Santos operations in the Roma area including the Fairview TAF east of Injune. The GLNG Project population influx prediction has been based on a conservative estimate of the number of workers who relocated from current operations projected on the GLNG workforce.

This population scenario has been assessed without differentiation as to which project component the worker came from. Differentiation of worker by component was not seen as an important factor in assessing impacts (see Section 6).

3.3.1 Assumptions

The following assumptions were applied to the migration scenario:

- The workforce numbers for the CSG field are the same as the EIS SIA;
- The Roma Logistics Hub and Roma Underground Gas Storage Area workforce will be an addition to the CSG field workforce numbers stated in the EIS SIA;
- 2 % of the imported workers move to the area in the first year; and
- 1 % of the imported workers move to the area each year up to year five.

3 Project Description Changes

The migration assumptions are based on the experience of the Fairview operation.

3.3.2 Description

The migration assumptions are inclusive of the Roma Logistics Hub requirements and the Roma Underground Gas Storage Area requirements as well as the CSG field workforce in the Roma area. Although the Roma Logistics Hub and Underground Gas Storage Area options provide additional workforce details, the overall accommodation strategy for imported workers has not changed.

The accommodation scenario is based on additional information available from the Fairview TAFs currently operational east of Injune as well as information on the operations of other TAFs in the CSG field area operated by Santos. These TAFs experienced a 1.7 % migration rate in the first year and 0.0% after year one. Table 3-3 highlights the CSG field workforce numbers from the EIS SIA with the updated workforce details.

Table 3-3 Revised Total CSG Field Study Area Workforce Numbers 2010 to 2034

Area	2010	2011	2012	2013	2014	2019	2024	2029	2034
Construction									
Compressor Construction	20	50	60	20	15	0	0	0	0
Drilling	266	180	200	80	130	153	153	153	153
General Field Construction	500	700	700	700	600	31	31	31	31
Operations									
Roma Centre	29	39	45	53	57	59	60	62	62
Roma CSG field	62	123	185	245	245	252	260	266	270
Fairview CSG field	137	198	258	320	320	335	344	339	339
Arcadia Valley CSG field	20	27	19	62	62	82	99	99	99
Roma Logistics Hub									
Roma	70	70	70	70	70	20	20	20	20
Roma Underground Gas Storage Area									
Roma	60	170	100	50	0	0	0	0	0
Total	1,164	1,557	1,637	1,600	1,499	932	967	970	974

Source: Santos

Table 3-4 shows the values calculated to determine how many people can be expected to relocate to the area under this scenario. A description of how the numbers in the table were calculated is provided in the notes below.

3 Project Description Changes

Table 3-4 Estimate of Migration Based on Accommodation Scenario of 2% in Year 1 and 1% each Year up to Year 5.

Area	2010	2011	2012	2013	2014
Total Workforce	1,164	1,557	1,637	1,600	1,499
Imported Workforce	896	1,151	1,203	1,120	1,048
Adjusted Imported Workforce	896	1,133	1,173	1,079	996
Total Estimated Workforce Relocated	18	11	12	11	10

Note: Total is calculated from information presented in Table 3-3. Imported workforce numbers were calculated from the SIA assumptions of 90:10 imported to locally sourced workers for construction and 50:50 for operations. New project description additions were calculated as operations. Adjusted "Imported Workforce" numbers were calculated by taking the total estimated workforce relocated from the previous years from the Imported Workforce total as these workers were classed as local, which would decrease the imported worker requirement. It was assumed all workers who relocated to the area would remain employed with the project at least up to 2014. "Total Estimated Workforce Relocated" was calculated by multiplying the 2010 "Adjusted Imported Workers" by 2 % and the remaining years by 1 % as per the scenario. Numbers were rounded off to whole numbers, indicating one person.

Source: Santos

The following worker family status breakdown was applied to determine what an imported workforce of this size could look like in terms of population increases. The number in brackets is the multiplier to determine total population increases:

- Single 17 % (1.0);
- Couple 56 % (2.0); and
- Family 26 % (2.6).

These ratios were derived from a DIP report for the Gladstone Pacific Nickel project and applied to the GLNG project in the absence of an alternative analysis.

Table 3-5 shows the breakdown of the imported workers estimated to be migrating to the area by family status. The family status was calculated as follows, using the 2010 single worker as an example: $18 \times 17\% = 3.1$, which rounds to 3. The sum of the workers (single worker, couple worker and family worker) equates to the "Total Estimated Workforce Relocated" in Table 3-4. Totals were calculated by multiplying the family status worker by their corresponding multiplier presented in the previous bullet list. The grand total indicates the total number of people anticipated to relocate each year due to worker migration associated with the project.

Table 3-5 Family Status Breakdown for Estimated Imported Worker Migration Scenario

Family Status	2010	2011	2012	2013	2014
Single Worker	3	2	2	2	2
Couple Worker	10	6	7	6	6
Family Worker	5	3	3	3	3
Single Total	3	2	2	2	2
Couple Total	20	13	13	12	11
Family Total	12	8	8	7	7
Grand Total	35	22	23	21	20

Note: Values were rounded to the nearest whole number which resulted in rounding errors and some values not adding up to the total. The total was calculated by adding the unrounded values and then rounding the total to the nearest whole number. Therefore some values that should only be even numbers were calculated as odd numbers due to rounding.

Source: Santos

3 Project Description Changes

Table 3-6 highlights the anticipated number of children who could accompany the family status imported workers migrating to the area. This is not cumulative from the previous year. There is anticipated to be 11 children moving to the area over the first five years of the project. For the purposes of the scenario it is assumed all children will be of school age.

Table 3-6 Estimated Number of Children Accompanying Family Status Workers per Year

Area	2010	2011	2012	2013	2014
Number of Children	3	2	2	2	2

Source: Santos

3.3.3 Accommodation

Baseline data on the real estate and rental markets in Roma indicate there are housing options available for the project should Roma accommodation be required. There are over 200 houses listed in the Roma area as 'for sale' and 20 rental properties (Realestate.com.au, October 2009). The current strategy is to accommodate the FIFO workforce in TAFs with locally sourced workers also staying in TAFs if their daily commute is determined to be too far for safety considerations.

The migration scenario identified the following housing requirements in Roma, as detailed in Table 3-7. The number of houses required under this scenario can be readily accommodated by the local real estate market. There is no indication that additional housing approvals would be required, although some workers may prefer to build their own home. This is a matter of personal preference and is not assessed further though the baseline data indicated new dwelling approvals in the area could also accommodate the potential demand (see Table 4.4 in Section 4.2).

Table 3-7 Roma Housing Requirements from Workforce Migration Scenario

	2010	2011	2012	2013	2014
Number of Houses	18	11	12	11	11

Note: Numbers based on each worker requiring separate accommodation. Housing types range from single bedroom to multi-bedroom houses. Housing type is at the discretion of the worker.

Update to Baseline

The baseline information presented in the EIS SIA (EIS Appendix Z) was used in this assessment report, with updates incorporated as appropriate.

4.1 Community Demographics and Profile

This section examines in more detail the key aspects of Roma that define it as a community. The baseline data collected for the EIS SIA was used throughout this report with additional information added that was not available at the time of the SIA submission. For the SIA baseline data refer to EIS Appendix Z.

Population projections have been updated from the Planning Information and Forecasting Unit (PIFU) since the SIA was submitted. The preliminary estimated resident population of Roma Regional Council (now Maranoa Regional Council) at 30 June 2008 was 13,145 people, an increase of 25 people or 0.2 % over the year. This compares with an increase of 50 people or 0.4 % in the year to June 2007 (PIFU, 2009). Table 4-1 highlights the population trends in the council area since 2001.

Table 4-1 Maranoa Regional Council Population Trends 2001 to 2008

Year at June 30	Estimated Resident Population
2001	12,610
2002	12,666
2003	12,751
2004	12,806
2005	12,896
2006	13,070
2007r	13,120
2008p	13,145

Note: p = preliminary r = revised

Source: PIFU 2009

In the year to June 2007 natural increase (births minus deaths) accounted for an increase of 98 people while assumed net migration resulted in a loss of 48 people (PIFU, 2009). This is indicative of the area, where population growth is primarily attributed to natural increases while assumed net migration tends to be negative as seen in Table 4-2. 2006 experienced both a high natural increase level for the area as well as positive net migration, resulting in 174 additional people to the area.

4 Update to Baseline

Table 4-2 Maranoa Regional Council Annual Population Change 2002 to 2008

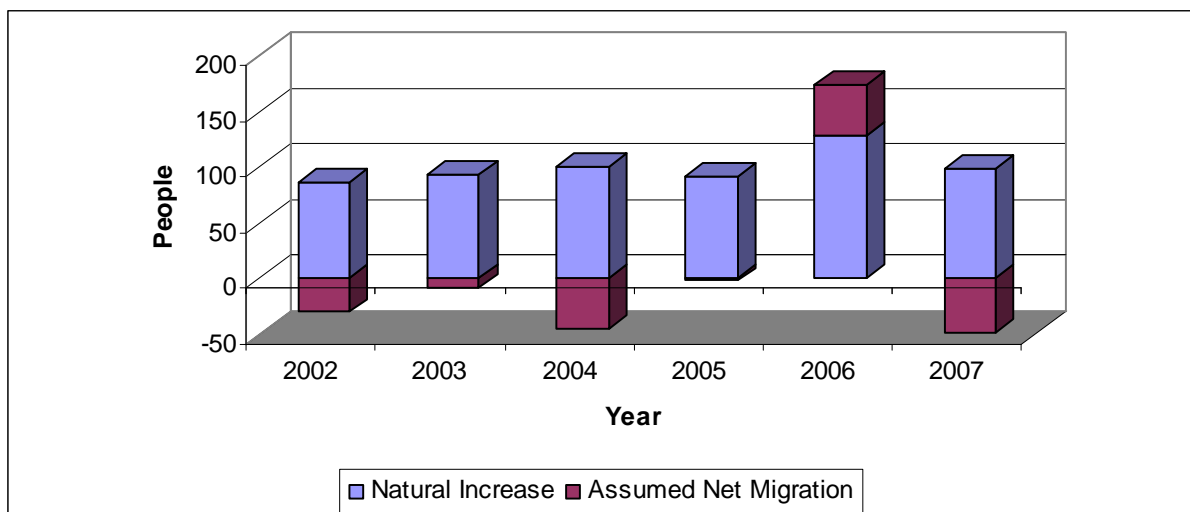
Year to June 30	Natural Increase	Assumed Net Migration	Annual Change	
			Total	Percent
2002	86	-30	56	0.4 %
2003	93	-8	85	0.7 %
2004	100	-45	55	0.4 %
2005	92	-2	90	0.7 %
2006	128	46	174	1.3 %
2007	98	-48	50	0.4 %
2008	n.a.	n.a.	25	0.2 %

Source: PIFU 2009

The annual percentage change is modest due mainly to the negative assumed net migration. This annual decrease in residents counters many of the population gains from the natural increase and is indicative of the difficulty in attracting and retaining workers in the area, as identified throughout the EIS SIA consultation. The majority of stakeholders interviewed identified sustainable population increases and retention of workers in all industries as a key objective for the community. Interviews with key stakeholders for the EIS SIA indicated that variations in the annual assumed net migration were largely attributable to contract expirations and renewals for large employers like education, health and state and local government. It is often a case where several contracts will conclude at the same time, resulting in an increase in the negative assumed net migration rate from the previous year. Several new contracts being signed in the same year may have contributed to the 2006 positive value for assumed net migration.

Figure 4-1 highlights how population changes have occurred in the area over time. Years where natural increase (the blue) were above assumed net migration (the purple) indicate a decrease in assumed net migration, making 2006 the only year over the past seven to experience positive assumed net migration.

Figure 4-1 Maranoa Regional Council Components of Population Change 2002 to 2007



Source: PIFU 2009

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Projections prepared by PIFU indicate that by 2016 the expected population of Maranoa Regional Council will be between 13,390 and 14,600 people. By 2031, this is expected to change to between 13,740 and 16,530 people (low and high series) (PIFU, 2009). Table 4-3 highlights the population projections every five years from 2011 to 2031.

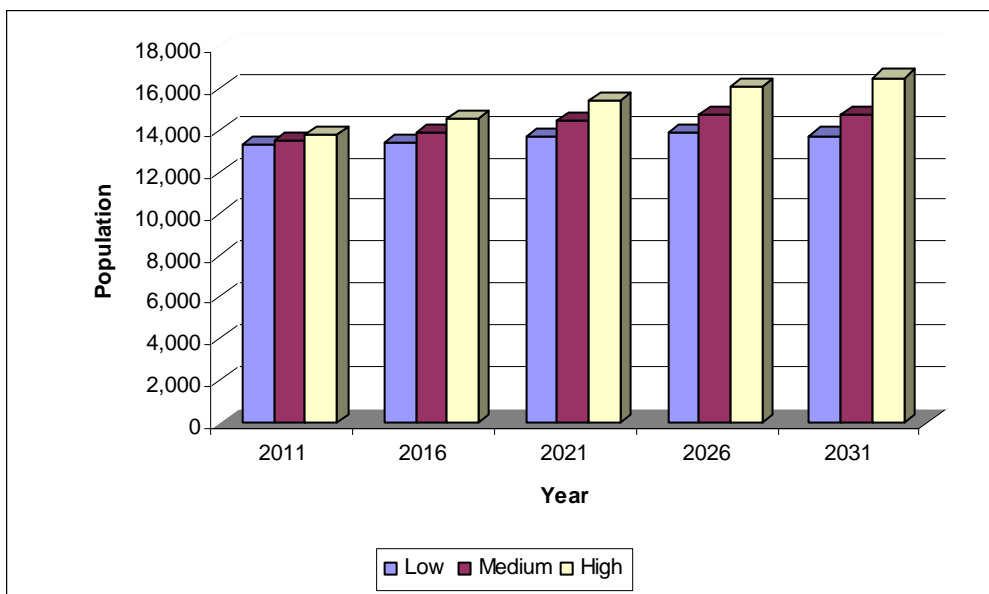
Table 4-3 Maranoa Regional Council Five Year Population Projections 2011 to 2031

Year	Projected Population		
	Low	Medium	High
2011	13,309	13,521	13,808
2016	13,390	13,918	14,594
2021	13,718	14,438	15,457
2026	13,851	14,714	16,076
2031	13,741	14,791	16,521

Source: PIFU 2009

Figure 4-2 illustrates the population projections for Maranoa Regional Council every five years from 2011 to 2031. All projections show continued modest growth in the region.

Figure 4-2 Maranoa Regional Council Population Projections 2011 to 2031



Source: PIFU 2009

4.1.1 Community Profile

Santos received a number of public submissions outlining local concerns for the preservation and maintenance of the rural lifestyle. The primary issues raised by local community members included:

- Dust – both in respect to its proper management and its effect on cattle grazing;
- Road Safety – from the perspective of increased heavy vehicles using the public road networks;

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- Personal Security – in terms of where the TAFs would be located and how workers would be managed. In addition, concerns were raised in relation to the increased use of non project related vehicles on access tracks created by resource companies. This is alleged to cause an increase in petty theft from landholder properties;
- Water Management – in regard to its responsible reuse and the effect of its extraction on groundwater aquifers;
- Noise and light – both in respect of the proximity of permanent and non-permanent infrastructure (such as compressor stations) to private dwellings and the effect on cattle grazing habits; and
- Compensation – concerns were raised with respect to the potential for diminution of land values as a result of increased petroleum activity in the region. Some landholders were concerned that the amount of compensation currently offered was not sufficient to cover the impact of the disruption to their lifestyle and the stresses associated in dealing with large resource companies.

Many of these issues will require ongoing attention and discussion with the community. To ensure Santos is conducting its business activities in a socially responsible manner, Santos will continue to proactively communicate with relevant stakeholders on these matters.

In relation to the effects of dust, light and noise on cattle, Santos has secured the services of an independent rural consultant with over 40 years experience in the cattle industry in Queensland and the Northern Territory. Santos explored the option of undertaking a generic study on this issue; however it was advised that such a study would not yield valid results based on the variability of so many factors such as land area, topography, soil type, wind speed etc. On this basis, Santos made a public commitment that it would fund the investigation of such effects for any landholder that is able to demonstrate productivity losses on whose land Santos is operating.

4.2 Accommodation

Updated dwelling approval information from PIFU is presented in Table 4-4 for the last four quarters (PIFU, 2009).

Table 4-4 New Dwelling Activity in Maranoa Regional Council for Previous Four Quarters

Quarter	New Dwelling Approvals		
	Houses	Other	Total
September Quarter 2008	10	0	10
December Quarter 2008	6	0	6
March Quarter 2009	14	1	15
June Quarter 2009	6	0	6

Source: PIFU 2009

Dwelling approval activity decreased in Maranoa Regional Council in the year ending June 2009 with 37 approvals, 97.3 % of them for separate houses. Compared to 43 approvals in the previous year, these figures represent a decrease of 14.0 % in dwelling activity (PIFU, 2009). Table 4-5 highlights new dwelling activity from June 2003 to June 2009.

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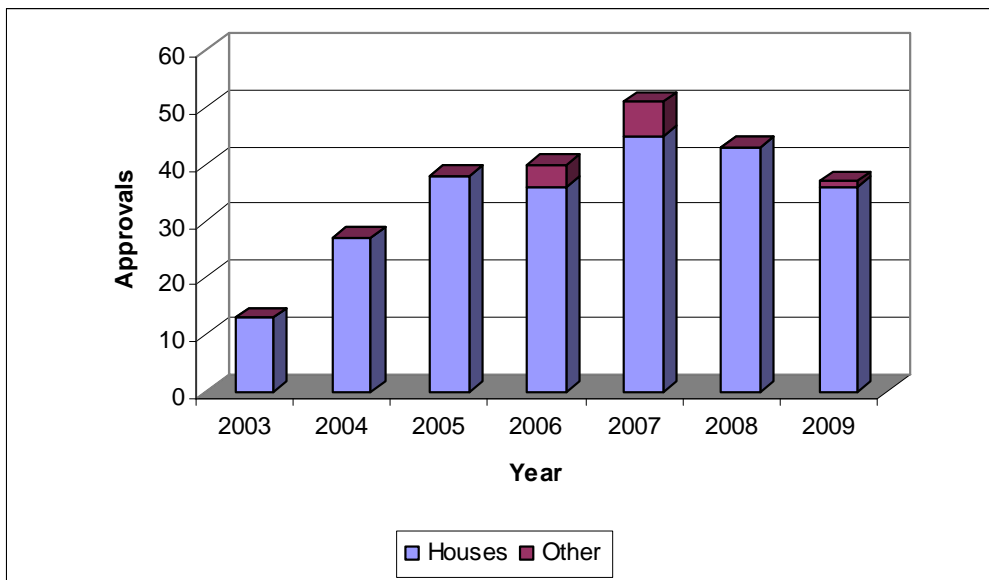
Table 4-5 New Dwelling Activity in Maranoa Regional Council from June 2003 to June 2009

Year to June	New Dwelling Approvals		
	Houses	Other (non-house)	Total
2003	13	0	13
2004	27	0	27
2005	38	0	38
2006	36	4	40
2007	45	6	51
2008	43	0	43
2009	36	1	37

Source: PIFU 2009

Figure 4-3 graphically illustrates the trends in approvals in the region from 2003 to 2009. There was a steady increasing trend from 2003 to 2005 before a plateau to 2006. 2007 experienced another increase before dropping back in 2008 and again in 2009. 2006 and 2007 experienced a growth in non-housing approvals with all other years except 2009 seeing only house approvals. 2009 had one non-house approval. This is an accurate reflection of the area which is characterised by predominantly separate houses, typical of rural inland Queensland communities.

Figure 4-3 Maranoa Regional Council Dwelling Approvals 2003 to 2009



Source: PIFU 2009

A search of Realestate.com.au on October 20, 2009 found over 200 houses listed for sale in the Roma area, ranging from \$170,000 to \$950,000 depending largely on lot size. 110 homes were listed between \$250,000 and \$350,000. There were also 20 houses for rent ranging from \$190 to \$550 per week (Realestate.com, 2009).

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4.2.1 Temporary Accommodation Facilities

Additional information is available on the likely TAF facilities. The TAFs will all be self contained facilities. The following is a list of features common in TAFs:

- Air-conditioned dining hall;
- Recreation room;
- Gym;
- Internet room / Email;
- Public telephone;
- Rooms comprising air-conditioning / heater, ensuite, television, refrigerator;
- Public amenities: male and female shower and toilets;
- Paramedic access;
- Barbeque facilities;
- Medivac facilities; and
- TAF store dispensing personal items.

4.2.2 Moranbah MAC Camp Comparison Study

Comments received from Maranoa Regional Council indicated that locating TAFs within existing community boundaries was a preferred option. In order to assess this scenario, a study of a similar situation was required. A study of MAC camp interaction with local communities was undertaken in the Moranbah area in 2008 by URS. *Ad hoc* research on MAC camps in the Moranbah area identified mainly perceived social impacts from some members of the community and community organisations; however local police (pers. comm., Moranbah Police, 2008) and MAC camp managers (pers. comm., MAC Camp Moranbah, 2008) (pers. comm., MAC camp Coppabella, 2008) found the level of impact on the community to be minimal and generally positive. Camps with alcohol licenses tended to have lower levels of interaction with the community; however, it is important to differentiate between Moranbah and Roma as identified in Table 4-6. In accordance with the social management plan being developed, Santos will carefully monitor the impacts of TAF locations on the local community.

Table 4-6 General Comparison between the Communities of Moranbah and Roma

Criteria	Moranbah	Roma
Large FIFO workforce	✓	✗
Large male transient workforce compared to local and transient female population	✓	✗
Numerous mining projects in the immediate area	✓	✗
Purpose built mining community	✓	✗
Long history of extractive industry in the area	✓	✓
Rural Queensland community	✓	✓
Difficulty attracting and retaining workers and families	✓	✓
High cost of living	✓	✗

Source: URS Research in both communities 2008.

Overall, the inclusion of MAC camps in the Moranbah area has created mixed responses. The camps are an indication of the current labour market and the reluctance of many workers to relocate to rural areas. Although most companies in the area would prefer to have sufficient, locally sourced workers

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for their project, the reality is imported workers are a necessity to satisfy workforce demand. Worker supply, other project demand, and competition create the scenario where FIFO/DIDO workforce options are required to meet project workforce demand. For communities like Moranbah and Roma wishing to attract and retain skilled people, focus should be on developing programs and incentives to entice TAF accommodated workers to relocate to the area.

4.3 Social Infrastructure

This section examines the social infrastructure updates not included in the EIS SIA. The SIA (EIS Appendix Z) conducted a survey of social infrastructure in the study area (Section 5 and Appendix B of the SIA). Social infrastructure is generally attributed to 'built' community facilities; however, it can also include services provided for the community. These include schools, churches, hospitals, libraries, sports and recreational facilities, police, fire, ambulance and other emergency services. Transportation was assessed in the Traffic and Transport study in the EIS Appendix J. Social services were included in Section 4 and Section 5 of the SIA including health services, multicultural services, housing and counselling services, child care, education and training. In addition, clubs and teams as well as other various community groups and organisations make up part of the social infrastructure.

4.3.1 Maranoa – Balonne Regional Plan

The *Maranoa-Balonne Regional Plan 2009* (the Plan) was released on 22 September 2009 under the provisions of the *Integrated Planning Act 1997* (IPA).

The Plan recognises the region's significant reserves of coal seam gas, conventional gas and recognises that managing the growth associated with the development of these energy resources provides opportunities and challenges for the people who live and work in the region. Although the traditional strengths of the regional economy have been based on primary production, the Plan highlights the "pivotal role" that the energy (gas) reserves play in assisting Queensland to achieve its clean electricity generation targets. In addition to helping the State to achieve these targets, Santos presence within the region has contributed to a range of community events and experiences such as:

- Stock Up for Hope;
- Q150 – Queensland's 150th Celebrations;
- The Roma Show;
- Santos Food and Fire Festival; and
- Injune Bowls Club.

The GLNG Project aims to increase that presence and provide long term benefits for residents, businesses and industry within the region.

4.3.2 Roma Airport

This section will examine the baseline of the current airport. The project's potential impacts on the Roma Airport and proposed monitoring and mitigation strategies to address these potential impacts have been assessed in Section 6 of this report.

The Roma Airport is a small rural airport typical of country Queensland. It includes two runways, one of which is asphalt sealed (1,504 m) and one grassed (801 m). The length of the asphalt runway enables the airport to accommodate 200 and 300 Dash 8 series' aircraft operated by Qantas Link (50

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passenger capacity). Qantas currently has 21 Bombardier Dash 8 aircraft in its fleet and 12 Bombardier Q400 aircraft, which is a variant of the Dash 8 series.

There are two commercial (Qantas) domestic services from Brisbane. These form part of the Qantas Link service from Brisbane to Charleville (and return), and operate daily except Wednesdays (three services) and Saturdays (one service) (Qantas, 2009). The third service on Wednesday accommodates the shift rotation for the Fairview, Roma and Wallumbilla operations. Roma airport also accommodates private aircraft (pers. comm., Roma Airport Reporting Agent, 2009).

The existing airport terminal includes:

- A small waiting area inside the terminal with a seating capacity of 28;
- Men's and women's toilets;
- Check-in counter; and
- Rental vehicle counter/desk.

The baggage claim area is located outside the terminal. The aircraft baggage cart unloads at the front of the terminal in the public access area and passengers retrieve their luggage directly from the cart (pers. comm., Roma Airport Reporting Agent, 2009) (*Ad hoc* research, 2008).

In the last 12 months, Santos passenger movements totalled approximately 3,344. This equated to approximately 5 % of the total seats available for flights to and from Brisbane to Roma.

Case Study - Fairview Operations

5.1 Background

There are currently two Santos operational TAFs in the Fairview area, plus onsite drilling rigs and associated rig accommodation. Workforce numbers have fluctuated over the last 12 months (from 60 to 140) depending on the activities and project requirements. At the time of writing this report there were approximately 70 workers in the two TAFs at Fairview. Of these, there were 12 workers who would be considered local hires from the study area, as defined in the EIS SIA. All workers are accommodated in TAFs during their onsite work rotation since none live within a reasonable daily-commutable distance. This distance would be determined on a case-by-case basis, taking into account the safety issues (e.g. fatigue) associated with daily commuting to/from the work site.

There are also several contractors who have been sourced locally, although the exact number is not known.

Table 5-1 highlights the assessment of the Fairview operation on the community. This assessment was conducted using a combination of desktop research and consultation with key staff directly involved with the Fairview operation.

Table 5-1 Assessment of Fairview, Roma and Wallumbilla Operations on the Local Community

Impact	Level of Impact	Description
Accommodation	Low	Fairview employees are housed in a TAF. One imported worker moved to the area. This did not result in a significant impact on the local housing market. Roma and Wallumbilla workers are all local.
Skills Availability and Local Business Staffing	Low	There are 12 workers locally sourced plus some of the contractors. All positions were advertised locally and hiring preference was given to qualified locals.
Community Health and Wellbeing	Low	There are no reports of impacts on community health and wellbeing. There were no incidents in the community by TAF accommodated workers that resulted in police intervention. There were no major incidences and no worker contracts were terminated as a result.
Health and Emergency Services	Low	External health and emergency services were utilised by the operations less than five times over the last year (2009).
Education and Training Opportunities	Low	There were no increases in the number of children enrolled in local schools as a result of the operation. No new training opportunities were created for the projects.
Economic and Employment Opportunities	Low	There are 12 workers locally sourced. A number of local businesses provide services for the operation.
Social Infrastructure	Low	Fairview TAF accommodated workers do not use local social infrastructure while on their work rotation. The Roma and Wallumbilla workforces are sourced locally and employment has not increased their use of those services.

Source: Santos

The communities in the area experience very low impacts from the current Santos operations as can be seen from the assessment in Table 5-1. The majority of impacts would be viewed as positive in the form of increased economic (business) and employment opportunity in the area. Low level negative impacts include traffic movements including noise and dust. There is limited use of local social infrastructure and health and emergency services.

5 Case Study - Fairview Operations

5.2 Fairview Area Workforce

Fairview was assessed in more detail because of the information available at the time for the two operational TAFs, and their relation as a proxy for the anticipated TAF requirements for the GLNG CSG field development. As discussed, all Fairview workers are accommodated in one of two TAFs while drillers are generally accommodated in their own units at the work site (which is common practice). There are 12 individuals who would be considered locally sourced, in that they reside within the CSG field area; however none live within a reasonable daily-commutable distance of the work sites. As a result there is little to no routine interaction between the workforce and the local community with the social infrastructure, health and wellbeing of both groups remaining relatively independent.

Santos has established an internal system for tracking and responding to safety incidents in the CSG field. Of the 131 incidents reported at the Fairview site, five required the use of the local area medical services in 2009. There were no incidents that required police intervention. This information reflects the low level of social impact on the area communities and services associated with the Fairview operation, including the two TAFs. This also reflects the safety systems, policies and procedures Santos implements on project sites for the safety of their workers, contractors and the general public.

The impacts on local health and emergency services have been low to-date, but there are indications that an increase in demand associated with the project could increase the impact on these services.

The Injune ambulance service has not required an increase in staff to compensate for the Fairview operation and there is no indication of an increase in the strategic planning of the Queensland Ambulance Service (QAS). The current support service is sufficient in the short term (pers. comm., R. Cook, 2009); however any increase in Santos activities (and associated increase in personnel numbers) could place a strain on the local service.

5.3 Fairview Workforce Logistics

The predominant workforce type at Fairview is FIFO. Workers are required to reside in the TAF while on roster. The roster is two weeks on and two weeks off. Roster changes occur predominately on a Wednesday. Workers fly in to Roma airport where they are transported by a 4WD vehicle (approximately 90 minutes) to the workforce accommodation facility. There are between four and six vehicle movements involved in each shift changeover.

Santo requires that each vehicle contain an in-vehicle monitoring system (IVMS) which records driver behaviour and reports any instance of excessive speed and abnormal vehicle operation. The use of this system also provides public safety benefits to other road users by significantly reducing unsafe driving practices.

Prior to entering a workforce accommodation facility, all workers and visitors must have successfully completed the relevant Environment Health & Safety (EH&S) standards training. When on a workforce accommodation facility, workers are required to adhere to a code of conduct. No alcohol is permitted to be consumed while on shift and a 0 level blood alcohol tolerance is strictly enforced. Meals and recreational facilities (such as a gym and tennis court) are provided to enhance worker comfort.

Updated Impact Assessment

This assessment examines the social impacts over the first five years of the project in more detail, given the changes to project description and updated information from existing operations in the study area. The focus is on the community of Roma as the regional centre for the area and the central location for Santo field activities.

Santos targets local employment as part of its suite of recruitment strategies. However, the low unemployment rate in the study area (especially around Roma town) and the current Santos experience with operating projects in the area indicate that the majority of workers would need to be imported. Additionally, experience indicates that this workforce prefers the fly-in, fly-out (FIFO) model to relocation in the area. As a result, Santos has designed the project to consist of TAFs as is the general practice for such operations. The EIS SIA reflected this strategy in its assessment of the potential social impacts on the community, including a conservative estimate of 10 % locally sourced workers for construction and 50 % for operations in order to assess the impacts of a relatively large local contingent of workers in an area with very low unemployment (<2 %). This report has maintained the anticipated requirement to accommodate the imported workforce in TAFs.

The impact assessment examines the project description changes and the updated migration scenario. This was conducted by adding the two new project components to the existing workforce estimates presented in the EIS SIA and determining the imported workforce requirements. As discussed, population increase generated by the project assumed that 2 % of the imported workforce would migrate to the area after year one and 1 % would migrate each year after, up to year five. This assumption is based on the experience of the Fairview operation and is considered to be indicative of migration patterns to the area. This migration scenario was then assessed to determine the related social impacts. The objective was to obtain sufficient data to address the concerns of stakeholders that suggested Santos should consider a mix of accommodation options that includes placement in existing communities, primarily Roma.

6.1 Demographics and Community Profile

Roma experienced an annual percentage population change of 0.6 % over the past recorded 7 year trend (PIFU, 2009) (see Table 4-1 for more information on the baseline conditions). This increase is entirely attributable to natural increase (births over deaths) for six of the seven years, with 2006 being the only year where both natural increase and assumed net migration were positive. This essentially doubled the average annual change for that year indicating that negative net migration in the other years reduced the annual increase totals. This is a reflection of the difficulty of attracting and retaining workers to fill available positions in the community, as described in the EIS SIA in detail from the site assessment and interviews with key stakeholders. In addition, an existing low level of unemployment (<2 %) results in an area with a high level of economic and employment opportunity with a demand for appropriately skilled workers. This has been experienced by State and local government agencies, social service providers, health care, small businesses, chain store owners and oil & gas operations in the area, including current Santos operations.

6.1.1 TAF Workforce

As discussed in the EIS SIA, the majority of the workforce will be housed in TAFs throughout the CSG field as it is developed. The location of TAFs will depend on the areas being developed, which in turn will be based on the productivity of the wells drilled and the fixed location of hard infrastructure. Fairview operations experience found that all workers (local and imported) were required to be housed

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in the TAFs for the duration of their work rotation, due to long commuting distances from communities; however, in the Roma and Wallumbilla areas local workers were able to commute daily due to shorter commuting distances. This is assessed on a case-by-case basis depending on the worksite location and distance required to travel. As a result, workers in the Fairview area are almost completely isolated from the community of Injune, with very little interaction and impact. Although the workers have little interaction with the community, they are present in the area, which means their welfare is within the jurisdiction of local emergency service providers (see Section 6.3 for more details on the impact on local health and emergency services).

The GLNG Project TAF accommodated workforce, when located away from population centres like the Fairview TAFs, is not anticipated to have an impact (positive or negative) on the community. The GLNG Project has indicated that TAFs will be required throughout the CSG field area. Comments from Maranoa Regional Council indicated that locating these TAFs close to or within existing community boundaries was a preferred option. Therefore, this report also assessed similar experiences in the Moranbah area (see Section 4.2.2) in order to anticipate potential impacts if a TAF is located close to Roma.

In order to assess the impacts of this scenario, experiences from the Moranbah area specifically dealing with MAC camps and their interaction with the community were used as analogous of this scenario for Roma. Interviews with two MAC camp managers in the area (Moranbah and Coppabella), Moranbah Police Service, and local social service providers found the following:

- Low level of social interaction between the community and workforce;
- Low level of workforce related incidences reported to police;
- Limited indication by police of negative interactions or tensions between community and workforce;
- Public drunkenness and disturbances by workers was limited when the workforce accommodation facility had a liquor license;
- Social service organisations identified perceptions by resident female population of concern for safety;
- Isolated events of violence towards women or allegations of incidences of violence towards women in workforce accommodation facilities or by workforce accommodation facility accommodated workers easily became amplified or subject to rumours and hearsay in the community; and
- Area businesses received limited financial gain from workforce accommodation facility workers making local purchases.

As previously stated when describing Table 4-6, it is important to understand the difference between the two communities; however, the comparison is still relevant. The research indicated three key themes to enhancing the relationship between workforce accommodation facility accommodated workers and the resident population:

- Encouraging increased social interaction;
- Differentiating perceptions from reality; and
- Promoting local businesses.

Workers who feel they are a part of the community tend to become less isolated from the population. Interviews during the EIS SIA phase indicated that one of the major concerns with the FIFO workforce was that they just passed through town on their way to and from the airport. There was a desire to have a higher level of interaction in the community. Events encouraging participation by both groups

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to promote higher social interaction and understanding could be organised. This could help address all three themes and may even encourage some workers to relocate to the area.

Interviews conducted for the EIS SIA with key stakeholders indicated that many externally sourced workers in Roma found it difficult to feel part of the community and establish relationships. This was identified as a major contributor to the difficulty in retaining workers. Developing and nurturing a positive relationship between the imported workforce and the resident population can produce widespread positive impacts in the community.

The *Maranoa – Balonne Regional Plan (2009)* recognises that managing the growth associated from the development of these energy resources provides opportunities and challenges for the people who live and work in the region. Although the traditional strengths of the regional economy were based on primary production, the Plan highlights the "pivotal role" that the energy (gas) reserves play in assisting Queensland to achieve their clean electricity generation targets. This is both a reflection of the history of the oil industry in the Roma area and the emerging CSG industry. Although the project does not anticipate high levels of population growth due to the accommodation strategy, there are opportunities to enhance the community through various initiatives. Santos is already an active member in the community through event sponsorships and intends to maintain that community spirit throughout the project.

6.1.2 Workforce Migration Scenario

Section 3.3 presents the methodology and rationale for a potential workforce migration scenario based on the experiences at the Fairview TAFs. This scenario indicated that in 2010, Roma could experience 18 workers relocating to the area bringing 17 dependants, including three children. The following four years could see between 21 to 23 people moving to the area including two children each year. The totals range from 23-26, including three children each year and 40 people, including five children in 2010. For the purposes of the scenario singles were included.

The estimated population growth associated with GLNG workforce migration is anticipated to be a positive impact on the community for the following reasons:

- Annual increases are within the ranges over the past seven years;
- Sustainable population increases are a desired outcome for all stakeholders interviewed for the EIS SIA;
- The assumed workforce is likely to be similar in composition to the current population; and
- The numbers of people relocating is fairly consistent over the five year timeframe.

This scenario is probable given the Fairview experiences; however, it is not at a level of relocation desired by much of the community. Area promotion and incentives may be required in order to attract more workers to relocate over time.

6.1.3 Summary

The population increase associated with the migration scenario was not anticipated to have a significant impact on the community. The increase would be positive due to the manageable size of less than 35 people to the area in year one. Year's two to five were estimated to see a project related population increase ranging from 20 to 23. By maintaining a TAF system for imported workers the project would reduce the potential positive and negative social impacts on the communities in the area. Data collected on the TAF accommodated workers and the general population found low levels

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of interaction between the two combined with distortions between perceptions and realities. By focussing on managing perceptions and promoting higher levels of interaction, the relationship between the imported workers and the community can be enhanced.

6.2 Accommodation

The majority of the workforce will be housed in TAFs as indicated in the EIS SIA. This is inevitable due to the size of the construction and operational workforce, and the need to accommodate field workers within a reasonable distance to their work area.

TAFs will be used to house imported workers in the CSG field, as is current practice. This method is preferred because it houses the workforce in close proximity to the work site. This provides the following impacts:

- Reduces potential health and safety issues for workers through shorter commutes to and from the work site daily which reduces fatigue;
- Reduces potential health and safety issues for workers and the public by reducing the potential for traffic encounters on public roads;
- Reduces the cost of housing workers farther from the work site and transporting them daily;
- Reduces the potential for negative social interaction between the workers and the general public;
- Reduces the disturbance to the general public;
- Reduces the potential economic opportunities for local businesses from the operation; and
- Maintains the community aesthetic as an agricultural community.

There may be times throughout the project when the work site is within a reasonable distance of locally sourced workers' homes, where daily commutes to and from the site may be permissible. This would need to be considered on a case by case basis.

Santos acknowledges the views of some stakeholders that would prefer a mix of accommodation options that include both TAFs and local accommodation, and/or TAFs situated in existing town areas. This may be the case around Roma; however, due to the size of the CSG field area and the distribution of communities, predominantly along regional highways, this may not always be practical. Santos will liaise with councils and key stakeholders within communities where TAFs are located near by, in order to monitor social impacts.

Interviews with realtors in the area indicated that the Roma housing market was subject to influence by key property owners. The market in Roma had risen in parallel with the Australian housing trend (pers. comm., D. Newman, 2008) (pers. comm., A. Cleland, 2008) but remained high despite supply being higher than demand. This was because subsidised housing allowances by some industries caused housing prices and rental increases due to the large amount of imported workers working in the area on fixed term contracts, primarily in the social services and government sectors (pers. comm., D. Newman, 2008) (pers. comm., A. Cleland, 2008). The project has the potential to result in an increase in the price of houses; however, there is currently a large supply of housing available for sale in Roma, as identified in Section 4.2. The housing market is based on supply and demand, and if a perception that demand is going to increase occurs, prices may rise. However, since the project intends to accommodate imported workers in TAFs, this increase should not be sustained if houses are not selling.

Interviews with area realtors indicated that there are home owners in the area who are not in a position that requires them to sell, which enables them to release houses on the market at higher than

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market value prices without concern. This contributes to the inflated housing costs, and could further perpetuate a perceived increase in demand from the project. If the project modified the accommodation strategy to include use of the Roma housing market, prices could be expected to rise as demand increases.

Since the imported workforce is not generally anticipated to use local housing, a detailed assessment was not completed. The following is a high level assessment of the potential impacts associated with the use of local housing by the project. This also applies to the small population increase identified in the migration scenario. There are potential positive and negative impacts associated with housing a portion of the imported workforce in the Roma area. There is the potential for low to medium impacts as a result of an increase in property value in the area from the increase in housing demand associated with the project. This would create positive impacts if people:

- Own their property;
- Own investment property;
- Have property to sell;
- Are looking to sell their property and move out of the area;
- Work in the home construction industry; or
- Own a home construction business.

These would create negative impacts if people are:

- Renting;
- Looking to buy; or
- Looking to sell their property and upgrade in the area.

People in the lower socioeconomic echelon of society are more susceptible to the negative effects of the cumulative accommodation impacts; however, the increased employment opportunities have some positive effects as well.

6.2.1 Summary

As of October 2009, there were over 200 homes listed as 'for sale' in the Roma area, indicating ample housing supply. The project intends to house the imported workforce in TAFs which will not impact the local housing market. The minor population increases anticipated through the five year migration scenario could easily be absorbed by the local market. Housing prices may increase as a result of the project but this is anticipated to be based on speculation rather than demand since the workforce will be accommodated in TAFs. Market principals should be able to determine that demand will not increase sufficiently to pressure supply and prices should return to normal over time. Should the project use more local housing, then there could be a sustained price increase over time.

6.3 Health and Emergency Services

The project has the potential to impact on area health and emergency services due to the growth in personnel in the region. The impact covers both the real demand and the unforeseen demand. This is seen as a low to medium impact on the community based on the current level of use of community health and emergency services for Santos operations in the area.

Information available from other operating Santos projects in the area found that less than five medical incidents required the use of external medical services over a period of a year. This is based on a

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workforce of 110 (Fairview, Roma and Wallumbilla) in 2009. The GLNG Project is anticipated to require a workforce of approximately 1,200 to 1,650 in the first five years before levelling off at approximately 1,000. This suggests that the project could experience 50 to 70 incidences annually requiring external emergency services, predominantly in the Roma area over the first five years. There is a lack of coordination for a systematic policy for disaster services as identified in the EIS SIA through consultation with the Roma hospital (pers. comm., Roma Hospital, 2008). This indicates that there will be a requirement to coordinate disaster management for the project with local health and emergency services.

The project is anticipated to have a low to medium impact on the health and emergency services due to the direct increase in anticipated demand, as well as the potential for further demand in the case of an emergency. Santos will consider employing an occupational health nurse, as required under the *Code of Practice for First Aid under the Workplace Health and Safety Act 1995 (WHS Act, 1995)*, once the workforce reaches 250.

Santos will consult with State and local service providers to develop plans and strategies for addressing project impacts on local health and emergency services through the social management plan. Understanding the project demands and local capabilities in more detail through the development of the plan will better enable all parties to develop ongoing strategies.

For the Fairview fields, in the short term the current (Injune based) QAS support is sufficient; however, any increase of Santos personnel and activity has the potential to strain the local service (pers. comm., R. Cook, 2009).

6.3.1 Summary

The project may have an impact on local health and emergency services due to the increase in population and the number of workers in the field. This impact is anticipated to be low to medium depending on the volume of incidences and the cumulative effect of routine demand by area residents. Coordination efforts between the project and local service providers will be required to manage project impacts.

6.4 Education and Training Opportunities

This section examines the additional impact on the education and training facilities in Roma associated with the potential migration scenario. The area's schools are not anticipated to experience increases in demand from the project outside the normal annual ranges in enrolment.

As previously discussed, the project anticipates some local workforce hiring through the construction and operational phases. This will require local training and up-skilling programs in order to provide qualified workers for the project (see Section 5.4.1 for Santos initiatives on training). Training programs are assessed as a low positive impact on the community due to the anticipated low levels of local recruitment, based on the small population and low unemployment numbers in the area. Regardless, increasing local skill levels provides a positive outcome. The addition of the Roma Logistics Hub adds warehousing and more administrative and management opportunities to the community which are easily transferable skills to other industries and professions. Gas field training and trades are transferable to other gas field developments projected for the area over the next 30 to 40 years.

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6.4.1 Summary

The potential impact from education and training programs is anticipated to be positive for the area. Santos will build local skills capacity through various education and training programs. There is not anticipated to be a large contingent of local workers available for the project due to low local unemployment and the small population. Education and training programs will increase opportunities for locals and may also help attract people to the area.

6.5 Economic and Employment Opportunities

Economic and employment opportunities have increased since issuing the EIS SIA due to the increase in worker numbers associated with the Roma Logistics Hub, the Roma Underground Gas Storage Area and the updated accommodation scenario. The potential social impacts for economic and employment opportunities revolve around the local hiring and the potential impact on local businesses. The issue of local hiring in the Roma area presents unique challenges due to the very low unemployment rate of less than 2 %, as reported in the 2006 census and corroborated through consultation for the EIS SIA. This indicates that the vast majority of employable individuals are able to acquire employment in the area. It also means that any new employment positions created will likely require someone to vacate a current position (e.g. retire or resign) in order to fill it. This has been a common occurrence in Roma as identified by many business owners and other stakeholders through consultation for the EIS SIA. Table 6-1 provides an assessment over time, and indicates the level of anticipated impact on the local businesses.

Table 6-1 Potential Impact on Local Businesses

Duration	Impact	Impact Level	Description
Short-term (one year)	Positive	Medium	Increases in: Business opportunities catering to the workforce; Economic diversity; Employment opportunities; Population; and Disposable income for some workers.
	Negative	Medium	Increased pressure on local skilled worker demand, potential loss of employees to project.
Medium-term (up to 5 years)	Positive	Medium	Sustained business, employment and economic opportunities.
	Negative	Low	Maintained workforce numbers over time will only have medium level impacts at initial hiring phase in year one.
Long-term (after 5 years)	Positive	Low	Increased availability of local skilled workers from the downsizing of the logistics hub workforce.
	Negative	Low	Declining workforce requirements decrease potential opportunities for the logistics hub but are maintained through other project activities.

It is important to note that the current low level of unemployment in the area is a major factor in the difficulty of securing local workers. If other industries start to experience workforce reductions for whatever reason, the GLNG Project will provide sufficient employment opportunities ranging from field labourers and contractors to administrative assistants and managers. This will provide positive

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employment opportunities in the area throughout the life of the project and may be a factor in attracting people to relocate to the area.

The relocation of some workers and their dependents to the area could have a positive impact on the ability of local businesses and organisations to fill vacant positions. Work opportunities for dependents and partners could provide an additional incentive to relocate to the area to the benefit of the community. Interviews with key stakeholders throughout the EIS SIA indicated the importance of economic and employment opportunities for partners as a major priority in the attraction and retention of workers across all industries in the Roma area. The project could add another layer of industry opportunities to help other businesses retain their workers by employing their partners.

The SIA identified a potential negative impact on local businesses due to the project attracting workers from other businesses. This potential impact remains low based on the numbers of workers on other Santos operations in the area that are imported. The difficulty in employing locally is reflected in the fact that imported workers are required and many of the GLNG employment opportunities will be similar to the jobs currently available but not being filled by locally based people. Interviews throughout the EIS SIA identified the difficulty in filling vacant positions locally by all industries in Roma. As a result, workers are able to switch careers or employers with relative ease, which was also identified through stakeholder interviews. The project may attract some new workers but this is not anticipated to be a significant impact on local businesses. This is anticipated because similar positions are currently available through operating Santos projects in the area and are not being filled by locals, hence the requirement for imported workers.

There is a potential for wage rates to increase in the area due to project labour demand and the need to attract people to the industry. This has both positive and negative implications. The potential positive impacts are increases in local wages and disposable income. This could help attract more people to the area. The potential negative impacts would be experienced by local businesses in the form of lost workers to higher wages with the project. As discussed, workforce mobility is relatively high in the area and this is very likely to continue with the GLNG Project. As discussed, there are currently employment opportunities in the area for similar projects and the difficulty sourcing workers locally has required an imported workforce.

6.5.1 Summary

The project is anticipated to have a positive impact on economic and employment opportunities in the Roma area. Although the project will offer opportunities for employment and local businesses to cater directly to the project as well as indirectly to new residents, there is a small potential for workers to leave current positions to work for the project. The project will generate more opportunities than it will create negative impacts in relation to economic and employment.

6.6 Social Infrastructure

Social infrastructure in the community is not anticipated to experience an increase in use associated with the project for the following reasons:

- Low projected population increase; and
- Imported workers to be housed in fully self-contained TAFs.

The levels of increased use associated with the estimated migration scenario would create low positive impacts, particularly for infrastructure with user fees. Assuming all people migrating to the

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area use all social infrastructure then their combined use would not likely result in unsustainable levels of use. An increase in use anticipated for social infrastructure subject to user fees would also experience low positive impacts from increased revenue.

See Attachment C for road traffic and transportation issues.

6.6.1 Roma Airport

Santos acknowledges that the impact assessment of transporting its proposed FIFO workforce to and from the field is limited to the existing facilities (i.e. the Roma Airport). As discussed in Section 4.3.2, Roma Airport operations include regular commercial services between Brisbane and Roma (and return) as part of the Brisbane to Charleville (and return) service. This service currently operates two flights each day of the week, except Wednesday and Saturday, where there is three and one flight respectively. The Wednesday flight was added to accommodate the workforce changeover for the Fairview, Roma and Wallumbilla operations workforce currently totalling 110. During the project the workforce will peak at around 1,650, which is 15 times more workers than currently working for Santos in the area.

Based on the length of the runway, the airport can only handle the Dash eight aircrafts operated by Qantas, which has a seating capacity of up to 56 passengers. The workforce movement requirements of the project will exceed this capacity. Santos will be investigating a range of options which include the re-development of the existing Roma airport (i.e. lengthening of the runway to accommodate larger aircraft), and/or other airports in the area. Santos will also consult with other project proponents utilising the facility.

6.6.2 Summary

The project is anticipated to have some impacts on social infrastructure. Ongoing Santos contributions to local programs and events will also result in positive impacts. Road traffic and transportation issues are addressed in Attachment C. A management strategy for the Roma Airport will need to be developed in collaboration with the Maranoa Regional Council and other major users as project demand increases due to terminal and runway constraints.

Commitments

Santos is committed to working in partnership with its key stakeholders and the broader community to minimise impacts resulting from the GLNG Project. In addition to the initiatives outlined in the SIA, the following is also committed:

- Santos will establish a Maranoa Regional Community Consultative Committee which will meet periodically to discuss the project's progress and other relevant issues;
- Should a landholder feel that Santos operations have caused a material impact to cattle grazing as a result of excessive dust, Santos will fund the investigation of the issue and provide a written report using a respected expert in the field;
- With respect to the diminution of land value, Santos has concluded a baseline analysis of the issue. Santos will conduct annual assessments of local property markets and continue to liaise with landholders on the matter;
- Santos will continue to support the sponsoring of community events and experiences and will liaise with the Maranoa Regional Council's director of Community Services in relation to community investment opportunities for the region;
- Santos is currently investigating a number of mitigation measures to minimise potential impacts on the Queensland Emergency Services network. Santos is committed to consulting and working closely with the appropriate emergency response organisations to ensure that through cooperation the best possible outcomes are achieved;
- Santos will continue to invest in building the capacity for local employment through apprenticeship and training programs which boost technical competency in the areas of:
 - Safely operating and maintaining systems and equipment to extract CSG gas from wells;
 - Processing gas through separation, compression and dehydration;
 - Storing gas and pipeline transmission; and
 - Maintenance and repairs.
- Santos will continue to liaise with the Maranoa Regional Council in relation to planning for increased use of social infrastructure such as roads, housing and the Roma Airport;
- Santos will investigate a range of options for the provision of air transport capacity including working with Maranoa Regional Council in the re-development of the existing Roma airport and/or other airports in the area;
- Santos will develop a social management plan which will align with the Maranoa-Balonne Regional Plan where possible, in order to maximise community benefits and link the various outcomes and objectives;
- Santos will liaise with the Department of Infrastructure and Planning's Social Impact Unit to feedback information relating to the project's social impacts as the project progresses through to construction and beyond; and
- Santos will consider options to provide a mix of accommodation that predominantly uses TAFs, with some scope for local community placements. This would be in addition to local permanent operational placements which is an existing Santos strategy.

Cumulative Effects

The cumulative effects assessment is based on EIS and Initial Advice Statements (IAS) documents publicly available as of October 2009.

The workforce numbers displayed in Table 8-1 are the peak construction workforce numbers. The workforce numbers were given as a single high peak value, rather than estimating the workforce numbers over the duration of the construction phase as was completed for GLNG. This was the only way to present this data based on the information available from the various project reports.

Table 8-1 Peak Workforces of Projects in the Maranoa Regional Council Area

Project	Document Submitted	Construction Period	Construction Workforce (peak numbers)
Queensland Curtis LNG	EIS	2010 - 2013	4,175
Wandoan Coal Project	EIS	2010 - 2012	1,375
Spring Gully Power Station	EIS	Late 2006 for 28 months	400
Surat Basin Rail	EIS	2009 - 2012	1,000
Australia Pacific LNG Project	IAS	2009 - 2014	4,000 - 5,000
Nathan Dam	IAS	2012 - 2014	200

Source: EIS and IAS collected from proponent websites or Queensland Coordinator-General website.

An indicative cumulative effects assessment was undertaken assuming several large-scale industrial construction projects occurring in the community at the same time. Project effects would be experienced over a longer period of time than the GLNG Project alone as a result of the impacts by other projects. This is due to the numbers of projects and the potential time frames for development, which would result in a longer cumulative timeframe for construction and operations activities. Therefore, activities of other projects at the same time result in an increased potential for an impact to have the following:

- Occurrence/Likelihood – Higher probability of the impact to occur;
- Magnitude/Consequence – Greater effect from the impact;
- Duration – Longer timeframe for the impact to occur; and
- Degree of Confidence – Decreased confidence in the ability to predict and mitigate the impact.

The purpose of the cumulative effects assessment is to identify the issues arising from other projects constructing at the same time as GLNG and present what that might mean. The lack of consistency in the information presented by the various projects limits the cumulative effects assessment to identifying issues and commitments to monitor the changes in consultation with key stakeholders and State and local government agencies as appropriate.

The majority of these projects border the GLNG Project to the east. These projects will result in increased competition for workers, both locally sourced and imported.

Increased demand for workers will have a positive effect on employment opportunities for local residents but it may also create retention issues for existing employers in the region. It is recognised that the limited capacity of the local workforce sector will not meet the cumulative demands from all of the projects proposed for the areas and workers will need to be brought in from outside the region to ensure that project schedules can be met.

Due to the location of the other project fields, population increases in the Roma area from these projects are not anticipated; however, increases in the populations around Wandoan, Dalby, Chinchilla

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and Miles could occur. These impacts have/would be assessed in the various EISs for projects around those areas as the GLNG Project does not anticipate noticeable population increases in those areas associated with this project. For the most part, potential cumulative effects are more on a high level workforce and scheduling level for the CSG field than on a community level impact.

While an increasing population will generate an increased demand for housing and, depending on supply, could apply upward pressure on prices, most of the cumulative demand from the other (non-GLNG) projects will occur in centres to the east of Roma. Hence any cumulative impacts such as increased demand for housing or pressure on real estate prices will be dispersed across the region rather than being concentrated in one or two communities.

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Limitations

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The methodology adopted and sources of information used by URS are outlined in this report. URS has made no independent verification of this information beyond the agreed scope of works and URS assumes no responsibility for any inaccuracies or omissions. No indications were found during our investigations that information contained in this report as provided to URS was false.

This report was prepared between August and October 2009 and is based on the project description changes and updated accommodation scenario by Santos at the time of preparation. URS disclaims responsibility for any changes that may have occurred after this time.

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